

Teacher intentions to implement inclusive practices through the lens of the Universal Design for Learning framework and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour

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Statement of Originality

This is to certify that to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

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No generative AI tools were used as part of the research project or to assist with writing.

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Authorship Attribution Statement

In this thesis, the pre-observation interview, classroom observations and post-observation interview of Teacher 2 (T2) specified in Phase 2 and Phase 3 of the current study were written into a book chapter titled, *Teacher Intentions to Implement Inclusive Practices and Their Actual Teaching Behaviour: A Case Study*. I co-designed the study and wrote the drafts of the book chapter with Professor David Evans. This book chapter has been accepted for publication in the book series, *Inclusive Learning and Educational Equity*.

In addition to the authorship attribution statements above, in cases where I am not the corresponding author of a published item, permission to include the published material has been granted by the corresponding author.

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Researcher Positionality Statement

As the researcher, I acknowledge that my professional background in the field of inclusive education and my interest in inclusive teaching pedagogies may shape the way I interpret teachers' intentions to implement inclusive practices and their actual teaching behaviour. Recognising this positionality, I approached both the interview process and the classroom observations with reflexive awareness, actively monitoring how my assumptions or expectations might influence questioning, observation, and interpretation. Throughout data collection and analysis, I reviewed emerging themes carefully and engaged in ongoing reflexivity to minimise researcher bias and enhance the credibility of the findings.

Abstract

Inclusive education has become an international initiative which aims to enhance quality education for all students with and without disabilities. The Universal Design for Learning (UDL) framework is often promoted as an inclusive pedagogical framework that provides support and flexibility in lesson planning and curriculum development. To develop inclusive education, teachers are on the front line in implementing inclusive practices through the lens of the UDL framework in regular classrooms. According to the Theory of Planned Behaviour, human behaviour can be explained and predicted by intentions and/or perceived behavioural control, where intentions are determined by attitudes, subjective norms and perceived behavioural control.

The current study applied the Theory of Planned Behaviour to investigate secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in China, a context where empirical applications of the theory remain limited despite the country's growing commitment to inclusive education. Adopting a particular explanatory sequential mixed methods research design, structured online questionnaires, semi-structured online interviews, semi-structured non-participant classroom observations and post-observation unstructured face-to-face interviews were conducted in three research phases to understand teachers' attitudes, subjective norms, perceived behavioural control, intentions, and their actual teaching behaviour.

A total of 209 teachers working in metropolitan areas of China completed the questionnaires in Phase 1. The quantitative results showed that teachers held generally positive intentions to implement inclusive practices, with subjective norms and perceived behavioural control emerging as significant predictors of intentions. Intentions and perceived behavioural control predicted actual teaching behaviour directly. Attitudes, subjective norms and perceived behavioural control indirectly predicted actual teaching behaviour through intentions. Also, attitudes and subjective norms indirectly predicted actual teaching behaviour when having intentions and/or perceived behavioural control as mediators.

In Phase 2, interviews with eight teachers showed that attitudes, subjective norms, perceived behavioural control and intentions towards implementing inclusive practices were generally positive. However, teacher' reported use of practices such as scaffolding, cooperative group learning and mastery-oriented feedback reflected only partial alignment with the UDL framework elements, as they were implemented in teacher-directed ways and shaped by narrow, deficit-based understandings of differentiated instruction. Phase 3 classroom observations and post-observation interviews with two teachers further revealed that actual teaching practices

remained dominated by traditional pedagogy, with UDL-aligned elements applied inconsistently and at a pre-emergent level.

Integrating findings across the three research phases revealed a clear intention-behaviour gap. Although teachers expressed willingness to adopt inclusive practices, their classroom practices did not fully demonstrate the flexibility, consistency or learner-driven design characteristic of authentic UDL implementation. The study contributes to the broader understanding of inclusive education by demonstrating that positive intentions alone are insufficient to generate meaningful pedagogical change. Strengthened professional development training, clearer institutional guidance, and sustained government support are essential to enable teachers to translate positive intentions into effective, systematic and fully realised inclusive practices.

Keywords: Universal Design for Learning, Theory of Planned Behaviour, Inclusive Education, Intentions, Actual Teaching Behaviour, Teachers, China

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Chapter 1

Introduction

1.1. Backgrounds

1.1.1. Human Right to Education

The exchange of knowledge, educational practices and policies across countries in the era of globalisation has led to a growing emphasis on creating common or universal standards for education (Jackson, 2016). Being closely linked to the process of globalisation, human rights education is one of the concepts that has become a prominent topic on the international agenda (Bednarczyk, 2017). The right to education was enshrined in the Universal Declaration of Human Rights, adopted in 1948 by the member states of the newly established United Nations (United Nations, 1948). Since then, enrolments have increased at all levels worldwide, with many countries achieving near-universal access to primary education and, in some cases, secondary education (McCowan, 2010). In this context, education has been recognised as a fundamental human right, with all students seen as capable of learning the same curriculum content, and all individuals entitled to extended periods of basic education (Baker, 2014; Furuta, 2020).

Article 26 of the Universal Declaration of Human Rights first identifies the right for everyone to education, and secondly, emphasises the educational system should be directed “to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms” (United Nations, 1948, p. 7). Since the proclamation of the Universal Declaration of Human Rights, provisions on the right to education have been reinforced and incorporated into numerous international covenants, conventions, declarations and frameworks relating to education. For example, Article 13 of the International Covenant on Economic, Social and Cultural Rights further affirms that education should enable “all persons to participate effectively in a free society”, and education should also “promote understanding, tolerance and friendship among all nations and all racial, ethnic or religious groups” (United Nations, 1966, p.4). The later Article 10 of the Convention on the Elimination of All Forms of Discrimination against Women mandated for appropriate measures to be taken to eliminate gender discrimination in education, ensuring women have equal rights and opportunities to men in all areas, including access to education, career guidance, curricula, scholarships, and sports, as well as the elimination of gender stereotypes in educational content and practices (United Nations, 1979). Article 29 of the Convention on the Rights of the Child also provides detailed provisions on the right to education, which has a far-reaching global impact, being the most widely ratified international human rights treaty (United Nations, 1989).

Since the right to education is enshrined as a fundamental principle for all individuals, it is essential to ensure that this right is equally accessible to students with disabilities. The right to education for students with disabilities is highlighted in several key conventions and declarations. For instance, the UNESCO Convention against Discrimination in Education (1960) establishes the principle that education should be provided without discrimination of any kind, reinforcing that students with disabilities should have equal access to learning opportunities (UNESCO, 1960). Article 24 of the Convention on the Rights of Persons with Disabilities mandates that students with disabilities should have access to education on an equal basis with others, ensuring their participation in educational settings at all levels and offering necessary accommodations (CRPD, 2016). This aligns with Article 13 of the International Covenant on Economic, Social and Cultural Rights, which guarantees the right to education for all, without discrimination, including persons with disabilities (United Nations, 1966). As emphasised by UNESCO, “Every learner matters and matters equally” (UNESCO, 2017, p.12), this statement encapsulates the shared commitment of various international bodies to promoting inclusive education. Collectively, these international instruments affirm that education is a fundamental human right and that students with disabilities should be given equal access to quality education.

1.1.2. The International Trend towards Inclusive Education

Since the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994), inclusive education has become an international trend that aims to bring about quality education for all students with and without disabilities in regular classrooms. Inclusive education refers to a transformation in culture and policy which allow communities (e.g., teachers, administrators, parents/carers) to accommodate the needs of all students in regular classrooms and eliminate barriers to achieving this end (CRPD, 2016). The transformation primarily guarantees the freedoms, rights and legitimate interests of all people, including those with disabilities, in the field of education (Norwich, 2013; Sadova, 2019).

The Dakar Framework for Action, developed in support of the Education for All movement, marked an early global commitment to inclusive education, urging countries to prioritise the inclusion of marginalised groups, including persons with disabilities, in their educational policies (UNESCO, 2000). This foundation was further strengthened by the Convention on the Rights of Persons with Disabilities (CRPD), adopted in 2006 and entered into force in 2008, which was a landmark in advancing inclusive education. The CRPD mandated that students with disabilities be provided equal access to education in regular

schools, along with the necessary accommodations and support (CRPD, 2016). The following 2015 Incheon Declaration and the 2030 Agenda for Sustainable Development education goal (SDG 4) explicitly committed to “leaving no one behind”, ensuring that education is inclusive, equitable and accessible for all students with and without disabilities (UNESCO, 2015, p.7).

1.1.3. Developing the Universal Design for Learning (UDL) Framework

Learner variability exists in every modern classroom. The variability is not limited to students’ abilities and backgrounds, but comes from many personal attributes of each student (Rao & Meo, 2016). For example, students can process learning information in different ways even though they come from similar cultural backgrounds and possess similar strengths (Hartmann, 2015; Rao & Meo, 2016). The increasing recognition of learner variability in modern classrooms has put forward new requirements for teachers in designing lessons and developing curricula to meet the needs of all students (Unluol Unal et al., 2022). One feasible solution to enable teachers to provide accommodations for diverse students and follow the international trend towards inclusive education is considering an inclusive pedagogical framework.

Inclusive pedagogical frameworks such as differentiated instruction, Inclusive Pedagogical Approach in Action (IPPA) framework, and the Universal Design for Learning (UDL) framework refer to the structures or systems that assist teachers in better understanding the fundamental knowledge of inclusive education and assists in improving the teacher capacity needed to develop quality instructional designs for all students, including students with disabilities (Florian & Spratt, 2013; O’Connor, 2019; Rose & Meyer, 2002; Tomlinson, 1999). A comparison of various inclusive pedagogical frameworks will be presented in Section 2.3.1 of the literature review. In the current study, the UDL framework — the primary focus of this research — is conceptualised as an inclusive pedagogical approach applicable across diverse learning environments. Previous empirical studies have reported promising outcomes in both academic performance and learner perceptions following its adoption (Al-Azawei et al., 2016).

The Center for Applied Special Technology (CAST) defines UDL as a framework for improving teaching and learning by designing experiences that elevate learners’ strengths and remove barriers to learning (CAST, 2025). The UDL framework emphasises the removal of environmental, curriculum and instructional barriers in learning to make lessons more inclusive for all students including students with disabilities (Lowrey & Smith, 2018). Teachers can begin by predicting the barriers present in a lesson and then design a lesson plan that minimises these barriers by offering students multiple ways to access and engage with instructional

activities. Teachers can proactively incorporate flexibility, supports and scaffolds from the start by recognising and eliminating the barriers to learning in advance, rather than adjusting lessons afterward to meet diverse student needs (Cook & Rao, 2018).

1.1.4. The Important Role of Teachers in Developing Inclusive Education

Various stakeholders, including policymakers, school principals and administrators, parents of students with and without disabilities, teachers, and students themselves, play a crucial role in supporting and advancing inclusive education. Among these stakeholders, teachers are on the front line in terms of developing inclusive education in regular classrooms. The UDL framework as an inclusive pedagogical framework can be an option for regular classroom teachers to address the diversity of student needs and remove barriers to learning in developing inclusive education. To adopt the UDL framework, teachers are supported to present learning materials in multiple formats, assess students' learning in different ways and incorporate a variety of classroom activities in the day-to-day operation of lessons (Evans, 2020; Kieran & Anderson, 2018). Teachers are also expected to be tolerant, flexible and reflective (Beattie et al., 2014).

Teachers' actual teaching behaviour in developing inclusive education is influenced by their intentions to implement inclusive practices (Z. Yan & Sin, 2014). *Inclusive practices* refer to the actions or strategies that teachers use to ensure all students can learn in regular classrooms (Finkelstein et al., 2021). Compared to inclusive pedagogical frameworks that provide the overarching structures or systems, inclusive practices are the specific instructional behaviour taken to implement those inclusive pedagogical frameworks. The intentions of teachers to implement inclusive practices are impacted by many factors, such as teacher attitudes towards inclusive education or inclusive practices, teachers' perceptions of the support they receive from significant others (i.e., principals, colleagues, and parents of students with or without disabilities) that encourage them to implement inclusive practices and teachers' self-efficacy of engagement with inclusive practices (Opoku et al., 2021). Several previous studies have focused on exploring these factors associated with teacher intentions in the field of inclusive education (e.g., Saloviita & Schaffus, 2016; Subban & Mahlo, 2017; Yada & Savolaine, 2017). This highlights the need to examine these factors further as these prior studies have uncovered various implications for inclusive practices.

However, few studies have integrated these factors into a theoretical framework to explain and predict teachers' intentions to implement inclusive practices, and their actual teaching behaviour in the classroom. The absence of a structured understanding makes it

difficult to form a comprehensive view of teachers' intentions to implement inclusive practices and their actual teaching behaviour. Moreover, empirical research examining these relationships remains particularly limited in the Chinese educational context. The current study attempts to address this gap using the Theory of Planned Behaviour (Ajzen, 1985) to understand teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in China. Further details of the theoretical framework are presented in the following Section 1.2.

1.2. Theoretical Framework

1.2.1. Historical Backgrounds

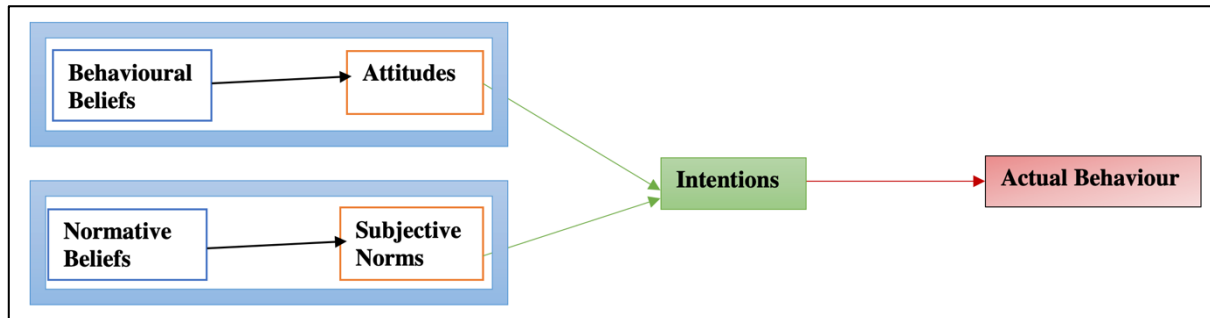
Throughout the ages, social and personality psychologists believed that predicting and explaining human behaviour could be identified as a complex task. In prior research, attitudes and personality traits have played an important role in attempting to predict and explain human behaviour (Ajzen, 2005). However, it became apparent that relying solely on attitudes or personality traits is insufficient for predicting human behaviour presents poor predictive validity (Mischel, 1968; Wicker, 1969). Ajzen and Fishbein (1980) argued that attitudes and personality traits can only indirectly affect specific human behaviour by influencing other factors that are more closely linked to the human behaviour being discussed. Various theoretical frameworks have been proposed to understand the nature of behaviour-specific factors and thus to deal with the prediction of human behaviour (Ajzen, 1991). The Theory of Reasoned Action is an exemplary theoretical framework that includes different factors in attempting to predict and explain human behaviour in specific contexts.

The Theory of Reasoned Action proposed that the immediate antecedents of human actual behaviour can be identified by an individual's intentions to perform a particular behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The stronger the intentions to perform a behaviour, the more likely should be its performance (Ajzen, 1991). As shown in Figure 1.1, intentions are determined by attitudes and subjective norms, which in turn are based upon *salient beliefs* about the behaviour (Madden et al., 1992). To explain salient beliefs, Ajzen (1991) pointed out that "people can hold a great many beliefs about any given behaviour, but they can attend to only a relatively small number at any given moment" (p. 189). It is these salient beliefs that are considered to influence intentions and subsequent behaviour either through attitudes and/or subjective norms. Within the Theory of Reasoned Action, Fishbein and Ajzen (1975) divided the salient beliefs into two conceptually distinct sets: behavioural beliefs and normative beliefs. The behavioural beliefs refer to individuals' perceptions of the

likely outcomes of performing a behaviour and their evaluations of these outcomes, which in turn shape their attitudes. In contrast, normative beliefs are about perceived social expectations and the approval or disapproval of significant others, which underpin the development of subjective norms (Madden et al., 1992).

Figure 1.1

Theory of Reasoned Action



Note. Theory of Reasoned Action as proposed by Ajzen and Fishbein (1980).

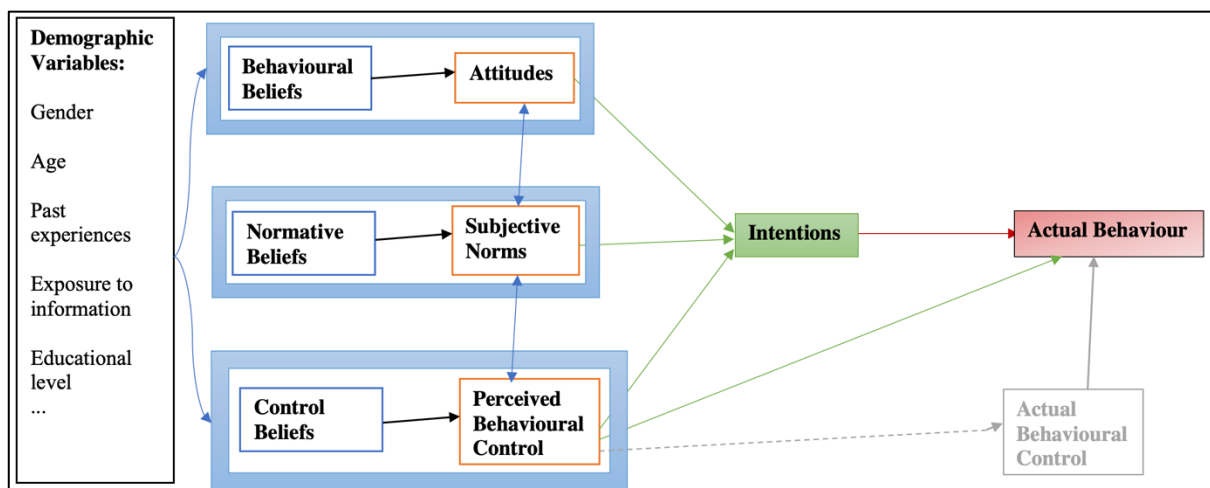
The Theory of Reasoned Action has been widely applied as a theoretical model for the prediction and explanation of human behaviour (LaCaille, 2020). However, the successful development of the Theory of Reasoned Action depends on an assumption that the particular behaviour being studied is under “volitional control” (i.e., individuals can easily perform a behaviour if they are inclined to do so) (Ajzen, 1991, p. 181). Ajzen (1985) argued that the attainment of every intended behaviour is often subject to some degree of uncertainty. The volitional behaviour stipulation imposes a limitation on the theory’s scope of application, which means the theory will be insufficient to predict and explain human behaviour whenever “nonvolitional factors” generate strong influences on the particular behaviour (Ajzen, 1985, p. 18). The nonvolitional factors include both internal factors such as emotions, skills and will power, as well as external factors such as time, opportunity and cooperation of others (Ajzen, 1985). For example, teachers who intend to implement inclusive practices, upon trying to do so, perceive that they lack the necessary information, skills or abilities, so there could be a barrier to translating teachers’ intentions to implement inclusive practices into actual behaviour. Taking consideration of nonvolitional factors, the Theory of Planned Behaviour was proposed as an expansion of the Theory of Reasoned Action (Ajzen, 1991). Further details about the Theory of Planned Behaviour are provided in the following section.

1.2.2. The Concept of the Theory of Planned Behaviour

The Theory of Planned Behaviour builds upon the Theory of Reasoned Action in an attempt to predict and explain human behaviour (Ajzen, 1985). Similar to the original Theory of Reasoned Action, the Theory of Planned Behaviour recognises intentions to perform a particular behaviour as a central variable in understanding human behaviour (Ajzen, 1991). To improve the predictive validity, the theory also extends the boundary condition of full volitional control specified by the Theory of Reasoned Action. The extension is achieved by including an “exogenous variable” termed perceived behavioural control, referring to individuals’ perceived ease or difficulty of performing the behaviour, which constitutes the most significant difference between the Theory of Planned Behaviour and the Theory of Reasoned Action (Madden et al., 1992, p. 4). According to the Theory of Planned Behaviour, intentions are determined by three inter-correlated factors: attitudes, subjective norms and perceived behavioural control (Ajzen, 2020). Figure 1.2 depicts the Theory of Planned Behaviour in a structural diagram. Details about the different components of the Theory of Planned Behaviour are outlined in the following paragraphs.

Figure 1.2

Theory of Planned Behaviour



Note. Theory of Planned Behaviour as proposed by Ajzen (1985).

Behavioural Beliefs and Attitudes. Attitudes refers to the disposition of an individual to “respond favourably or unfavourably to an object, person, institution, or event” (Ajzen, 2005, p. 3). Considering the nature of attitudes, it is now generally recognised that attitudes contain experiential (e.g., “enjoyable” or “unenjoyable”, “pleasant” or “unpleasant”) as well as

instrumental (e.g., “valuable” or “worthless”, “harmful” or “beneficial”) aspects, which should be measured as two sub-components, namely the affective and cognitive components respectively (Ajzen, 2001, 2002, p. 5). Within the Theory of Planned Behaviour, the formation of attitudes is rooted in the expectancy-value model of attitudes (Fishbein & Ajzen, 1975). The expectancy-value model posited that attitudes are reasonably formed by evaluating individuals’ readily accessible beliefs about a particular behaviour (Ajzen, 1991, 2020). The beliefs, termed behavioural beliefs, are individuals’ “subjective probability” that links a particular behaviour with certain outcomes or attributes (Ajzen, 1991, p. 191). These behavioural beliefs are theorised to develop positive or negative attitudes towards a particular behaviour. In this sense, positive attitudes arise when individuals believe that the desirable consequences of performing a particular behaviour outweigh its undesirable consequences, while negative attitudes present when individuals believe that the particular behaviour appears to have greater disadvantages than advantages (Ajzen et al., 2018).

Normative Beliefs and Subjective Norms. According to the Theory of Planned Behaviour, subjective norms can be defined as perceived social pressure to perform or not to perform a particular behaviour (Ajzen, 1991, 2020). It depends not only on an individual’s accessible normative beliefs about whether “important referent individuals or groups” (e.g., friends, family colleagues or supervisor) approve or disapprove of executing a particular behaviour, but also on the individual’s motivation to comply with the individuals or groups’ expectations in question (Ajzen, 1991, p. 195). A common measure of subjective norms is usually obtained by asking participants to rate their perceptions of the support they receive from significant others that encourages them to perform a particular behaviour (Opoku et al., 2021). Subjective norms will exert pressure to perform a particular behaviour when individuals believe that significant others expect them to perform the behaviour or provide support to encourage them to do so, while subjective norms will exert pressure not to perform the behaviour when the majority of normative beliefs are antagonistic (Ajzen et al., 2018).

Control Beliefs and Perceived Behavioural Control. Perceived behavioural control in the Theory of Planned Behaviour refers to an individual’s perception of their capacity to perform a particular behaviour, which is compatible with the concept of self-efficacy in Bandura’s social cognitive theory (Ajzen, 1985, 1991; Bandura, 1986). Perceived behavioural control or self-efficacy is assumed to be based on accessible control beliefs, and these control beliefs are concerned with the presence or absence of control factors that can facilitate or

impede the performance of a particular behaviour (Ajzen & Cote, 2008). Control factors (i.e., nonvolitional factors), for example, include requisite skills, abilities, time, money, opportunities, past experiences and cooperation of others (Ajzen, 1985, 1991, 2020). A strong sense of perceived behavioural control or self-efficacy will be developed if individuals believe that they have necessary resources and few impediments to perform a particular behaviour, while a much weaker sense of perceived behavioural control or self-efficacy will be identified if individuals believe that they lack some of the required resources and have many obstacles to carry out the behaviour (Ajzen et al., 2018).

Inter-Correlated Attitudes, Subjective Norms and Perceived Behavioural Control.

Attitudes, subjective norms and perceived behavioural control are conceptually independent predictors of intentions in the Theory of Planned Behaviour (Ajzen, 1991, 2020). However, as shown in Figure 1.2, empirically these three predictors of the theory are free to correlate with each other (Ajzen, 2020). Recent research in different fields has provided evidence to support the notion that attitudes, subjective norms and perceived behavioural control in the Theory of Planned Behaviour are inter-correlated, although the magnitude of the correlations varies among these three variables (e.g., H. Liu et al., 2013; Tsai & Fong et al., 2021; Wan et al., 2017). Ajzen (2020) demonstrated that a single informational input (e.g., knowledge, experience or contextual cues) can influence more than one predictor in the Theory of Planned Behaviour, which helps to explain why these predictors often correlate with each other. For example, when a teacher receives information suggesting that educating students with disabilities in regular classrooms can improve their academic performance, they may form a behavioural belief that inclusive education is beneficial. The behavioural belief may, in turn, generate a favourable attitude towards educating students with disabilities in regular classrooms. It may also suggest to the teacher that doing so would obtain support from the school principal, generating a positive and supportive subjective norm. Given the inter-correlations between the three predictors, perceived behavioural control could be assigned the role of a moderator to affect the extent to which attitudes and subjective norms influence intentions, and in turn, intentions influence actual behaviour (Ajzen, 1985). Further details about the relationships are explained in the following section addressing the indirect predictive power on actual behaviour within the Theory of Planned Behaviour.

Intentions. Intentions can be defined as “the degree to which a person resolves to act in a certain way” (Morwitz & Munz, 2021, p. 27). As a central variable in the Theory of Planned

Behaviour, intentions to perform a particular behaviour are demonstrated as the immediate antecedent of actual behaviour (Ajzen, 1991, 2020). Similar to the Theory of Reasoned Action, the stronger the intentions, the more likely it is that the actual behaviour will follow (Ajzen, 2020). In contrast with the Theory of Reasoned Action, intentions within the Theory of Planned Behaviour can be predicted with high accuracy from attitudes, subjective norms and perceived behavioural control (Ajzen, 1991). As a general rule, the more favourable the attitudes, the more positive the subjective norms and the greater the perceived behavioural control, the stronger should be an individual's intention to perform the actual behaviour under consideration (Ajzen, 1991). Also, the relative importance of attitudes, subjective norms and perceived behavioural control in predicting intentions is assumed to be different among various behaviours and situations (Ajzen, 1991). In some applications adopting the Theory of Planned Behaviour, it can be argued that only attitudes are the statistically significant predictor of intentions whereas, in others, attitudes and perceived behavioural control are sufficient to explain intentions and, in others, both attitudes, subjective norms and perceived behavioural control contribute independently to predicting intentions.

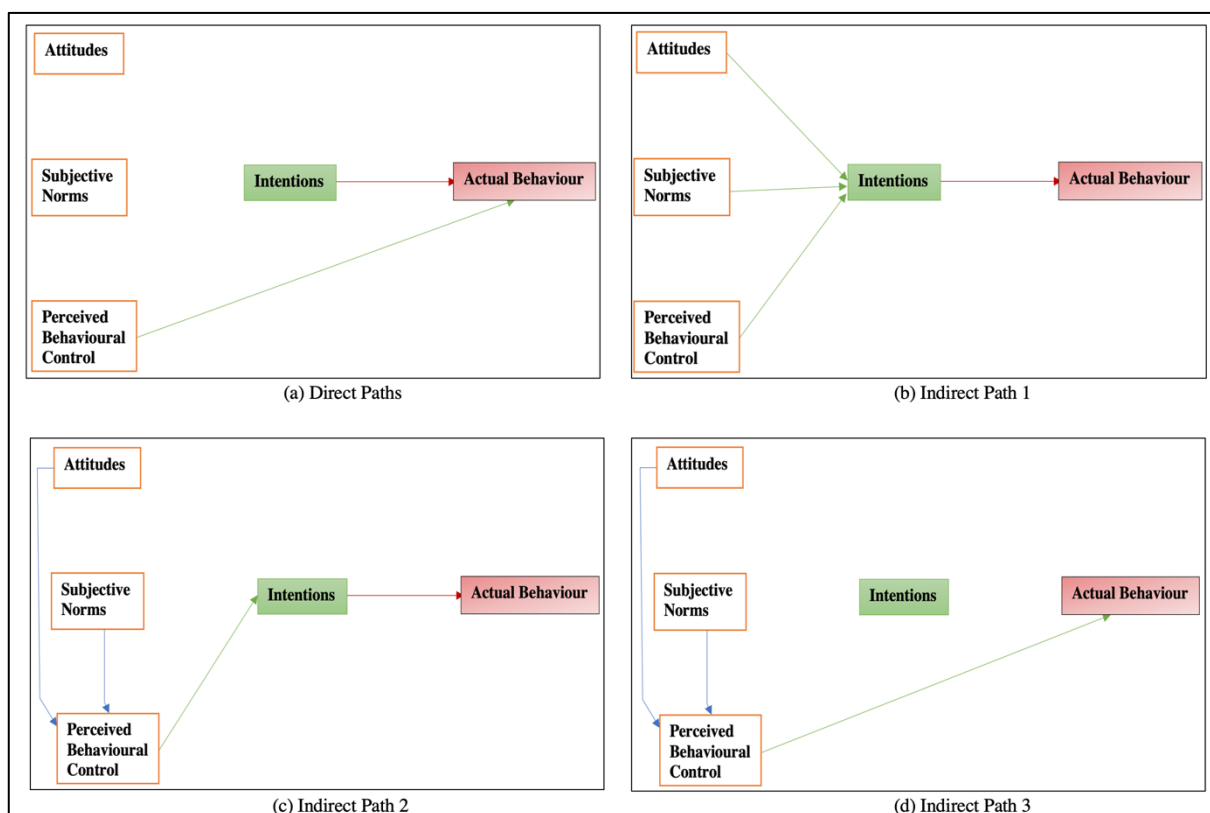
Actual Behaviour. As noted earlier, unlike the Theory of Reasoned Action, the Theory of Planned Behaviour can be applied to predict and explain actual behaviour that has difficulty of execution (Ajzen, 1985). According to the Theory of Planned Behaviour, performance of a particular behaviour can be directly predicted by intentions and perceived behavioural control (Ajzen, 1991). Figure 1.3 (a) presents the possible direct predictive paths from intentions and perceived behavioural control to actual behaviour. As a general rule, the greater the perceived behavioural control, the stronger the intentions, the higher should be the likelihood of actual behaviour occurring (Ajzen, 2020). Also, the relative importance of intentions and perceived behavioural control in predicting actual behaviour is postulated to vary across different behaviours and situations (Ajzen, 1991). Intentions alone should be sufficient to predict actual behaviour if individuals have strong volitional control over their behaviour, otherwise, adding the perceived behavioural control should become increasingly helpful as volitional control over behaviour weakens.

In addition to the direct predictive paths, the theory's more proximal variables (i.e., attitudes, subjective norms and perceived behavioural control) seemed to have an indirect predictive power on actual behaviour, mediated via intentions and/or perceived behavioural control (Ajzen, 1985, 1991, 2020). As shown in Figure 1.3, three possible indirect paths to predict actual behaviour are proposed in the Theory of Planned Behaviour. These paths

correspond to (b), (c) and (d) in Figure 1.3, respectively: (b) intentions as a moderating variable affecting the extent to which attitudes, subjective norms and perceived behavioural control influence actual behaviour indirectly; (c) intentions and perceived behavioural control as moderating variables affecting the extent to which attitudes and subjective norms influence actual behaviour indirectly; (d) perceived behavioural control as a moderating variable affecting the extent to which attitudes and subjective norms influence actual behaviour indirectly (Ajzen, 1985, 1991, 2020).

Figure 1.3

Possible Direct and Indirect Paths to Predict Actual Behaviour



Note. The two direct paths should be considered regarding to the relative importance of intentions and perceived behavioural control under consideration. The three indirect predictive paths are corresponding to the above statements (b), (c) and (d) respectively by Ajzen (1985, 1991, 2020).

Actual Behavioural Control. The Theory of Planned Behaviour suggests that the stronger the intention, the more likely the behaviour will follow (Ajzen, 2020). However, as noted earlier, the lack of necessary skills, time, money, unanticipated events and other nonvolitional factors may impede individuals from acting on their intentions (Ajzen, 1985).

Actual behavioural control refers to the extent to which an individual has the skills, time, money and other prerequisites needed to perform the particular behaviour in question (Ajzen, 2020). The Theory of Planned Behaviour postulates that actual behavioural control moderates the prediction of intentions on actual behaviour, suggesting that the greater the actual behavioural control, the more likely the intentions will be carried out (Ajzen, 2020).

Actual behavioural control cannot be measured in most circumstances due to the lack of necessary information on all relevant factors that may promote or hinder performing a particular behaviour (Ajzen et al., 2018). Nevertheless, an individual's perception of the extent to which they have control over an actual behaviour may accurately reflect their actual behavioural control (Ajzen et al., 2018). Under the assumption that knowledge about actual behavioural control is limited and perceived behavioural control is accurately reflected in question, perceived behavioural control can be utilised as a substitute for actual behavioural control to facilitate the prediction of actual behaviour (Ajzen, 2020; Ajzen et al., 2018).

Demographic Variables. According to the Theory of Planned Behaviour, a multitude of demographic variables (e.g., gender, age, past experiences, exposure to information, educational level) influence intentions and actual behaviour indirectly by their effects on behavioural, normative or control beliefs, and, through these beliefs, on attitudes, subjective norms or perceived behavioural control (Ajzen et al., 2018; Ajzen, 2011). This suggests that the theory's proximal antecedents of intentions (i.e., attitudes, subjective norms and perceived behavioural control) are assumed to mediate the effects of demographic variables on intentions and actual behaviour (Ajzen, 2020). The indirect effects of demographic variables on intentions and actual behaviour can be traced to their influence on one or more of the proximal antecedents of intentions (Ajzen et al., 2018). It should be noted that demographic variables do not necessarily need to be connected to the Theory of Planned Behaviour's proximal determinants (Ajzen et al., 2018). Whether the theory's proximal determinants can be affected by a particular demographic variable is an empirical question (Ajzen et al., 2018).

The Application of the Theory of Planned Behaviour in Research. The Theory of Planned Behaviour has become a frequently cited and influential model for the prediction and explanation of human behaviour (Ajzen, 2011). The theory has been applied in different fields such as health and commerce, as well as in the field of inclusive education to predict and explain various human behaviours with some success (e.g., Ahmmed et al., 2014; Batsiou et al., 2006; Cooke et al., 2016; Giampietri et al., 2018; Kuyini & Desai, 2007; Yazdanpanah &

Forouzani, 2015). However, despite its application across fields, critiques of the theory's constructs may not be sufficient to fully explain human intentions and actual behaviour and point out its limits of predictive validity (Conner & Armitage, 1998; McEachan et al., 2011). Fishbein and Ajzen (2009) claimed that random error of measurement always exists although all the theory's constructs are carefully examined in question. The reliabilities of well-constructed measures of attitudes, subjective norms and perceived behavioural control rarely exceed 0.75 or 0.80 (Fishbein & Ajzen, 2009).

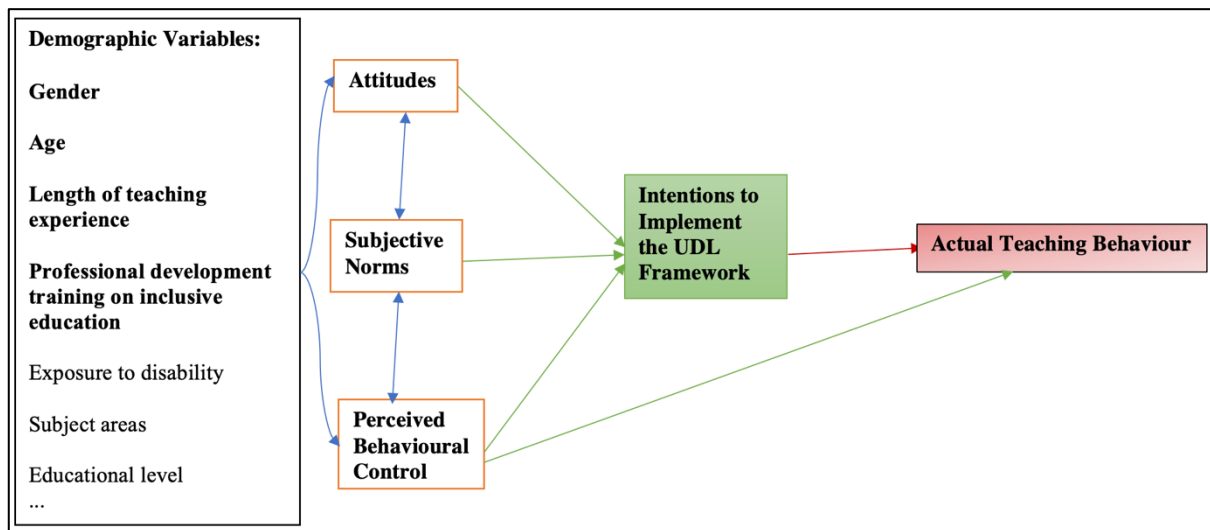
A growing number of intervening events may change individuals' behavioural, normative or control beliefs, modify their attitudes, subjective norms or perceived behavioural control, and thus produce revised intentions (Ajzen, 2011). These changes often reduce the predictive validity of intentions examined before the changes occur (Ajzen, 2011). Therefore, shorter time intervals between assessing intentions and observing actual behaviour (i.e., five weeks or less) may generate stronger intention-behaviour correlations than longer time intervals (Ajzen, 2011). Nevertheless, due to the lack of actual behavioural control over a particular behaviour, intentions sometimes cannot reliably predict the behaviour even over a relatively short period of time (Ajzen, 2011). In this case, perceived behavioural control may not be a good substitute for actual behavioural control if there is a relatively low correlation between perceived behavioural control and actual behaviour (Ajzen, 2011).

1.2.3. Theoretical Framework of the Study

As shown in Figure 1.4, the Theory of Planned Behaviour has been utilised as the theoretical framework in the current study to examine secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in China. To examine teacher intentions to implement inclusive practices through the lens of the UDL framework, possible predictor variables such as teachers' overall positive or negative evaluations of engaging in inclusive education or inclusive practices (i.e., *attitudes*), teachers' perceptions of the support they receive from significant others (i.e., principals, colleagues, and parents of students with or without disabilities) that encourages them to implement inclusive practices through the lens of the UDL framework (i.e., *subjective norms*), and teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework (i.e., *perceived behavioural control*) are under consideration. Relevant literature regarding the predication of attitudes, subjective norms and perceived behavioural control on intentions are discussed in Chapter 2 Section 2.4.2, 2.5.2 and 2.6.2 respectively.

Figure 1.4

Theoretical Framework of the Study



Note. The Theory of Planned Behaviour (Ajzen, 1985) has been adopted as the theoretical framework in the current study.

A number of demographic variables may moderate the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework. Avramidis and Norwich (2002) categorised these demographic variables into three types, including child-related variables (e.g., students with different disability diagnoses, financial status of students), educational environment-related variables (e.g., availability of support services, year level taught) and teacher-related variables (e.g., regular contact with students with disabilities, education background of teachers). Through reviewing the relevant literatures, four of the most frequently studied teacher-related demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) were analysed in the current study. Chapter 2 Section 2.4.1, 2.5.1, 2.6.1 and 2.7.2 provides a more detailed description regarding the four teacher-related demographic variables within the Theory of Planned Behaviour.

To investigate Chinese secondary school teachers' actual teaching behaviour using the Theory of Planned Behaviour, two possible direct predictive paths from intentions and perceived behavioural control to actual behaviour were initially examined in the current study. In addition to the direct predictive paths, the study also explored the three possible indirect paths from attitudes, subjective norms and perceived behavioural control to actual behaviour, mediated through intentions and/or perceived behavioural control. These possible predictive

paths are reflected in three research questions presented with Figure 1.5, 1.6 and 1.7 in the following section 1.3. Further literature about the direct and indirect prediction of teachers' actual teaching behaviour are examined in Chapter 2 Section 2.8.2.

1.3. Inclusive Education and the UDL Framework in China

While the Theory of Planned Behaviour provides the theoretical basis for examining teachers' intentions and behaviours, it is also necessary to consider the educational context in which these intentions and behaviours occur. Although inclusive education has been widely discussed in international contexts, its implementation varies across national education systems. The following section outlines the development of inclusive education and the emergence of the UDL framework in China, which forms the national context for the current study. In China, a significant aspect of the trend towards inclusive education is the development of Learning in Regular Classrooms (LRC) program, which emphasises the acceptance of students with disabilities into regular school settings, and providing them with the necessary support and accommodations to enable them to learn alongside their peers (Su et al., 2020; S. Xu et al., 2018). The LRC program has, to some extent, raised awareness that segregated special education is not the sole approach to providing education for students with disabilities (Y. Huang & Chen, 2024). In response to the CRPD, China signed the international treaty in 2007 and ratified it in 2008, without any reservations. Since then, the international trend towards inclusive education has gained significant momentum in China, though challenges remain in terms of infrastructure and support (Y. Huang & Chen, 2024). While the LRC program has played an important role in expanding access to education for students with disabilities, policy reforms have also been critical in shaping the development of inclusive education in China.

At the policy level, the 2010-2021 Outline National Program for Mid-Long Term of Educational Reform and Development highlights the importance of developing quality special education by improving accessibility, teacher training, and the removal of barriers in educational institutions (State Council of China, 2010). Next, the Special Education Promotion Plan clearly pointed out the goal of promoting inclusive education to ensure that all students with disabilities could receive an appropriate education in China (State Council of China, 2014, 2017). China's continued efforts, supported by both international frameworks and domestic policy reforms, signal a growing commitment to inclusive education and the inclusion of students with disabilities within regular classrooms. Alongside these policy developments,

inclusive pedagogical frameworks have also begun to influence the implementation of inclusive practices in China.

One such inclusive pedagogical framework is the UDL framework. Over the past decade, the emergence of the UDL framework in China has supported a wider understanding of learner variability and promoted inclusive education (L. Zhang et al., 2020). The UDL framework is increasingly drawing the attention of Chinese educators and researchers as a model for instructional design, building flexible, accessible and supportive learning environments for all students with and without disabilities (J. Xu & Wang, 2015; Yun et al., 2018). Meanwhile, the 2010-2021 Outline National Program for Mid-Long Term of Educational Reform and Development urged schools to adopt advanced global educational concepts and practices to enhance education reform in China and its international competitiveness (State Council of China, 2010). The policy guideline fosters a culture of innovation in education, opening up promising opportunities for implementing the UDL framework in China.

1.4. Aims of the Study

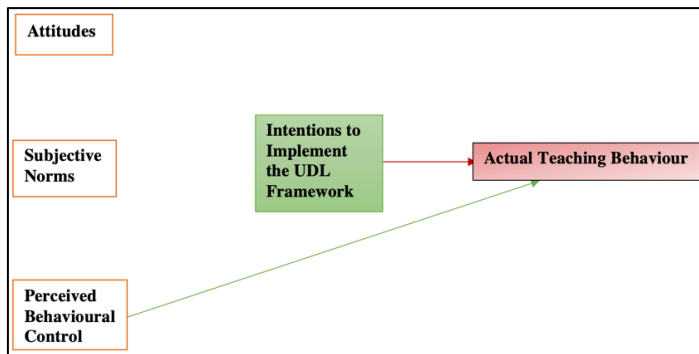
The current study aimed to examine the extent to which the Theory of Planned Behaviour can predict and explain the secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in China.

The research questions are:

1. What are the significant predictor(s) (i.e., attitudes, subjective norms and perceived behaviour control) of Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework?
2. To what extent do demographic variables moderate the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework?
3. To what extent can Chinese secondary school teachers' actual teaching behaviour be directly predicted by their intentions and perceived behavioural control towards implementing inclusive practices through the lens of the UDL framework?

Figure 1.5

Research Question 3

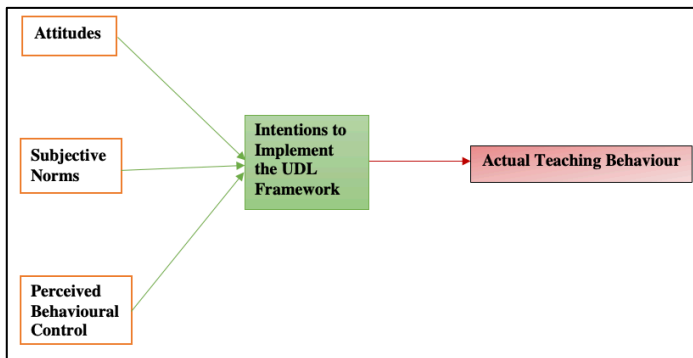


Note. Corresponding to Figure 1.3 (a), Figure 1.5 shows the two direct predictive paths of actual teaching behaviour.

4.1. To what extent can Chinese secondary school teachers' actual teaching behaviour be indirectly predicted by attitudes, subjective norms and perceived behavioural control, mediated through intentions towards implementing inclusive practices through the lens of the UDL framework?

Figure 1.6

Research Question 4.1

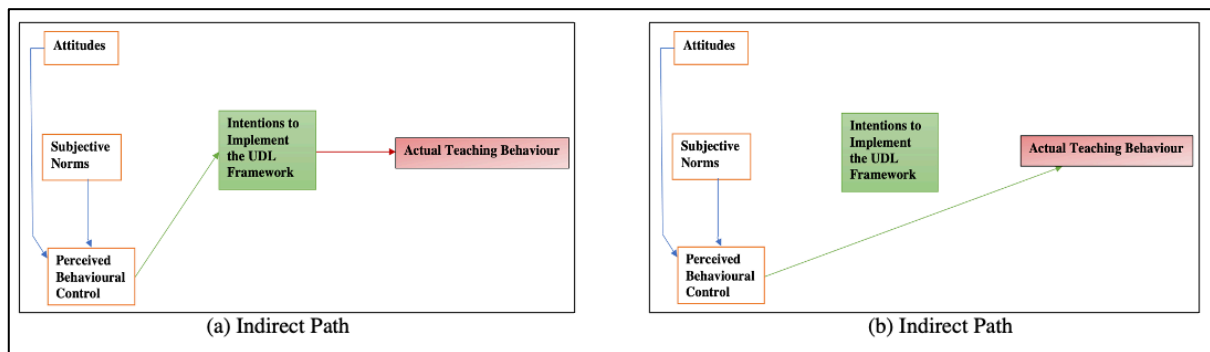


Note. Corresponding to Figure 1.3 (b), Figure 1.6 shows the first indirect predictive path of actual teaching behaviour.

4.2. To what extent can Chinese secondary school teachers' actual teaching behaviour be indirectly predicted by attitudes and subjective norms, mediated through perceived behavioural control and intentions towards implementing inclusive practices through the lens of the UDL framework?

Figure 1.7

Research Question 4.2



Note. Figure 1.7 (a) and (b) present another two indirect predictive paths of actual teaching behaviour, corresponding to Figure 1.3 (c) and (d) respectively.

5. What are Chinese secondary school teachers' overall intentions to implement inclusive practices through the lens of the UDL framework?
6. How does the UDL framework align with Chinese secondary teachers' actual teaching behaviour apparent in regular classrooms?
7. How are Chinese secondary school teachers' actual teaching behaviour consistent with their overall intentions to implement inclusive practices through the lens of the UDL framework?

1.5. Significance of the Study

In the field of inclusive education, the Theory of Planned Behaviour has been applied extensively in western countries to predict teacher intentions and actual behaviour towards implementing inclusive practices (e.g., Emmers et al., 2020; Hellmich et al. 2019; Wilson et al., 2022). The theory has shown reasonable robustness across various cultural contexts and countries (e.g., MacFarlane & Woolfson, 2013; Opoku et al., 2021; Song et al., 2019). However, the application of the theory in developing countries, including China, remains limited (e.g., L. Wang et al., 2015; Z. Yan & Sin, 2014, 2015). Researchers have not provided an in-depth, holistic and systematic analysis of teacher intentions and actual teaching behaviour in the field of inclusive education in these settings. As a representative of developing countries constrained by economic conditions, political concentration and cultural traditions, China, where an overwhelmingly large population of children with and without disabilities reside, shares a common commitment to and the goal of inclusive education (Hu et al., 2017; S. Xu et al., 2018).

The current study fills the research gap by applying the Theory of Planned Behaviour to investigate teacher intentions and actual teaching behaviour within the Chinese context.

Teacher intentions to implement inclusive practices through the lens of the UDL framework, and their UDL framework aligned actual teaching behaviour is the primary focus of the current research. However, the majority of empirical studies around the UDL framework implementation have been conducted in North America, whereas a very small amount of research has taken place in other countries (Al-Azawei et al., 2016; Mangiatordi & Serenelli, 2013). Existing international studies in the field of inclusive education have not focused on a specific inclusive pedagogical framework. The current study responds to this gap by applying the UDL framework under the theoretical lens of the Theory of Planned Behaviour. In China, researchers, educators and policymakers are striving to cultivate expert learners through curriculum reform (S. Chen & Pei, 2016). Implementing the UDL framework offers an approach to transforming attitudes, traditional teaching pedagogy and fostering expert learners, and therefore would be worthwhile for China to adopt (H. Zhang & Zhao, 2019). To enrich the pedagogical literature in China, the current study proposes to examine teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

Previous studies adopting the Theory of Planned Behaviour on inclusive education have predominantly focused on the primary school level (e.g., Ahmmed et al., 2014; Hellmich et al., 2019; Wilson et al., 2022), with comparatively less research examining the experiences of regular classroom teachers in secondary schools. To narrow the research gap, regular classroom teachers from secondary schools were recruited as participants in the current research. Secondary education is characterised by increased curriculum complexity and greater assessment demands (Bellei et al., 2025). Compared with primary schooling, secondary school teachers are often required to make more frequent professional decisions regarding curriculum coverage, assessment priorities and responses to diverse learners, which may influence how inclusive practices are interpreted and implemented in secondary classrooms.

Most prior research has primarily employed a single instrument, such as questionnaires, interviews or observations, to examine teacher intentions to implement inclusive practices and their actual teaching behaviour based on the Theory of Planned Behaviour (e.g., L. Wang et al., 2015; Opoku et al., 2020; Z. Yan & Sin, 2014). Relying on a single instrument for data collection can limit the depth and reliability of findings, potentially leading to biased or incomplete conclusions (Creswell & Creswell, 2023). To enhance methodological rigour, a

range of data collection tools such as questionnaires, interviews and observations were utilised to collect data in the current research.

1.6. Overall Structure of the Study

Chapter 1 is the introduction chapter and describes the study's background, theory, significance, overall aim and research questions. Chapter 2 reviews literature relevant to inclusive education, the UDL framework and different constructs of the Theory of Planned Behaviour are explored. Chapter 3 is the methodology and details the research design, research strategies, participants, data collection, data analysis, research procedure, ethical considerations and translation of the study. All the quantitative and qualitative results are reported in Chapter 4 and then Chapter 5 integrates and discusses these results. The findings of the current study are linked to the previous literature. Limitations and implementations of the current study as well as recommendations for future research are presented in Chapter 5.

Chapter 2

Literature Review

In this chapter, the relevant literature on inclusive education, the UDL framework and different constructs of the Theory of Planned Behaviour will be reviewed and discussed. The Theory of Planned Behaviour (Ajzen, 1985) has been utilised as a theoretical framework to guide the current study. Within the Theory of Planned Behaviour, the prediction of attitudes, subjective norms and perceived behavioural control on intentions, as well as the direct and indirect prediction of actual behaviour will be analysed respectively. The literature review indicates that moderating teacher-related demographic variables include age, length of teaching experience, gender and professional development training on inclusive education.

2.2. Inclusive Education

2.2.1. The Concept of Inclusive Education

Since the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994), inclusive education has been advocated to achieve a global commitment to develop quality education for all students with and without disabilities. The Salamanca Statement, which was adopted by 92 governments and 25 international organisations, declared that every individual has a right to education and to demonstrate their full learning potential in regular classrooms (UNESCO, 1994). It called for high ideals of education progress such as eliminating all forms of discrimination and promoting social cohesion (Kiuppis, 2014). The emergence of inclusive education stands in a “new thinking” of special needs education in this statement, and it reflects an idea of overcoming the gap between regular and special needs education (Kiuppis, 2014, p. 748). “All governments to adopt as a matter of law or policy the principle of inclusive education” has become an important objective of the statement (UNESCO, 1994, ix).

Inclusive education is underpinned by the principles of inclusion, which emphasise equity, participation, and accessibility (UNICEF, 2017). These principles focus on creating learning environments that remove barriers to learning through reasonable adjustments or modifications in learning content, teaching methods, structures and strategies, ensuring all learners can participate meaningfully and achieve their potential (UNICEF, 2017). To establish an inclusive learning environment, it is necessary for schools and other learning settings to work collaboratively to provide services for all students, regardless of ethnic groups, cultural backgrounds, learning ability and preferences (UNESCO, 2005).

The content of inclusive education has been incorporated into laws of many countries and it has also been embedded into programs and statements of various international organisations, such as the Organisation for Economic Cooperation and Development (2005), the European Commission (2010), the Council of the European Union (2010) and UNESCO itself (UNESCO, 2016). It is also outlined in the Convention on the Rights of Persons with Disabilities (CRPD, 2006). As the first international human rights treaty of the 21st century, the CRPD formulated the legal basis for inclusive education. Article 24 (1) of the CRPD claimed that inclusive education should be guaranteed for all persons with disabilities at all educational levels (CRPD, 2006). According to the Convention on the Rights of Persons with Disabilities General Comment No. 4 (CRPD, 2016), inclusive education is essential for developing high-quality education for all students and for establishing an inclusive, equitable and peaceful society. The Office of the United Nations Commissioner for Human Rights (OHCHR, 2013) Thematic Study of the Rights of Persons with Disabilities to Education also affirmed that inclusive education is the only choice to achieve quality education and promote social development for all learners, including those with disabilities.

Four intercorrelated features of quality inclusive education should be considered, comprising availability, accessibility, acceptability and adaptability (CRPD, 2016). ‘Availability’ requires that adequate quantity and quality of public and private educational institutions and programs should be provided for all learners. ‘Accessibility’ suggests that educational institutions and programs should be accessible to all learners at all educational levels, without discrimination. ‘Acceptability’ means that the forms and substance of education should take care of the requirements, perspectives, cultures and languages of all learners, including those with disabilities. ‘Adaptability’ encourages that the Universal Design for Learning (UDL) framework should be applied to build an adaptable learning environment to accommodate the diverse needs of all learners. In line with the CRPD General Comment No. 4 (CRPD, 2016), quality inclusive education requires inclusive pedagogical frameworks such as the UDL framework to recognise each individual in a unique manner and develop flexible teaching strategies.

As a complex and multidimensional concept, the definitions of inclusive education vary immensely (Haug, 2017). Divergent definitions generate different but complementary ideas simultaneously around the world. For example, in Canada, person-centred approaches are advocated to celebrate human differences as an important resource rather than a deficit (Forest & Pearpoint, 1992). Inclusive education in Canada is defined as “valuing diversity” or “a set

of principles which ensures that the student with a disability is viewed as a valued and needed member of the community” (Uditsky, 1993, p. 88). In the United Kingdom, inclusive education is linked with the idea of school improvement, which is defined as “extending the scope of ordinary schools so they can include a greater diversity of children” (Ainscow, 1991; Clark et al., 2018, p.5). In the United States, the principle of the least restrictive environment (LRE), that is, the education of children with disabilities should be carried out in the classroom or school where they should have attended if he or she were not disabled, has led to a focus on inclusive education as a placement to extend special education towards the mainstream (Stainback & Stainback, 1990).

It is evident that the definitions of inclusive education are contextual and take different forms in various countries. While these approaches (i.e., person-centred, school improvement and special education), as described above in the three countries, are helpful in disrupting traditional special education settings, they have proved partial. There is a lack of a clear definition or consensus about inclusive education throughout the world (Florian, 2014). Even the most authoritative definitions, such as that proposed in CRPD General Comment No. 4, are ambiguous and can be interpreted in many different ways (Graham, 2020). Slee (2018) suggests that efforts should be made to identify and eliminate barriers to inclusive education, rather than debating the nuances of what inclusive education means. With the lack of clarity and conceptual difficulties in defining inclusive education, challenges that accompany inclusive education should be recognised before taking corresponding measures.

Although there has been an international breakthrough for inclusive education, some “profound challenges” still persist in developing inclusive education (CRPD, 2016, p. 2). Barriers that impede access to inclusive education can be attributed to multiple aspects, including the persistence of segregated education settings, negative teacher attitudes towards inclusive education, the diverse opinions among teachers and parents, insufficient teaching resources and inappropriate funding mechanisms (Nilholm, 2021). The lack of knowledge and skills to create a learning environment that is truly inclusive is one of the important barriers impeding the development of high-quality inclusive education (Nilholm, 2021). Understanding whether inclusive education has been actually developed in various educational spheres is problematic due to the complex construct of inclusive education itself (Boyle et al., 2020; Slee, 2018).

Up to 2021, approximately 244 million children aged between 6 and 18 worldwide continue to be denied a right to education, especially children with disabilities, whose education provision is often delivered in an inferior quality (CRPD, 2016; UNESCO, 2022). Although

some students with disabilities are included in regular classrooms to promote inclusive education, their learning needs are often neglected by teachers with low expectations of them (Wu & Priestman, 2018). In this case, developing inclusive education is simply considered as a kind of placement, a change of location from special schools/classrooms to regular schools/classrooms, instead of focusing on the quality of education provision and the demands for equality (Terzi, 2014; Wu & Priestman, 2018). To bring about impactful change, developing the knowledge and skills of implementing inclusive practices is urgently needed to establish a truly inclusive learning environment. There is a richness to the literature on inclusive practices that has yet to be examined. Approaching inclusive practices through a specific inclusive pedagogical framework, the UDL framework will be analysed in Sections 2.3.1-2.3.2 of the literature review in the current research project.

2.2.2. Inclusive Education in China

The international trend towards inclusive education has brought forth many reforms around the world to eliminate discrimination in existing education systems and to promote appropriate education for all (M. Deng & Poon-McBrayer, 2012; Qu, 2024). China is no exception. The concept of mainstreaming and, subsequently, inclusive education emerged after Deng Xiaoping initiated the open door policy in the 1980s (M. Deng & Harris, 2008). There were tremendous political, social and economic changes along with educational reforms that occurred when China was opened up to the world (M. Deng & Manset, 2000). During the sweeping reform in the 1980s, the national focus shifted from class struggle to economic reconstruction, in which education can be seen as an effective way to develop technology and science (Dual & Cheng, 1990). This focus, in turn, has raised the level of local autonomy, allowed the expression of various perspectives, facilitated international interactions with the West and increased governmental attention to the rights of people with disabilities (M. Deng & Poon-McBrayer, 2004).

With an emphasis on providing compulsory education for ‘all children’ of school age, both the revised Constitution in 1982 and the Compulsory Education Law issued in 1987 laid the legal foundation for the development of inclusive education in China (Su et al., 2020). Providing free education for all school-age children was an ambitious objective since most children with disabilities were denied education and special schools could not be established quickly enough to accommodate the large number of children at that time (M. Deng & Poon-McBrayer, 2004). Instead of building new special schools and recruiting special teachers, including students with disabilities into regular schools was considered a cost-effective

pedagogical choice (L. Wang et al., 2015). As a result, an important national movement on inclusive education called the ‘Learning in Regular Classrooms’ (LRC) program, was officially identified by the Chinese government in 1988. It enrolled children with three types of disabilities (i.e., mental retardation, visual and hearing impairments) to be educated in regular classrooms (S. Xu et al., 2018).

In response to both the international trend and the domestic need towards inclusive education, the LRC program was written in the revised Compulsory Education Law in 2006, requiring that regular schools should accept school-aged children with disabilities “who are capable of learning in regular schools” and provide assistance for their education and rehabilitation (State Council of China, 2006, Article 19). Following the 2010-2021 Outline National Program for Mid-Long Term of Educational Reform and Development (State Council of China, 2010), the LRC program has now been expanded to more provinces in China, and its scale has been broadening to include other types of disabilities such as physical disabilities, speech and language disabilities (Su et al., 2020; S. Xu et al., 2018).

The aim of promoting inclusive education through the LRC program was demonstrated in the Special Education Promotion Plan (2014-2016) and the Second Phase of the Special Education Promotion Plan (2017-2020) (Ministry of Education, 2014, 2017). Between 1988 and 2020, the proportion of students with disabilities enrolled in regular schools under the LRC program increased from less than 6% to 49.47%, indicating that the LRC program had made progress in achieving accessible schooling (Ministry of Education, 2022; P. Deng, 1990). In 2022, the Action Plan for Promoting Special Education during the 14th Five-Year Plan period endorsed the objective of developing comprehensive inclusive education and expanding the LRC program to include more students with disabilities (State Council of China, 2022).

However, inclusive education in China still faces many challenges. The implementation of inclusive education policies may vary across different stages of schooling in China. In particular, while the LRC program is primarily implemented within the framework of compulsory education, which includes primary and junior secondary schooling, senior secondary education is not compulsory and is strongly shaped by high-stakes entrance examinations (State Council of China, 2006). As a result, secondary schools often face stronger academic pressures, rigid curriculum structures, and greater assessment demands compared with primary schools (Bellei et al., 2025). These contextual factors may influence how inclusive education policies are interpreted and enacted in secondary classrooms.

Another structural feature shaping inclusive education in China is the “parallel system” adopted for regular and special education, suggesting that “special classes in regular schools

and the LRC as the main body, and separate special schools as the backbone” (Su et al., 2020, p. 949). Regular schools are encouraged to work closely with special schools in sharing resources and exchanging professional knowledge, emphasising that special schools should not remain isolated or segregated from the broader education system (Qu, 2024). The parallel system was developed on the basis of adhering to the Western concept of inclusive education and pragmatic considerations related to specific social, economic and cultural conditions in China (M. Deng & Zhu, 2016). Government policies have also committed to increasing support and investment in resources, funding and teacher training, with both regular and special schools encouraged to access local resource centres or establish their own resource rooms equipped to meet the needs of students with disabilities (Qu, 2024).

Although some researchers have equated the LRC program with mainstreaming or inclusive education in the West, others have argued that they are related but differ in nature (Fu et al., 2019; Malinen, 2013). M. Deng and Manset (2000) stated that both inclusive education and the LRC program are philosophically grounded in offering equal learning opportunities for students with disabilities. The primary objective of inclusive education in the West is to ensure the right of all students to be educated in regular classrooms and offer a continuum of services to accommodate diverse student needs, while the main objective of the LRC program in China is to provide access to public education, which merely suggests an option of regular classroom placement (M. Deng & Poon-McBrayer, 2004; Yu et al., 2011). Unlike the Individuals with Disabilities Education Act (IDEA) in 1990, which legally guarantees the right to develop an Individualised education program (IEP), the LRC program primarily promotes the physical placement of students with disabilities in regular schools without ensuring individualised support.

In addition to the nature of the LRC program, the shortage of teachers in terms of both quantity and quality can be seen as another challenge in developing inclusive education in China. There is a lack of professional teacher training for both pre-service and in-service teachers in China to develop their knowledge and skills to implement inclusive pedagogical frameworks in regular classrooms (Alduais & Deng, 2022; X. Xu & Malinen, 2015). Even though some Chinese education institutions have designed programs on special and inclusive education, very few newly qualified special education teachers became mainstream teachers due to formal teaching professional positions related to the LRC program not being officially endorsed by national government policies (S. Xu et al., 2018). Also, large classroom sizes and an over-emphasis on academic examinations have brought too much working pressure to mainstream teachers, negatively affecting their attitudes to develop high-quality inclusive

education (M. Deng & Zhu, 2016). In consequence, Chinese teachers often do not have a very optimistic view about the feasibility of inclusive education, suggesting that these Chinese teachers are not sufficiently prepared to create an inclusive learning environment for all students in their regular classrooms (Hu et al., 2017).

2.3. Inclusive Pedagogical Frameworks and the Universal Design for Learning (UDL) Framework

2.3.1. The Concept of Inclusive Pedagogical Frameworks and the UDL Framework

Today's classrooms around the world are more complicated than ever before. Learner variability or learning differences are reflected in a wide variety of student backgrounds, skills and knowledge, demographics (e.g., lower socio-economic status), preferences, cultures, races, languages and other human differences (Craig et al., 2022a; Rao & Meo, 2016). Direct teaching based on a traditional "one-size-fits-all" practice cannot successfully accommodate the growing learning variability (Al-Azawei et al., 2016, p. 39). Developing lessons that align with academic requirements while taking into account the diverse student needs is also a common challenge for teachers.

The COVID-19 pandemic also created disruption in schools, forcing teachers and students to instruct and learn under demanding circumstances (Craig et al., 2022b). In response to the various needs of learners and the pandemic, inclusive pedagogical frameworks are urgently needed in today's regular classrooms. Inclusive education aims to meet the learning needs and preferences of all students and facilitate equitable education for a more cohesive society (UNESCO, 2017). To create a truly inclusive learning environment, appropriate inclusive pedagogical frameworks should be able to eliminate learning barriers and address the learning needs of all students, including those at-risk of being excluded or marginalised (e.g., students with disabilities).

Instead of a single "one-size-fits-all" traditional choice, different inclusive pedagogical frameworks have been proposed in order to develop inclusive education (Loreman, 2017, p.3). It promotes the learning and engagement of all students, thereby identifying and removing barriers of exclusion and marginalisation (Slee, 2018). Examples of inclusive pedagogical frameworks include differentiated instruction (Tomlinson, 1999), Inclusive Pedagogical Approach in Action (IPPA) framework (Florian & Spratt, 2013), and the UDL framework (Rose & Meyer, 2002). These inclusive pedagogically frameworks recognise the wide range of learner variability and they generate specific educational design guidelines to foster accessibility of all students to inclusive learning environments (Navarro et al., 2016).

Although the differentiated instruction and the UDL framework share some theoretical concepts related to inclusive education (i.e., embracing student diversity and considering individual needs), there are notable differences between the proactive UDL framework and the responsive differentiated instruction (Griful-Freixenet et al., 2021). The differentiated instruction is defined as teachers deliberately modifying learning content, process, products or learning environments to address students' varying readiness levels, interests and learning profiles, which stands in contrast to the UDL framework that aims to provide learning opportunities and support through a range of options and choice for all students, and to some extent operate more in the curriculum design stage (Loreman, 2017). In practice, differentiated instruction typically focuses on delivering different levels of instructional techniques for individual students (Loreman, 2017). Pappano (2011) pointed out the gap between theory and practice in implementing the differentiated instruction; for example, some students may express discontent when they realised that their learning assignment is different from other students, even if the differentiated instruction is used by an experienced teacher in the field.

Similar to the UDL framework, the IPAA framework seeks to develop rich learning experiences that are accessible to all students (Florian, 2015). The IPAA framework is defined as specifying assumptions, actions, challenges and forms of evidence that guide teachers to extend what is ordinarily available to every student rather than providing something additional or different for particular groups of students (Florian & Spratt, 2013; Florian, 2014). It aims to support teachers to acknowledge and respond to individual diversities between students, but avoid the exclusion or marginalisation that can occur when treating some students as different (Florian, 2014). As the IPAA framework is a relatively new model of inclusive pedagogical framework, its effectiveness has not become a significant research topic, although some conceptual studies have been carried out on the implementation of the framework (Loreman, 2017). Compared with other inclusive pedagogical frameworks, the UDL framework has been recognised as the most commonly used for designing and developing curricula inclusive for all students (Hall et al., 2012).

UDL was initially developed by the Center for Applied Special Technology (CAST) in the mid-1980s and appeared in professional education practices in the mid-1990s (Dalton, 2019; Flood & Banks, 2021). It is supported by both neuroscience research and the earlier work of universal design (UD), in which UD means a series of architectural guidelines for improving physical environments to maximise the accessibility of all users, including those with physical disabilities (Dalton, 2019). In the early 1990s, the CAST made efforts to effectively apply UD beyond physical environments to educational environments (Rose & Meyer, 2002). They

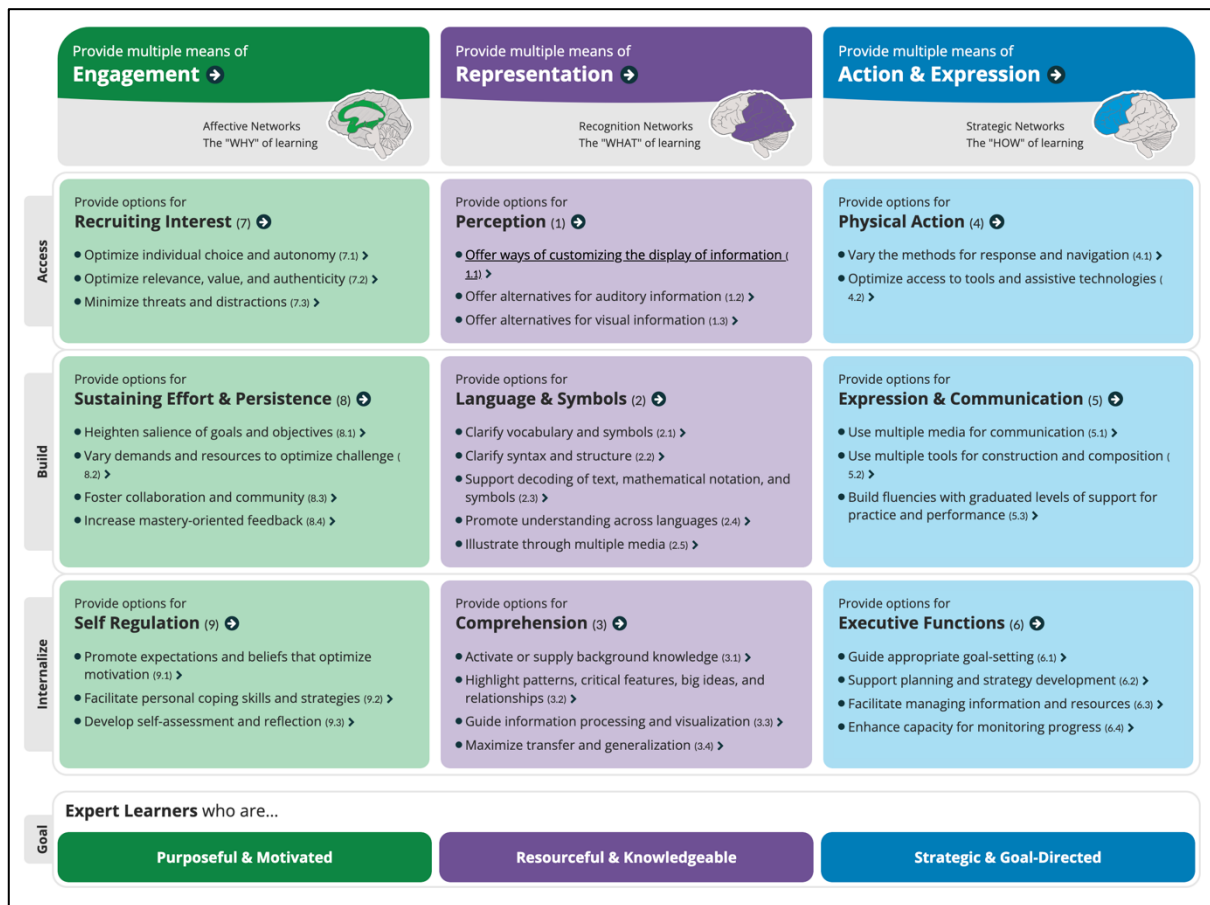
obtained insights into how the brain learned through neuroscience research and then developed the UDL framework (Rose & Meyer, 2002). UDL serves as an inclusive pedagogical framework that provides a set of principles, guidelines and checkpoints for lesson planning, curriculum development and instructional supports.

The basic premise of UDL is to intentionally and proactively address learner variability by identifying and eliminating barriers in the four interrelated curriculum components (i.e., learning goals, assessments, instructional methods and materials) for a variety of students in regular classrooms (Meier & Rossi, 2020). By adopting the UDL framework, the source of the barriers has been transferred from the learners to the curriculum design itself. Also, the UDL framework emphasises that all learners have different abilities, experiences, strengths, preferences, and these differences might be dynamic and change according to individual background and development (Meyer et al., 2024). Taking learner variability into account, the UDL framework allows teachers to provide supports, scaffolds and flexible instructional options that are helpful for all learners, rather than modifying instruction for an individual student (Rao, 2021). The intentional and proactive design to accommodate diverse students enables teachers to establish a truly inclusive learning environment that offers meaningful access to education (Meyer et al., 2024).

At the core of the UDL inclusive pedagogical framework are three overarching principles: providing multiple means of engagement, providing multiple means of representation, and providing multiple means of action and expression (Capp, 2020). These principles are divided into nine guidelines that provide suggestions for learners to engage with instruction and content, access and internalise information, and express their knowledge, understanding and skills (Lowrey et al., 2017). A total of 31 checkpoints are organised under the guidelines, each providing specific recommendations for implementing multiple means of engagement, representation, and expression (Flood & Banks, 2021). Through intentional and proactive planning, the UDL principles in combination with the guidelines and checkpoints provide flexible pathways to recognise and remove learning barriers residing in the curriculum and in the instructional process, so as to promote education for all students in regular classrooms. An overview of the UDL principles, guidelines and checkpoints is presented in Figure 2.1 and explained in the following three paragraphs.

Figure 2.1

Universal Design for Learning Principles, Guidelines and Checkpoints



Note. The current study adopted the Universal Design for Learning Guidelines, version 2.2 (CAST, 2018), as this was the most current version available at the time the study commenced.

The UDL principle of engagement has its foundation in the affective networks of the brain and addresses ‘why they learn’ (CAST, 2018). It contains the belief that learning contexts need to be designed in a flexible manner so that every student can find their own learning path, participate in meaningful classroom activities, develop their learning capacities, and stay motivated when facing learning problems (Meyer et al., 2024). To produce purposeful, motivated students, this principle highlights the need for encouraging students to sustain efforts and persistence, and exercise self-regulation skills (e.g., personal coping, self-reflection) to achieve learning goals (Meyer et al., 2024; Rao, 2021). The primary focus of the principle is to design learning experiences that students can connect with (Craig et al., 2022a). Teachers are expected to identify students’ diverse traits, understand their personal experiences, and devise instruction to suit various interests, abilities and preferences that are present in a lesson (Loreman, 2017). Students will be more motivated to actively engage in an inclusive learning

environment when their personal identities, prior knowledge, and life experiences are valued in the learning process (Chardin & Novak, 2021).

The UDL principle of representation has its foundation in the recognition network of the brain and generalises ‘what they learn’ (CAST, 2018). It contains the belief that teachers should present learning content, including languages and mathematical expressions and symbols, through a variety of media and methods to support diverse students to access, understand, interpret and engage in a lesson (Loreman, 2017; Meyer et al., 2024). To cultivate resourceful and knowledgeable students, the main information provided (e.g., big ideas, critical features, patterns and relationships) needs to be “malleable, clarified and supported” for students to properly process and construct an appropriate understanding of learning content (Craig et al., 2022a, p. 25; Rao, 2021). Through presenting information in multiple ways, different levels of prior knowledge, abilities, and preferences will be facilitated in the instructional process and diverse students’ backgrounds, personal identities, and life experiences will be respected in the creative lesson design (Chardin & Novak, 2021). Teachers are able to address barriers to accessing learning, and thus building an inclusive learning environment for all students (Courey et al., 2013; Flood & Banks, 2021).

The UDL principle of action and expression has its foundation in the strategic networks of the brain and organises ‘how they learn’ (CAST, 2018). It contains the belief that the basis for judging students’ academic performance should be personalised with choices and flexibility (Flood & Banks, 2021). To prepare strategic and goal-directed students, teachers plan to provide students with multiple options to showcase evidence of their understanding, which include providing choices of expression, suggesting the usage of different tools (e.g., calculators, assistive devices), and supporting with executive functioning skills (e.g., setting goals, organisation, staying focused) (Meyer et al. 2024; Rao, 2021). For example, instead of only conducting rigid summative assessments, continuous formative and summative assessments where students can choose the means of demonstrating their knowledge, skills and values should be provided in line with the learning goals (Meyer et al., 2024). By providing a variety of options for students to demonstrate their learning, a curriculum could become more inclusive in design as no single option will work for all students (Capp, 2018; Hitchcock et al., 2016).

2.3.2. Inclusive Pedagogical Framework: The UDL Framework in China

Over 2,500 years ago, Confucius, as a philosopher, historian and educator, made important contributions to the development of Chinese traditions and beliefs. According to the

central philosophy of Confucianism, education can be recognised as a means through which individuals learn and contribute to the benefit of society (Arndt & Luo, 2019). Inclusive education was proposed in China in the 1980s (L. Li, 2015). Considering the past education system in China has long been testing-oriented and standards-based, students with disabilities who may not learn at the same pace as others are usually ignored or marginalised in regular classrooms (Wu & Priestman, 2018; Zhao, 2014, 2018). These pressures are often particularly visible at the secondary school level, where teachers must balance teaching practices with demanding curriculum requirements and high-stakes examinations (Bellei et al., 2025).

In the last two decades, the education system in China has reformed and developed dramatically, emphasising the need for all children, including children with disabilities, to actively participate in regular classrooms (Mao & Shen, 2006). This reflects Confucius' 'Yin Cai Shi Jiao', which means teachers should identify learner variability and satisfy the learning needs of all students by presenting learning materials in different formats or at different paces (Arndt & Luo, 2019). Taking learner variability into consideration, the Chinese Ministry of Education has refocused the theory of education, shifting it from the traditional dissemination of ideas to students obtaining knowledge through interactive learning (Y. Liu, 2010). The Ministry of Education has become increasingly interested in cultivating lifelong learners, which resonates with Confucius's teaching philosophy of learning to improve oneself.

From 2007 to 2008, together with other countries, China signed and ratified Article 26 of the CRPD which addresses the equal right of persons with disabilities to a free, quality and inclusive education (CRPD, 2006). This step also facilitated the curriculum changes that have continued to occur in China. Following the international trend of inclusive education, the 2010-2021 Outline National Program for Mid-Long Term of Educational Reform and Development has called for school systems to adopt more advanced inclusive pedagogical frameworks around the globe, which will promote its education reforms and develop its education competitiveness (State Council of China, 2010). As such, the concept of UDL has been introduced in China as an innovative model of curriculum design, especially for designing barrier-free instructional materials and technologies for students with disabilities in regular classrooms (L. Zhang et al., 2020; T. Yan & Deng, 2014). Confucian ideals of interactive learning, personal responsibility, and meeting students' needs blend well with the UDL framework (Arndt & Luo, 2019). The UDL framework's characteristics of openness, diversification, flexibility and foresight may inspire learning and teaching practices in China (Hu, 2013; H. Zhang & Zhao, 2019).

The UDL framework acknowledges and recognises learner variability. In comparison to the traditional teaching philosophy in China, the UDL framework focuses on learners, rather than merely on instructional materials (Cao, 2015). To adopt the UDL framework, teachers typically design lessons and develop curricula around diverse learner abilities, instead of only focusing on learning content. In lessons designed using the UDL framework, teachers can use a variety of ways to present learning content and assess learning outcomes, which leaves the choice of learning method up to the student themselves. The application of the UDL framework provides a method to change the traditional content-based teaching philosophy for most, to promote rich, quality inclusive education for all (J. Xu, 2015).

During the past decade, research on the implementation of the UDL framework in China has also begun to emerge (e.g., J. Xu & Wang, 2015; M. Zhang et al., 2019; Yun et al., 2018). For example, in a case study, J. Xu and Wang (2015) reported that the UDL framework not only improves the learning performance of students with disabilities, but also enlightens the learning of other students without disabilities in regular classrooms. Yun et al. (2018) suggested that the UDL framework is an effective pedagogy to develop both students' learning effects and teachers' instructional design, which helps to improve the quality of education in China. The UDL framework facilitates creating an inclusive learning environment for all students in regular classrooms (M. Zhang et al., 2019).

Despite some progress, the development of the UDL framework in China is still in the beginning stage as few teachers are aware of the framework, and even fewer teachers have adopted it in actual teaching practices (H. Zhang & Zhao, 2019). One of the obstacles is the lack of teacher knowledge and skills to implement the UDL framework. Some Chinese higher education institutions have begun to initiate efforts to inculcate Chinese teachers in the UDL framework (L. Zhang et al., 2020). For example, a Chinese normal university has launched an overseas teacher preparation program to provide its pre-service teachers with the opportunity of participating in UDL training offered by a US university (L. Zhang et al., 2020). Many Chinese in-service teachers are also interested in receiving professional training to improve their teaching effectiveness and are ready to learn more about the UDL framework (Arndt & Luo, 2019). However, in real teaching practices, Jia and Xin (2017) pointed out that some teachers misunderstand the UDL framework as an assistive tool only for students with disabilities, which significantly weakens the overall effectiveness of the framework. In addition, a number of Chinese teachers do not understand how the framework actually works in regular classrooms although they can comprehend what UDL means (Jia & Xin, 2017). In this case, these teachers often design lessons based on the need of most students and provide a watered-

down version to some (e.g., students with disabilities) (H. Zhang & Zhao, 2019). Their superficial understanding of the UDL principles has inhibited the application of the UDL framework in curriculum design and ultimately hurts the overall learning potential.

Educational technology tools play an important supplementary role in implementing the UDL framework (H. Zhang & Zhao, 2019). However, some rural areas of China are impoverished and lack basic technologies such as computers (Z. Chu, 2015). Although teachers in other parts of China may apply the UDL framework using projectors, multimedia, interactive whiteboards and other common classroom devices, many other technology tools still cannot be accessed in China (H. Zhang & Zhao, 2019). For instance, a feature-rich video-sharing and social media platform like YouTube can provide plenty of information that is delivered in line with the UDL framework. However, the platform has been blocked by the Chinese government. A similar Chinese platform YouKu does not have the same key functions of YouTube (e.g., auto-captioning), which makes it difficult to fulfill the multisensory instruction promoted by the UDL framework. Further, many specific educational technology tools (e.g., UDL Curriculum Toolkit, UDL Studio) are English-only versions and are designed with Western culture in mind (H. Zhang & Zhao, 2019). Without proper translation, Chinese teachers may not understand these tools and cannot make full use of them, hindering the spread of the UDL framework throughout China.

Despite the growing interest in the UDL framework in China, existing research on its implementation remains relatively limited in scope. The current literature has primarily focused on conceptual discussions of the UDL framework or small-scale exploratory studies examining its pedagogical potential (J. Xu & Wang, 2015; Yun et al., 2018). While these studies provide valuable insights into both the potential benefits of the UDL framework and the challenges associated with its implementation, they have rarely examined the psychological factors that influence teachers' willingness to adopt and implement UDL-aligned inclusive practices in real classroom settings. Empirical studies investigating teachers' intentions and actual teaching behaviour in relation to the UDL framework remain scarce in the Chinese context, particularly at the secondary school level (M. Zhang et al., 2019; H. Zhang & Zhao, 2019). The present study therefore extends previous research by applying the Theory of Planned Behaviour (Ajzen, 1985, 1991, 2020) to examine Chinese secondary school teachers' intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

Transition Section. Previous Sections 2.2 and 2.3 specified the development of inclusive education and the UDL framework. The particular progress and the potential challenges in

developing inclusive education and the UDL framework were identified in the Chinese context. Teachers are recognised as the front line in terms of developing inclusive education and implementing inclusive practices through the lens of the UDL framework in regular classrooms. Applying the Theory of Planned Behaviour in the current research project, teacher intentions to implement inclusive practices through the lens of the UDL framework are determined by their attitudes, subjective norms and perceived behavioural control and influenced by demographic variables (Ajzen, 2020). Teachers' actual teaching behaviour can be directly or indirectly predicted by their intentions and/or perceived behavioural control (Ajzen, 2020). In the following sections of the literature review, the prediction of attitudes, subjective norms and perceived behavioural control on intentions, the impact of demographic variables on predicting intentions, as well as the prediction of actual teaching behaviour will be explained and discussed with relevant literature.

2.4. The Prediction of Attitudes on Intentions

2.4.1. Attitudes

The concept of attitudes has received decades of attention and has long been considered “the most distinctive and indispensable concept in contemporary American social psychology” (Allport, 1954, p. 43). Early on, attitudes were broadly defined (Krosnick et al., 2005). The term attitude was initially utilised by Jung (1923) in his work on psychological types to describe a readiness to respond. In this sense, Allport (1935) later defined an attitude as “a mental and neural state of readiness, organised through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related” (p. 810). In the following decades, the definition of attitude has lost its breadth and evolved considerably, paying more attention to expressing an evaluative judgement about a particular entity (Schwarz & Bohner, 2001). Bem (1970) stated that “attitudes are likes and dislikes” (p. 14). Similarly, Eagly and Chaiken (1993) defined attitudes as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (p.1).

Attitudes by definition have a subject matter (e.g., a person, an object or an abstract idea) and are related to many disciplines (e.g., education, marketing or health) (Albarracín & Shavitt, 2018). Maio and Haddock (2009) pointed out that attitudes are different in terms of direction (i.e., positive attitudes, negative attitudes and neutral attitudes) and strength (e.g., strong attitudes, less strong attitudes and weak attitudes). Compared to weak attitudes, strong attitudes are more likely to guide information processing, motivate actual behaviour, resist changes and persist over time (Maio et al., 2018). To measure attitudes, both direct and indirect attitude

measures are suggested across different professions (Fazio & Olson, 2003). Direct attitude measures, such as the Likert scale (Likert, 1932) and the semantic differential approach (Osgood et al., 1957), simply ask respondents to demonstrate their attitudes, whereas indirect attitude measures, such as the evaluative priming technique (Fazio et al., 1995) and the implicit association test (Greenwald et al., 1998), infer attitudes without asking respondents to report their attitudes.

An example of the Likert scale is one of the most common used direct attitude measures across all professions, including in the social science research communities (Maio & Haddock, 2009). A Likert scale often includes eight or more Likert items, each item consists of a stem (i.e., phrase or statement) and a scale (i.e., response options). Individuals should respond to each stem on numbered response options that are labelled, for instance, from strongly disagree to strongly agree (Maeda, 2015). The Likert scale enables a clear representation of a complex theoretical concept by combining individual responses to a series of opinion questions (Willits et al., 2016). However, the most significant criticism about direct attitude measures is that of impression management (Maio & Haddock, 2009). Impression management means the deliberate distortion or misrepresentation of one's responses, allowing the respondent to present themselves in a favourable way (Paulhus & John, 1998). Although the validity of the Likert scale may be difficult to determine, the Likert scale is easy to construct for researchers, simple to understand and finish for respondents, and generally has strong reliability when using a midpoint of the scale (Subedi, 2016).

In the most influential multicomponent model of attitude, Eagly and Chaiken (1993) proposed that attitudes consist of three components: the *affective* component of attitudes refers to personal feelings or emotions experienced by an individual towards a particular entity; the *cognitive* component of attitudes refers to an individual's beliefs, thoughts or knowledge about a particular entity; the *behavioural* component of attitudes refers to the overt actions that an individual exhibit in relation to a particular entity. It is widely recognised that attitude formation is a complex combination of these interrelated components (Ryu, 2018). For example, the affective component is primarily based on the cognitive understanding of a particular entity (D. Katz & Stotland, 1959; Triandis, 1971). If a teacher believes that educating students with disabilities in regular classrooms reduces the learning opportunities of students without disabilities, they may feel uncomfortable when they have to involve students with disabilities in regular classrooms.

Attitudes refers to the disposition of an individual to "respond favourably or unfavourably to an object, person, institution, or event" (Ajzen, 2005, p. 3). Within the Theory

of Planned Behaviour, attitudes in empirical research are usually examined in two separable affective and cognitive components (Ajzen, 2001, 2002). The affective component of attitudes has a more experiential quality and is reflected in the measurement of feelings such as “enjoyable” or “unenjoyable”, “pleasant” or “unpleasant” (Ajzen, 2002, p. 5). Whereas the cognitive component of attitudes has an instrumental nature and is represented by beliefs such as “valuable” or “worthless”, “harmful” or “beneficial” (Ajzen, 2002, p. 5). Prior studies often conceptualised attitudes as teacher attitudes towards inclusive education or inclusive practices (Opoku et al., 2021).

Taking the multidimensional nature of attitude formation into account, teacher attitudes towards inclusive education or inclusive practices were examined in the current study by adopting the Theory of Planned Behaviour. The behavioural component of attitudes is reflected in a scale measuring teacher intentions to implement inclusive practices through the lens of the UDL framework. Details about teacher intentions will be explained in Section 2.7.1 in the literature review of the current thesis. Overall, the affective and cognitive components of attitudes measure teacher attitudes towards inclusive education or inclusive practices. These two components of attitudes are reflected in one attitudinal scale in the survey section. Specifically, the statements begin with ‘I feel’ or ‘I do not feel’ in measuring the affective component of attitudes, while the statements begin with ‘I believe’ in measuring the cognitive component of attitudes. In this section, literature around teacher attitudes towards inclusive education or inclusive practices and the impact of teacher-related demographic variables on teacher attitudes will be discussed below.

Teacher Attitudes towards Inclusive Education or Inclusive Practices. Teacher attitudes towards inclusive education or inclusive practices have been intensively studied across the world (e.g., Hernandez et al., 2016; Moberg et al., 2020; Yada et al., 2018), but their findings have been inconsistent. For example, many quantitative studies that use questionnaires showed that teachers generally display positive attitudes towards inclusive education (e.g., Hoskin et al., 2015; Kast & Schwab, 2023; Varcoe & Boyle, 2014). However, these studies rely primarily on quantitative survey, which may not truly reflect teachers’ attitudes towards inclusive education. Researchers pointed out that teachers who exhibit a positive attitude towards inclusive education were more likely to bring students with disabilities into regular classrooms and modify their teaching methods to meet the diverse learning needs of all students (Lüke & Grosche, 2018; Subban & Mahlo, 2017). Promoting a positive attitude among teachers also improves student academic performance, feeling of inclusion and self-esteem (Clipa et al.,

2020). Monsen et al. (2014) suggested that teachers with positive attitudes towards inclusive education are able to create classroom environments with higher levels of satisfaction and cohesiveness and lower levels of friction, difficulty and competitiveness.

In contrast to these findings, opponents have argued that teachers have neutral or negative attitudes towards inclusive education (e.g., H. Cheung et al., 2015; Kuroda et al., 2017; Malki & Einat, 2018). Particularly in interviews, teachers often indicated that they had a preference for inclusion of students with mild disabilities, rather than students with severe disabilities, in their regular classrooms (L. Wang et al., 2015). However, the qualitative evidence was based on relatively small samples, which may limit the generalisability of the findings. Negative teacher attitudes towards inclusive education may lead to views such as, there is no need to consider diverse student needs, there is no working hours to develop curriculum, and students with disabilities are better educated outside regular classrooms (Boyle et al., 2020). Monsen et al. (2014) stated that teachers who feel reluctant to teach students with disabilities tend to be less proactive in effectively supporting these students. If negative teacher attitudes to inclusive education prevail, in particular, students with disabilities may be marginalised, leading to bullying and eventually, to being socially ostracised (Tardi, 2012).

Research on inclusive practices is also aimed at understanding teacher attitudes towards what exactly happens in teaching practices, moving research foci from theories to practices (Aiello et al., 2017). Teachers require a strong personal commitment to inclusive practices for these practices to be successfully implemented, with teacher attitudes affecting both teaching strategies and the creation of an inclusive education environment (Capp, 2020). A study by Young et al. (2017) found that while teachers in Ireland presented positive attitudes towards inclusive education, the actuality of inclusive practices was closer to that of integration, with students having to “fit in” (p.5). Bailey et al. (2015) suggested a similar finding for teachers in Malaysia. Although teachers showed generally positive attitudes towards inclusive education, their self-efficacy to successfully implement inclusive practices was lacking and thus their attitudes towards inclusive practices were less positive (Bailey et al., 2015). That is to say, teachers may have demonstrated positive attitudes towards inclusive education, but they had less positive attitudes towards their capacity to implement inclusive practices (Soleas, 2015).

Teacher Attitudes and Demographic Variables. Teacher attitudes towards inclusive education or inclusive practices, whether positive or negative, may be influenced by a myriad teacher-related demographic variables (e.g., age, length of teaching experience, gender and professional development training on inclusive education) (Ahmmed et al., 2012). Although

Jerlinder et al. (2010), Thaver et al. (2014), and Varcoe and Boyle (2014) suggested that age was not related to teacher attitudes towards inclusive education, many researchers (e.g., Boyle et al., 2013; Schmidt & Vrhovnic, 2015; Vaz et al., 2015) reported that the attitudes of younger teachers were more positive than that of older teachers. Younger teachers naturally have less teaching experience than older teachers although not all older teachers necessarily have more teaching experience (Hernandez et al., 2016). Results yielded from studies in relation to the length of teaching experience have also been inconsistent. Several studies reported that there was no significant relationship between the length of teaching experience and teacher attitudes towards inclusive education (e.g., Galaterou & Antoniou, 2017; Kraska & Boyle, 2014; Monsen et al., 2014). Other studies pointed out that teachers with more experience indicated less positive attitudes towards inclusive education (e.g., Butakor et al., 2020; Costello & Boyle, 2013; Savolainen et al., 2012). For example, Boyle et al. (2013) surveyed the attitudes of secondary school teachers in a Scottish local education authority and found that while attitudes towards inclusive education were generally positive, there was a significant decline in positive attitudes for the majority of teachers after the first year of teaching.

Research reports differing findings when considering the age and the length of teaching experience as significant factors indicating teacher attitudes towards inclusive education. Galaterou and Antoniou (2017) demonstrated that younger teachers with less teaching experience may have completed pre-service training regarding inclusive education in their teacher education programs that enhanced their educational levels and made them familiar with school environments. Monsen et al. (2014) also supported the notion that younger teachers with less teaching experience are more up-to-date with training and are therefore more prepared to apply inclusive practices. Instead, burnout and exhaustion of more experienced, older teachers may hinder the implementation of inclusive practices and the adoption of positive attitudes towards inclusive education (Galaterou & Antoniou, 2017). Forlin et al. (2008) stated that more experienced teachers belonging to the older age group often have increased concerns over threats to their professional competency. This could help to explain why more experienced, older teachers might be more reluctant to include students with disabilities in their regular classrooms (Yada & Savolaine, 2017). Older teachers with more teaching experience may prefer not to cope with students who may present challenging behaviour (e.g., students who are disruptive or noisy) because this could reflect on their professional competency (Monsen et al., 2014).

There are still mixed findings with regard to gender. Some studies have not noted any significant differences in teacher attitudes between female and male teachers (e.g., Emmers et

al., 2020; Orakcı et al., 2016; S. Singh et al., 2020). Studies by Agavelyan et al. (2020), Ahmmed et al. (2012) and Dorji et al. (2021) found that male teachers have more positive attitudes towards inclusive education and attributed the result to the larger number of male teachers than female teachers in their research locations (i.e., Kazakhstan, Bangladesh and Bhutan respectively), as well as suggested further investigation on this variable. Most studies reported that female teachers tend to have more positive attitudes towards inclusive education, compared to those of male teachers (e.g., Kumar, 2016; Pappas et al., 2018; Saloviita, 2020). Although there may be no differences between male and female teacher in actual teaching behaviour, female teachers are reported to be more “tolerant” in implementing inclusive practices and often present more conative attitudes towards inclusive education (Vaz et al., 2015, p. 2). Findings from a study by Tsakiridou and Polyzopoulou (2014) in Greece also confirmed that female teachers are more supportive towards the inclusion of students who are at-risk of being excluded or marginalised (e.g., students with disabilities, gifted and talented students) compared to their male counterparts.

Some other variables (e.g., professional development training on inclusive education, exposure to teaching students with disabilities and higher educational qualifications) have been found to result in a more consistent relationship to teacher attitudes towards inclusive education (Ahmmed et al., 2012). For example, training in the field of inclusive education often correlates positively with teacher attitudes towards inclusive education (e.g., Ahsan et al., 2012; Kurniawati et al., 2012; Scanlon et al., 2022). Vaz et al (2015) suggested that combining training on inclusive education and planned hands-on experience working with students with disabilities have been shown to improve classroom preparedness and positive attitudes towards inclusive education. Also, teachers who participate in different professional development training on inclusive education found it allowed them to have a better understanding of diverse students’ potential and therefore develop inclusive practices (Štemberger & Kiswarday, 2018). Typically, well-trained teachers are able to obtain necessary knowledge about various characteristics of students and skills in order to better work with them and design supportive learning environments (Štemberger & Kiswarday, 2018).

2.4.2. Teacher Attitudes and their Intentions

Attitudes can be seen as one of the conceptually independent determinants of intentions within the Theory of Planned Behaviour (Ajzen, 1991). Considering the operationalisation of the individual core component within the Theory of Planned Behaviour (i.e., attitudes), examining the role of teacher attitudes towards inclusive education or inclusive practices in

predicting their intentions to implement inclusive practices is of vital importance (Hellmich et al., 2019). Numerous studies have reported that teacher attitudes can be identified as a statistically significant predictor of their intentions in China (e.g., L. Wang et al., 2015; Z. Yan & Sin, 2014, 2015), as well as other educational contexts (e.g., Knauder & Koschmieder, 2019; Sharma et al., 2015; Wilson et al., 2016). Consistent with these studies, Ahmmed et al. (2014) used a survey to explore variables affecting the intentions of 738 in-service primary teachers to include students with disabilities in regular schools in Bangladesh. The results reaffirmed that there are strong correlations between teacher attitudes towards inclusive education and their intentions. This suggests that if schools are keen for teachers to be inclusive of learners with disabilities, ensuring teachers have positive attitudes towards inclusive education is of vital importance (Ahmmed et al., 2014; Sharma et al., 2018).

The relative importance of the three core components within the Theory of Planned Behaviour (i.e., attitudes, subjective norms, and perceived behavioural control) in predicting intentions is anticipated to vary across different educational contexts, for instance between pre-service and in-service teachers, or across cultural and institutional settings (Ajzen, 1991). Compared to other core components within the Theory of Planned Behaviour, attitudes are generally recognised as the strongest predictor for intentions (e.g., Malak et al., 2018; McEachan et al., 2011; Z. Yan & Sin, 2015). As a general rule, favourable attitudes are positively linked to strong intentions to perform the behaviour (Ajzen, 1991). Previous studies expressed that teachers who had positive attitudes towards inclusive education or inclusive practices were more likely to report high intentions to implement inclusive practices (e.g., Ahmmed et al., 2014; M. Jeong & Block, 2011; Sharma & Jacobs, 2016). For example, Opoku et al. (2020) recruited 457 secondary school teachers in Ghana to complete a survey designed and based on the Theory of Planned Behaviour. The results suggested that teachers who hold more positive attitudes towards inclusive education are more likely to have a higher degree of intention to implement inclusive practices. Malak et al. (2018) also showed that teacher attitudes have a strong positive correlation to predicting their intentions to teach students who display inappropriate behaviour in regular classrooms.

Research about the predictive validity of attitudes for intentions shows somewhat mixed results if the dimensions of attitudes changed (Ajzen & Cote, 2008). Alharthi (2020) in a mixed-method study in Saudi Arabia found that both the affective and cognitive dimensions of teacher attitudes towards teaching students with learning disabilities in regular classrooms had a statistically significant effect on their intentions, although their cognitive attitudes were less positive than affective attitudes. MacFarlane and Woolfson (2013) also measured the affective

and cognitive dimensions of attitudes to predict 111 regular classroom teachers' intentions to implement inclusive practices in Scotland. However, the results indicated that only teachers' cognitive attitudes significantly predicted their intention to implement inclusive practices. There was no statistically significant relationship between teachers' affective attitudes towards inclusive education with intentions. On the contrary, Song et al. (2019) found in a survey involving 116 Korean teachers that only feelings (i.e., affective dimension of attitudes) were significant predictor of intentions, whereas beliefs (i.e., cognitive dimension of attitudes) were not significant. These inconsistent findings highlight the need for further research examining how different dimensions of teacher attitudes influence intentions to implement inclusive practices. The present study addresses this gap by examining both affective and cognitive dimensions of teacher attitudes within the Theory of Planned Behaviour in relation to intentions to implement inclusive practices through the lens of the UDL framework. Both quantitative and qualitative measures were used to avoid bias and develop insights into teacher attitudes.

2.5. The Prediction of Subjective Norms on Intentions

2.5.1. Subjective Norms

Within the Theory of Planned Behaviour, a social factor termed subjective norms refers to the perceived social pressure surrounding an individual, which influences their decisions about whether to perform a particular behaviour (Ajzen, 1991). Echoing the international trend towards inclusive education, the concept of subjective norms is often conceptualised as perceived support from principals, other teachers and parents of the children in the school that motivates teachers to implement inclusive practices (Opoku et al., 2021). By encouraging teachers to engage in inclusive practices, such perceived support actively contributes to the transformational goal of inclusive education, which is to create cultural, policy, and practical conditions that eliminate barriers and enable all learners to participate meaningfully in regular classrooms (CRPD, 2016). In the current research project, subjective norms are defined as teachers' perceptions of the support they receive from significant others (i.e., principals, colleagues, and parents of students with or without disabilities) that encourages them to implement inclusive practices through the lens of the UDL framework. The history of examining teachers' perceptions of support to implement inclusive practices is extensive. However, no previous have focused on teachers' perceptions of support to implement inclusive practices through the lens of the UDL framework. Studies that have examined teachers' perceptions of support to implement inclusive practices and the impact of teacher-related demographic variables on teacher perceived support will be discussed in this section.

The notion of support, for example, includes the supply of various teaching resources or materials and training regarding inclusive education. A supportive and cohesive school culture is crucial for developing inclusive education (Young et al., 2017). To create an inclusive learning environment, teachers need assistance from both inside and outside their regular classrooms (Ahmmed et al., 2014). According to the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994), teachers should be provided with sufficient support in the form of resources, training and opportunities to receive parental, collegial and administrative cooperation to implement inclusive practices in regular classrooms.

Teachers' Perceptions of Support to Implement Inclusive Practices. The reported level of perceived support from significant others appears to vary depending on the research approach. Quantitative studies using questionnaires often report relatively high levels of support (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Z. Yan & Sin, 2014), whereas qualitative studies based on interviews or observations tend to reveal more limited or inconsistent support (e.g., L. Wang et al., 2015; Tiwari et al., 2015; Young et al., 2017). Although a qualitative interview study by Qi and Ha (2012) reported that teachers perceived satisfactory professional and emotional support from school administrators, colleagues, and social workers through collaborative meetings and informal communication, other qualitative evidence has presented a contrasting picture. For example, Hodge et al. (2018) found that Brazilian physical education teachers received inadequate material and professional support, including limited access to adapted facilities, teaching resources, and training opportunities to address the learning and behavioural needs of students with disabilities, particularly those with severe disabilities. These inconsistencies across qualitative studies indicate the need for further empirical investigation. The current study contributes to addressing this limitation by using both quantitative and qualitative methods to examine teachers' perceived support from multiple significant others (i.e., principals, colleagues, and parents of students with or without disabilities).

Teachers' Perceptions of Support and Demographic Variables. Some studies have included subjective norms and teachers' background variables to examine their influence on teachers' intentions to implement inclusive practices (e.g., Ahmmed et al., 2014; Spektor-Levy & Yifrach, 2019; Wilson et al., 2016). However, the impact of specific teacher-related demographic variables (i.e., age, length of teaching experience, gender and professional

development training on inclusive education) on subjective norms has rarely been analysed in previous studies. Z. Yan and Sin (2014) investigated subjective norms through surveyed teachers' reported perceptions of significant others who advocated the implementation of inclusive practices. They concluded that there were no statistically significant differences on the scale measuring subjective norms among different age and gender groups. Z. Yan and Sin (2014) suggested that gender and age had no impact on teachers' scores on the scale measuring subjective norms. Consistent with these results, a survey by Völlinger and Supanc (2020) also found that statistical comparisons between the subjective norms of men and women indicated no meaningful differences. With regard to the length of teaching experience, a mixed-method study by Ryu (2018) defined subjective norms as the opinion of significant others about implementing inclusive practices and found little, but no statistically significant effect of length of teaching experience on subjective norms. Ryu (2018) reported that compared to teachers with one year of teaching experience or less, more experienced teachers were more likely to be aware that school staff members expected them to implement inclusive practices.

The above literature adopting the Theory of Planned Behaviour mentioned the impact of three teacher-related demographic variables (i.e., age, length of teaching experience and gender) on subjective norms, however, possible explanations for these impacts remain unclear in previous studies (i.e., Ahmmed et al., 2014; Wilson et al., 2016; Z. Yan & Sin, 2014). To further clarify these relationships, the current study examines the influence of several teacher-related demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) on teachers' perceived support and their intentions to implement inclusive practices through the lens of the UDL framework.

In addition, although the impact of another teacher-related demographic variable (i.e., professional development training on inclusive education) on the other core components within the Theory of Planned Behaviour (i.e., attitudes and perceived behavioural control) are frequently examined (e.g., Bhatnagar & Das, 2014; Emmers et al., 2020; Song et al., 2019), none of these studies explored the impact of professional development training on subjective norms. To fill the research gap, the impact of four specific teacher-related demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) on teachers' perceptions of the support they receive from significant others to implement inclusive practices through the lens of the UDL framework are analysed and discussed in the current study with more details.

2.5.2. Teachers' Perceptions of Support and their Intentions

According to the Theory of Planned Behaviour, another determinant of intentions is the subjective norms (Ajzen, 2020). The evidence for the prediction of subjective norms on teacher intentions is mixed (Opoku et al., 2021). Previous studies suggest that subjective norms emerge as a significant predictor of teacher intentions to implement inclusive practices (e.g., Alharthi, 2020; Hellmich et al., 2019; Schüle et al., 2016). Compared to attitudes and perceived behavioural control in the Theory of Planned Behaviour, the relative importance of subjective norms in predicting intentions was found to be different across populations, situations and behaviour in various studies. The population in a mixed-method study by Alharthi (2020) involved 188 pre-service special education teachers at three universities in Saudi Arabia. Based on the standardised partial regression coefficients, Alharthi (2020) reported that subjective norms was the weakest predictor of teacher intentions to teach students with learning disabilities in regular classrooms, followed by perceived behavioural control and then attitudes. However, Z. Yan and Sin (2014) in a survey of 841 teachers from Hong Kong regular schools revealed that subjective norms could be identified as the most powerful predictor of intentions compared to attitudes and perceived behavioural control. They explained that teacher intentions towards inclusive education were more likely to be triggered by external factors (e.g., social pressure from parents, colleagues, and the community, and the availability of professional training) instead of intrinsic momentum (e.g., their own attitudes towards inclusive education) (Z. Yan & Sin, 2014).

A general rule of the Theory of Planned Behaviour stated that those who have more positive subjective norms are more likely to have strong intentions to perform the behaviour (Ajzen, 1991). Z. Yan and Sin (2014) defined subjective norms as teachers' perception of whether parents, other teachers and professional community believe that inclusive practices should be implemented. The results revealed that teachers had stronger intentions to implement inclusive practices when the important others endorsed inclusive education, even though they may not have held very positive attitudes towards inclusive education (Z. Yan & Sin, 2014). Z. Yan and Sin (2014) emphasised the influence of collectivist culture in Hong Kong, where teachers tend to regard inclusive education as both a social obligation and a matter of professionalism when it is perceived as a social preference endorsed by important others. Teachers who reported higher levels of subjective norms were more likely to form a stronger intention to "act inclusively" if they believed that this was typical behaviour of other staff (Wilson et al., 2016, p. 19).

In the Chinese context, a qualitative study by L. Wang et al. (2015) defined subjective norms as physical education teachers' perception of either social support from professional colleagues or social pressure from school administrators. As such, the extrinsic social support or pressure were reported to enhance communication among teachers, increase the sense of achievement, improve the sense of professional responsibility and eventually motivate teachers to educate students at-risk of being excluded or marginalised (e.g., students with disabilities) or implement practices inclusive of all learners (L. Wang et al., 2015). One of the interviewees explained that the head of the physical education panel arranged for teachers to support students who were at risk of exclusion or marginalisation in their regular classes (L. Wang et al., 2015). Although the teacher reported a heavy teaching load, this arrangement strengthened their intention to implement inclusive practices (L. Wang et al., 2015). This finding is also consistent with the Theory of Planned Behaviour in which subjective norms directly determine intentions.

Results varied across studies depending on how subjective norms were defined. For example, Song et al. (2019) treated Korean pre-service teachers' concerns about inclusive education as a proxy for subjective norms, using a modified version of the Concerns about Inclusive Education Scale. Their results showed that these concerns did not significantly predict teachers' intentions regarding inclusive education (Song et al., 2019). Subjective norms in another quantitative study by MacFarlane and Woolfson (2013) refer to 111 elementary school Scottish teachers' views of their school principal's expectations in regular schools. The results of MacFarlane and Woolfson's study (2013) indicated that subjective norms predict teachers' actual teaching behaviour, but not teacher intentions to work with children with social, emotional and behavioural difficulties. Therefore, the role of significant others should be clearly considered in defining subjective norms, rather than merely focusing on school leaders or another single group of people in schools. In the current research project, subjective norms are conceptualised as teachers' perceptions of the support they receive from range of significant others (i.e., principals, colleagues, and parents of students with or without disabilities) who encourage and support them to implement inclusive practices through the lens of the UDL framework. Both quantitative and qualitative measures were used to gather in-depth results in terms of subjective norms.

2.6. The Prediction of Perceived Behavioural Control on Intentions

2.6.1. Perceived Behavioural Control

Another important variable within the Theory of Planned Behaviour is perceived behavioural control (Ajzen, 1991). Perceived behavioural control refers to the perceived ease

or difficulty of performing a particular behaviour, which is identified as compatible with the concept of self-efficacy (Ajzen, 1985, 1991). Bandura (1982, 1997) defined self-efficacy as an individual's beliefs that they are capable of performing a particular behaviour to achieve an expected outcome successfully. Self-efficacy beliefs as a dynamic personal factor can change and vary according to the context and specificity of required behaviours (Dellinger et al., 2008). In the field of inclusive education, perceived behavioural control is generally operationalised as teachers' self-efficacy in implementing inclusive practices (Opoku et al., 2021). In the context of schools, teachers' self-efficacy, in particular, refers to beliefs in their capabilities in performing specific teaching tasks in a specified situation, with a specified level of quality (Dellinger et al., 2008). Specifically, teachers' self-efficacy in implementing inclusive practices refers to perceptions of their abilities to meet diverse student needs through varied teaching strategies within regular classrooms (Metsala & Harkins, 2020; Sokal & Sharma, 2017). Teachers' self-efficacy in implementing inclusive practices is crucial as it affects their views on their ability to teach effectively in inclusive contexts and it helps them to understand and assist students who are at-risk of being excluded or marginalised (e.g., students with disabilities) (Kazanopoulos et al., 2022; Woodcock et al., 2023).

The construct of teachers' self-efficacy was initially identified in the mid-1970s by the RAND Corporation studies on assessing teachers' beliefs in their ability to affect student performance, and these two studies found minimal but statistically significant results for the teachers' self-efficacy variable (Armor et al., 1976; Berman et al., 1977). Since then, there is a growing body of studies that have utilised extensively the terms of teachers' self-efficacy, teacher efficacy or teacher sense of efficacy (e.g., Braksiek, 2022; K. Li & Cheung, 2021; Yada et al., 2018). The current research project conceptualises teachers' self-efficacy to implement inclusive practices through the lens of the UDL framework with reference to perceived behavioural control. Examining teachers' self-efficacy has a long standing history, however, the history of exploring teachers' self-efficacy in implementing inclusive practices is limited, and none of the previous studies investigated teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework. Studies that have analysed teachers' self-efficacy in implementing inclusive practices and the impact of teacher-related demographic variables on teachers' self-efficacy will be discussed in this section.

Teachers' Self-Efficacy in Implementing Inclusive Practices. A number of published studies have described differences in teachers' self-efficacy in implementing inclusive practices among various countries (e.g., Loreman et al., 2013; Malinen et al., 2013; Schwab et

al., 2017). For example, Savolainen et al. (2012) reported that South African teachers were more confident in managing students' problematic behaviour than their Finnish counterparts, although their level of overall self-efficacy in implementing inclusive practices was similar. Yada and Alnahdi (2021) found that the Japanese teachers' overall self-efficacy in inclusive practices was lower than that of the Saudi teachers. The authors suggested that the Japanese culture highly values modesty and thus Japanese teachers may self-report lower scores compared to their Saudi colleagues (Yada & Alnahdi, 2021). However, cross-national comparisons may be influenced by contextual and cultural differences, which makes it difficult to generalise the findings across educational systems.

In addition, inconsistent results in examining teachers' self-efficacy to implement inclusive practices can also be identified between quantitative and qualitative studies. While some quantitative studies using questionnaire data concluded high self-efficacy among teachers in implementing inclusive practices (e.g., MacFarlane & Woolfson, 2013; Wilson et al., 2016; Z. Yan & Sin, 2014), some qualitative studies using interviews reported that teachers had low self-efficacy towards implementing inclusive practices (e.g., Hodge et al., 2018; L. Wang et al., 2015; Young et al., 2017). These divergences require further investigation into teachers' self-efficacy in implementing inclusive practices in different countries and using different research instruments. The present study contributes to addressing this gap by examining teachers' self-efficacy in Chinese secondary schools, using a mixed-method research design.

The higher the self-efficacy, the greater the amount of persistence and effort expended in a given task, since people tend to devote themselves to activities in which they believe they are capable of achieving success and are more likely to avoid activities in which they consider they do not have the necessary knowledge and skills (Bandura, 1997). Forlin (2013) realised that high-efficacy teachers are more confident in their own skills, knowledge, and abilities in handling difficult situations in classrooms. If teachers believe that they possess the knowledge and skills necessary to implement inclusive practices, these teachers would be more willing to work harder and persist longer than other teachers, even with students who are struggling (Ismailos et al., 2022). Compared to low-efficacy teachers, high-efficacy teachers are better prepared to implement inclusive practices and they are more inclined to include all students, including students with disabilities, in regular classrooms (Sharma et al., 2012). These teachers are more supportive and patient, taking time to consistently reflect and adjust their teaching strategies to promote effective teaching and ensure all students can achieve their full learning potential in regular classrooms (Woodcock et al., 2023; Woodcock & Jones, 2020).

Teachers with strong self-efficacy in implementing inclusive practices tend to be more confident in their abilities to provide alternative explanations when students are confused with learning content, develop appropriate challenges for very capable students in classes and use different assessment formats to accommodate the individual learning needs of all students, including students with disabilities (Alnahdi, 2020; Kazanopoulos et al., 2022). These teachers may present more flexibility when accepting and trying new teaching strategies (You et al., 2019). Teachers' self-efficacy not only supports student academic adjustment, but also improves teacher well-being (Zee & Koomen, 2016). There are findings suggesting that a high level of self-efficacy can contribute to teachers' job satisfaction and occupational commitment (Chan et al., 2020; Klassen & Chiu, 2010, 2011). It means that increasing teachers' self-efficacy in implementing inclusive practices can produce dedicated teachers that present positive evaluative judgments about their work (Malinen et al., 2012).

Teachers with a low sense of self-efficacy, on the contrary, reported their limited knowledge and skills present an adverse impact on their confidence to implement inclusive practices (Hodge et al., 2018). Compared to teachers with high self-efficacy, teachers who have low self-efficacy with regard to inclusive practices tend to allocate more time for tasks irrelevant to their profession and impede students' learning by using ineffective teaching strategies (Savolainen et al., 2012; Sharma et al., 2012). Sharma et al. (2012) reported that teachers with poor self-efficacy are constrained in their capacities to implement inclusive practices in regular classrooms due to limitations in knowing how to tailor their lessons to meet the unique needs and talents of all students, including students with disabilities. These teachers may also feel anxious to collaborate with others (e.g., aides, colleagues and parents of students with and without disabilities) and manage students' disruptive behaviour (Sharma et al., 2012). In particular, low self-efficacy can lead teachers to prefer to place children with disabilities in special schools instead of regular schools (Kazanopoulos et al., 2022). Even though some teachers are confident to implement inclusive practices for students with mild or moderate disabilities, they reported a lack of in-depth knowledge and skills to communicate with students with severe disabilities (Yada & Savolainen, 2019; Young et al., 2017).

Teachers' Self-Efficacy and Demographic Variables. Previous studies have identified a variety of teacher-related demographic variables (e.g., age, length of teaching experience, gender and professional development training on inclusive education) that influence teachers' self-efficacy in implementing inclusive practices, but their results yielded inconsistencies. Kazanopoulos et al. (2022), Özokcu (2018) and Schwab et al. (2017) found that age or length

of teaching experience was not significantly related to teachers' self-efficacy in implementing inclusive practices in regular classrooms. Their findings, however, displayed some inconsistencies with other studies. Many previous studies have suggested that older teachers with longer teaching experiences held higher levels of self-efficacy than their younger and less experienced counterparts (e.g., Ekins et al., 2016; Subban et al., 2021; Woodcock et al., 2022). These findings, according to the social cognitive theory, highlighted that teachers can make decisions about their perceived ability based on past performance (San Martin et al., 2021). Wilson et al. (2016) illustrated that teachers tend to refer to their past teaching performance when determining how capable they perceive themselves to be in implementing inclusive practices. Compared to younger teachers with less teaching experience, older teachers generally have more accumulated experiences to review and reflect on, which may strengthen their self-efficacy in inclusive practices. However, this relationship is not necessarily linear. In some cases, long-serving teachers may experience professional fatigue or hold entrenched beliefs that limit their confidence in adopting inclusive practices.

With regard to gender, several studies revealed that female teachers hold higher self-efficacy regarding inclusive practices compared to male teachers (e.g., Özokcu, 2017; Tait & Mundia, 2013; Van Mieghem & Verschueren, 2022). The finding supports the notion that female teachers often have a greater tolerance for implementing inclusive practices, and in general have lower levels of discomfort and higher levels of understanding to work with all students, including students with disabilities, than their male counterparts (Shaukat et al., 2013). Conversely, Tsakiridou and Polyzopoulou (2014) found that Greek male in-service teachers appeared to have higher self-efficacy than female in-service teachers regarding inclusive practices. The authors demonstrated that male teachers seemed to experience lower levels of workload stress and difficulties in managing challenging classroom behaviours (Tsakiridou & Polyzopoulou, 2014). Ahsan et al. (2012), Malinen et al. (2013) and Specht et al. (2016) found that men reported higher self-efficacy than women for managing behaviour in regular classrooms. Hutchinson et al. (2015) in a mixed-method study also suggested that Canadian male teachers reported higher self-efficacy than female teachers, but acknowledged that only 12% of their study respondents were males. Some other studies have found no significant gender differences in teachers' self-efficacy in implementing inclusive practices (Buttner et al., 2016; Emmers et al., 2020; Subban et al., 2021). It might be helpful to tease out these mixed results in future research.

Professional development training on inclusive education is considered to be another significant factor that affects teachers' self-efficacy in implementing inclusive practices. Prior

studies reported that teachers who had received training in inclusive education presented significantly higher levels of self-efficacy towards inclusive practices than those who had no training (e.g., Özokcu, 2018; Sharma et al., 2014; Shaukat et al., 2013). Chao et al. (2017) found that participating in a 1-week, 30-hour basic course, emphasising specific learning strategies, pedagogy and teaching skills for students who are at-risk of being excluded or marginalised (e.g., students with disabilities), significantly strengthened teachers' self-efficacy. Özokcu (2018) suggested that conducting regular activities to develop teachers' knowledge and skills regarding inclusive education in in-service training is thought to build up teachers' self-efficacy. Kazanopoulos et al. (2022) believed that teachers trained in inclusive education appeared to have higher levels of self-efficacy to utilise inclusive instructions, collaborate and deal with disruptive behaviours in regular classrooms. Sharma et al. (2014) and Shaukat et al. (2013) also supported that teachers with training are more efficacious towards educating students with diverse learning needs and creating an inclusive classroom environment. More teacher training programs could be recommended to help teachers to be aware of student diversity and expose teachers to best inclusive practices (Opoku et al., 2020). However, as these findings were largely derived from self-report measures such as questionnaires and interviews, they may reflect teachers' perceived rather than actual efficacy in implementing inclusive practices.

2.6.2. Teachers' Self-Efficacy and their Intentions

Perceived behavioural control is the third antecedent of intention within the Theory of Planned Behaviour (Ajzen, 1991). In the current research project, perceived behavioural control is conceptualised as teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework. A number of previous studies have noted that the level of teachers' self-efficacy emerged as a statistically significant predictor of teachers' intentions to implement inclusive practices (e.g., Ahmmed et al., 2014; Hellmich et al., 2019; Sharma & Jacobs, 2016). Through conducting hierarchical regression, in a Ghanaian study, Opoku et al. (2020) claimed that the most significant contributor of the variance in teacher intentions was self-efficacy. MacFarlane and Woolfson (2013) also suggested that the role of perceived behavioural control (i.e., teachers' self-efficacy) is slightly more important than the other two predictor variables (i.e., attitudes and subjective norms) in predicting teacher intentions, as indicated by the squared semi-partial correlations.

Compared to the other two core components within the Theory of Planned Behaviour (i.e., attitudes and subjective norms), the relative importance of perceived behavioural control

in predicting intentions is quite different with various research data (Ajzen, 1991). In South Korea, Song et al. (2019) found that teachers' self-efficacy is the strongest predictor of intentions only in the pre-training stage, however, teachers' self-efficacy seems to have no predictive power on intentions after completing a compulsory training course related to inclusive education. In an Australian study by Sharma et al. (2015), at both pre and post-stages of participating in a revised course in inclusive education, teachers' self-efficacy was found to not be a significant predictor of intentions to implement inclusive practices. The result is consistent with a study by Z. Yan and Sin (2015) in Hong Kong, who also reported that the predictive power of perceived behavioural control on intentions to be poor or not significant.

One of the general rules of the Theory of Planned Behaviour is that the greater the perceived behavioural control, the stronger the individual's intention to perform the behaviour (Ajzen, 1991). Based upon many prior studies that identified teachers' self-efficacy as a significant predictor of intentions, teachers with strong self-efficacy often reported more positive intentions to implement inclusive practices than those with lower self-efficacy (e.g., Ahmmed et al., 2014; MacFarlane & Woolfson, 2013; Sharma & Jacobs, 2016). For example, Sharma and Jacobs (2016) revealed that teachers with high levels of self-efficacy in implementing inclusive practices are willing to make positive changes in the approaches they teach in regular classrooms irrespective of whether they are teaching in an Australian or Indian context. It has also been suggested that teachers who are confident in their capacities to implement inclusive practices and educate all students are likely to support the learning of various students in their regular classrooms (Sharma et al. 2012). This result corroborates those of a prior study implying that teachers with higher levels of self-efficacy are more inclined to include all students, including students with disabilities, in regular classrooms, than their colleagues with lower self-efficacy levels (Ahmmed et al., 2014).

2.7. The Impact of Demographic Variables on Predicting Intentions

2.7.1. Intentions

Intention refers to “the degree to which a person resolves to act in a certain way” (Morwitz & Munz, 2021, p. 27). The Theory of Planned Behaviour postulates that the three core components (i.e., attitudes, subjective norm and perceived behavioural control) determine an individual's intention to perform a behaviour (Ajzen, 1991). In general, the more positive the attitudes, subjective norms and perceived behavioural control, the stronger an individual's intention would be to enact a behaviour (Ajzen, 1991). However, the theory has only been partially verified, given that empirical findings are inconsistent across different contexts and

research designs. In the current literature review, the prediction of attitudes, subjective norms and perceived behavioural control on intentions have been reviewed and discussed in Sections 2.4.2, 2.5.2 and 2.6.2 respectively. Previous studies in the field of inclusive education often operationalise intention as teacher intentions to implement inclusive practices or their intentions to include students with disabilities in regular classrooms (Opoku et al., 2021). For example, Hellmich et al. (2019) adopted a vignette related to inclusive education to investigate primary school teacher intentions and they stated that teacher intentions regarding the implementation of inclusive education is “highly pronounced” (p. 42). MacFarlane and Woolfson (2013) in a survey also pointed out high levels of teacher intentions concerning the inclusion of students with social, emotional and behavioural difficulties in regular classrooms.

The results align with studies by Opoku et al. (2020), Wilson et al. (2022) and Z. Yan and Sin (2014) which reported positive teacher intentions in Ghana, Scotland and Hong Kong respectively. Teachers who have positive intentions to implement inclusive practices or educate students with disabilities tend to believe that doing so is a professional responsibility as a teacher (Hodge et al., 2018). Unlike the above studies, a qualitative study by L. Wang et al. (2015), using semi-structured interviews, reported that one physical education teacher expressed no intention to include students who are at-risk of being excluded or marginalised (e.g., students with disabilities) in their regular classrooms. The teacher felt providing inclusive practices was a difficult task and suggested that learning in special schools was a better option for these students, which is not consistent with the initiatives of inclusive education (L. Wang et al., 2015).

In the current study applying the Theory of Planned Behaviour, intention refers to the degree to which teachers are willing to implement inclusive practices through the lens of the UDL framework, which also reflects the behavioural attitude dimension in the multicomponent model of attitude by Eagly and Chaiken (1993). Although teacher intentions to implement inclusive practices have been frequently examined in previous studies, limited research has been conducted on teacher intentions or teacher attitudes towards implementing inclusive practices through the lens of the UDL framework, and none of these studies adopted the Theory of Planned Behaviour as a theoretical framework to understand either. The current study addresses this limitation by investigating teachers' intentions to implement inclusive practices through the lens of the UDL framework within the Theory of Planned Behaviour.

Improving teacher intentions to implement inclusive practices through the lens of the UDL framework is critical to remove educational barriers in establishing an inclusive learning

environment. A study by Bedir (2022) examined 55 teachers' views on the subject after a short introduction of UDL, with results indicating that the majority of teachers in Turkey held positive views regarding the UDL framework. Most teachers remarked that the UDL framework would make learning information accessible to all students with different learning needs and preferences (Bedir, 2022). Hartmann (2015) stated that teachers who hold a UDL view of curriculum will assume competence in all students, including students with severe disabilities, in their regular classrooms.

The UDL framework enables teachers to transfer their conceptions of curriculum to be more inclusive and realise that learner variability is natural and valued (Hartmann, 2015). However, some teachers with negative perceptions towards the UDL framework pinpointed that they had insufficient knowledge and skills to apply the UDL framework to all learner differences (Bedir, 2022). A study by Westine et al. (2019) also implied that most of the university instructors in a survey admitted their lack of knowledge about the UDL framework, although they expressed a high to moderate interest in learning more about all the UDL framework guidelines. Therefore, training on how to develop a curriculum based on the UDL framework would be particularly beneficial for teacher preparation (Hromalik et al., 2020; Lanterman & Applequist, 2018).

2.7.2. Teachers' Demographic Variables and their Intentions

The Theory of Planned Behaviour clarifies that various demographic variables of an individual are assumed to indirectly influence intentions by affecting behavioural, normative and/or control beliefs, and, through these beliefs, on attitudes, subjective norms and/or perceived behavioural control (Ajzen, 2011; Ajzen et al., 2018). To construct a full model of the Theory of Planned Behaviour, teacher-related demographic variables were included in the current research project to explore its impact on predicting teacher intentions. As previously stated in Sections 2.4.1, 2.5.1 and 2.6.1 of this literature review, the considerable teacher-related demographic variables include age, length of teaching experience, gender and professional development training on inclusive education. There are several studies that collected demographic data from teachers in applying the Theory of Planned Behaviour (e.g., Emmers et al., 2020; Hodge et al., 2018; Sharma & Jacobs, 2016). Limited studies which adapted the Theory of Planned Behaviour as the framework to examine intentions have reported the contribution of teacher-related demographic variables to the variance in their intentions to implement inclusive practices or their intentions to include students with

disabilities in regular classrooms (e.g., MacFarlane & Woolfson, 2013; Ryu, 2018; Wilson et al., 2016).

A study by Ahmmed et al. (2014) utilised hierarchical regression to explore the predictive utility of different demographic variables (e.g., gender, age, length of teaching experience, previous training in inclusive education and educational qualifications) on teacher intentions to include students with disabilities in regular classrooms. The results indicated that only age and length of teaching experience were significant predictors of teacher intentions (Ahmmed et al., 2014). A plausible explanation by Ahmmed et al. (2014) about age is that younger teachers may have more opportunities to learn the knowledge and skills of inclusive practices during their teacher education, which in turn will positively affect their overall intentions, while Opoku et al. (2020) used Point-biserial correlations and did not find a correlation between age and teacher intentions. With regard to the length of teaching experience, the reason why more teaching experience positively contributed to teacher intentions is difficult to explain and further in-depth investigations are recommended (Ahmmed et al., 2014).

Three previous studies reported apparently contradictory findings on the impacts of length of teaching experience on intentions. MacFarlane and Woolfson (2013) suggested that more experienced teachers are less willing to work with students with social, emotional and behavioural difficulties in regular classrooms than less experienced teachers. The authors demonstrated that students with social, emotional and behavioural difficulties often present various challenging behaviours, and the more teachers experience these challenging behaviours during their teaching career, the more negative they become (MacFarlane & Woolfson, 2013). Another two studies by Opoku et al. (2020) and Wilson et al. (2016) found that years of teaching experience cannot be identified as a significant predictor of teacher intentions to implement inclusive practices. In terms of gender and training, Ahmmed et al. (2014) and Song et al. (2019) concluded that gender and training are not statistically significant in predicting teacher intentions. Only a study by Wilson et al. (2016) using a multiple regression model found that gender and training accounted for a small but statistically significant proportion of variance in teacher intentions, but none of the demographic variables were significant after including attitudes, subjective norms and perceived behavioural control in the regression model. These inconsistent findings reflect the complexity of the formation and change of teacher intentions and are worthy of further examination.

Moving from inclusive practices to the UDL framework, it should be noted that none of the previous studies adopting the Theory of Planned Behaviour examined the relationship between teacher intentions or teacher attitudes towards implementing inclusive practices

through the lens of the UDL framework and teacher-related demographic variables. In the current research project, the relationship between teacher-related demographic variables (i.e., age, length of teaching experience, gender, and professional development training on inclusive education) and the three core components of the Theory of Planned Behaviour (i.e., attitudes, subjective norms, and perceived behavioural control) were examined to determine how these factors influenced Chinese secondary school teachers' intentions to implement inclusive practices through the lens of the UDL framework. Data were collected through surveys, observations, and interviews to provide a comprehensive understanding of these relationships. The mixed-method project was proposed to generate in-depth insights on the basis of the Theory of Planned Behaviour theoretical framework.

2.8. The Prediction of Actual Teaching Behaviour

2.8.1. Actual Teaching Behaviour

The Theory of Planned Behaviour has been widely and successfully applied to “explain and predict behaviour in a multitude of behavioural domains” (Ajzen, 2020, p. 314). In the field of inclusive education, however, many prior studies applying the Theory of Planned Behaviour did not include an examination of actual teaching behaviour about implementing inclusive practices (e.g., Ahmmed et al., 2014; Sharma & Jacobs, 2016; Song et al., 2019). Although some prior studies have indeed measured actual teaching behaviour, these studies typically utilised self-reported questionnaire scales to collect data and often reported positive results of actual teaching behaviour (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Wilson et al., 2016). MacFarlane and Woolfson (2013) revised an Adaption Evaluation Instrument developed by Schumm and Vaughan (1991) to measure teachers' inclusive behaviour specifically towards children with social, emotional and behavioural difficulties in regular schools. MacFarlane and Woolfson (2013) using the Likert scale reported that on average teachers are frequently engaged in inclusive practices. Another two studies that used behaviour scales also found a similar result to MacFarlane and Woolfson (2013), suggesting that teachers demonstrated a high level of inclusive practices (Hellmich et al., 2019; Z. Yan & Sin, 2014). However, relying solely on quantitative self-report measures may introduce potential biases, as teachers are required to evaluate their own behaviours rather than being observed in authentic classroom contexts. Most of these studies collected data through Likert-scale questionnaires, which may reflect teachers perceived rather than actual practices (e.g., Ahmmed et al., 2014; Hellmich et al., 2019; Song et al., 2019). To address this limitation, the current study employed a mixed-method research design combining questionnaires, interviews,

classroom observations and post-observation interviews to capture teachers' actual teaching behaviour in authentic classroom contexts.

L. Wang et al. (2015) in China utilised systematic observations, non-participant observations and individual semi-structured interviews during data collection, but only the actual behaviours of teaching students who are at-risk of being excluded or marginalised (e.g., students with disabilities) were identified in their study. This conflicts with the objective of inclusive education in providing equal educational opportunities for all students, including students with and without disabilities. There is a need for conducting more observational and interview studies to measure teachers' actual teaching behaviour in the field of inclusive education. Instead of only focusing on students at-risk of being excluded or marginalised, all students were observed in selected regular classrooms in the current study. In addition, according to the Theory of Planned Behaviour, the particular behaviour of interest must correspond to or be compatible with the measures of intentions and of perceived behavioural control (Ajzen, 1988). Since teacher intentions to implement inclusive practices through the lens of the UDL framework and teachers' self-efficacy to implement inclusive practices through the lens of the UDL framework were examined in the current study, the behaviour to be examined was 'implementing inclusive practices through the lens of the UDL framework'. Both quantitative and qualitative measurements (i.e., questionnaires, interviews and observations) were employed in the current study to investigate the UDL framework aligned teachers' actual teaching behaviour.

2.8.2. Direct and Indirect Prediction of Teachers' Actual Teaching Behaviour

The performance of an actual behaviour can be recognised as a joint function of intentions and perceived behavioural control in applying the Theory of Planned Behaviour (Ajzen, 1991). In general, the greater the perceived behavioural control, the stronger the intentions and then the higher the probability of actual behaviour occurring (Ajzen, 2020). A study by Z. Yan and Sin (2014) replicated the Theory of Planned Behaviour on the basis of their own 841 primary and secondary teachers' survey data from Hong Kong. They conducted structural equation modelling (SEM) in data analysis and concluded that teachers' actual inclusive practices were significantly demonstrated by their intentions to carry out inclusive education and their confidence on professional training for staff involved (Z. Yan & Sin, 2014). It confirms that actual behaviour can be directly predicted by intentions and perceived behavioural control in the Theory of Planned Behaviour (Ajzen, 2020). Teachers with higher

levels of intentions and perceived behavioural control are more willing to execute inclusive practices (Z. Yan & Sin, 2014).

According to the Theory of Planned Behaviour, the relative importance of intentions and perceived behavioural control in predicting actual behaviour is anticipated to vary with different behaviours and situations (Ajzen, 1991). While both perceived behavioural control and intentions have shown direct predictive power on actual behaviour, Z. Yan and Sin (2014) revealed that perceived behavioural control presented a more significant impact on actual behaviour than intentions. Wilson et al. (2022) also found that perceived behavioural control (i.e., teachers' self-efficacy) predicted primary school teachers' reported inclusive behaviour directly, although no relationship has been noted between teacher intentions and reported inclusive behaviour in a multilinear regression. The results are inconsistent across different studies. Hellmich et al. (2019) indicated that primary school teachers' everyday practices in heterogeneous classrooms could be significantly predicted by their intentions regarding implementing inclusive practices, rather than their collective self-efficacy beliefs. The direct predictive power of intentions and perceived behavioural control on actual behaviour in the Theory of Planned Behaviour needs further investigation and clarification.

In addition to exploring the direct predictive path from intentions and perceived behavioural control to actual behaviour, the intentions and/or perceived behavioural control as possible mediating variables standing between attitudes, subjective norms, perceived behavioural control and actual behaviour cannot be ignored (Ajzen, 1985, 1991, 2020). Several studies have examined the indirect predictive power of attitudes, subjective norms and perceived behavioural control on actual behaviour, and discussed the mediating role of intentions and/or perceived behavioural control in predicting actual behaviour indirectly (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Wilson et al., 2022). In order to construct a full picture of the Theory of Planned Behaviour, Z. Yan and Sin (2014) pointed out that attitudes, subjective norms and perceived behavioural control have an indirect effect, mediated via teacher intention towards developing inclusive education, on teachers' actual inclusive practices. Hellmich et al. (2019) found that only teacher attitudes towards inclusive education can significantly and indirectly predict their everyday practices in heterogeneous classrooms, and this predictive relationship is significantly mediated by their intentions to implement inclusive practices. In terms of the mixed results, the indirect predictive path from attitudes, subjective norms and perceived behavioural control to actual behaviour may also need further research attention. The current study therefore examined both direct and indirect predictive paths of actual teaching behaviour within the Theory of Planned Behaviour.

2.9. Transition Section

The literature review has drawn on studies conducted across different countries and educational contexts. Within the Chinese context, research adopting the Theory of Planned Behaviour to examine teacher intentions for implementing inclusive practices remains limited, with no studies investigating these intentions within a specific inclusive pedagogical framework (e.g., L. Wang et al., 2015; Z. Yan & Sin, 2014, 2015). Building on this gap, the present study applies the Theory of Planned Behaviour to explore secondary school teachers' intentions to implement inclusive practices through the lens of the UDL framework, as well as their actual teaching behaviours in China. Furthermore, while most of the reviewed studies employed quantitative surveys to examine the constructs of the Theory of Planned Behaviour (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Wilson et al., 2016), this study has adopted a mixed-methods research design, integrating both quantitative and qualitative approaches to provide more insights into teacher intentions to be inclusive. The methodological details are discussed in the following chapter.

Chapter 3

Methodology

3.1. Chapter Introduction

The previous chapter highlighted that, although the Theory of Planned Behaviour has been applied to examine teacher intentions in the field of inclusive education, research in the Chinese context remains limited, particularly where teacher intentions and actual teaching behaviour are investigated within a specific inclusive pedagogical framework such as the Universal Design for Learning (UDL) framework. The review also suggested that studies in this area have predominantly relied on quantitative survey designs, which offer useful but partial insights into the complexity of how teachers think about and enact inclusive practices. In this sense, the present study examined both secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

This chapter will outline the research design, research strategies, participants, data collection, instruments, research procedure, ethical considerations, translation of the study, as well as data analysis implemented in the particular research project. The chapter is organised to first introduce the overall methodological orientation of the study, followed by descriptions of the data sources and procedures used to gather both quantitative and qualitative evidence. The approaches to data analysis are then explained, and the chapter concludes by indicating how the findings are subsequently presented in Chapter 4 results.

3.2. Research Design and Strategies

3.2.1. Research Design

Research design refers to the overall plan or blueprint that guides how a study is conducted, including how data will be collected, analysed and interpreted in order to answer the research questions (Creswell & Creswell, 2023). Research design is informed by underlying philosophical assumptions concerning ontology and epistemology. Ontology refers to assumptions about the nature of reality, while epistemology concerns how knowledge about that reality can be generated and justified (Moon & Blackman, 2014). These philosophical assumptions collectively shape a researcher's broader philosophical stance and methodological choices. In the present study, a pragmatist philosophical standpoint was adopted, recognising that both the measurable patterns of teacher intentions and actual teaching behaviour and the meanings teachers ascribed to these were valuable for understanding inclusive practices.

Ontologically, the study aligned with critical realism, acknowledging that teacher intentions and actual teaching behaviour were real phenomena, yet shaped by the context in which they occurred. From a critical realist perspective, social phenomena exist independently of researchers but may be influenced by social, institutional and contextual conditions (Moon & Blackman, 2014). In this study, teachers' intentions and teaching practices were therefore understood as real but contextually embedded phenomena shaped by school environments, policy conditions and teachers' professional experiences.

Epistemologically, the study adopted a post-positivist orientation in the quantitative phase, where constructs such as attitudes, subjective norms, perceived behavioural control and intentions were measured and analysed to address Research Questions 1 to 4.2, which examined the predictors and predictive pathways of teachers' intentions and actual teaching behaviour. The qualitative phase was guided by an interpretivist orientation, in which interviews and classroom observations were used to explore how teachers made sense of implementing inclusive practices through the lens of the UDL framework, corresponding to Research Questions 5 to 7, which sought to understand teachers' overall intentions, the alignment between UDL and their actual teaching behaviour, and the relationship between their intentions and actual teaching behaviour. The use of both post-positivist and interpretivist approaches reflects the pragmatist philosophical standpoint of the study, which allows different forms of knowledge and methodological approaches to be combined when they contribute to answering the research questions. This pragmatist philosophical standpoint supported the use of an explanatory sequential mixed methods design, in which qualitative findings were used to deepen, clarify and contextualise the quantitative results, thereby providing a more comprehensive understanding of the research questions.

The current study employed a mixed methods research design. 'Mixed methods research' refers to a research design that combines elements of quantitative and qualitative research methods into a single study by using both quantitative and qualitative data collection, analysis and inference techniques (R. Johnson et al., 2007; Tashakkori & Creswell, 2007). The broad purposes of mixed methods research have been determined to provide breadth and depth of understanding and corroboration (R. Johnson et al., 2007). In recent decades, the popularity of mixed methods research has increased steadily in different fields of study such as nursing, public health, business, social and behavioural sciences (e.g., Alise & Teddlie, 2010; Koekkoek et al., 2011; Philippa et al., 2021; Rohm et al., 2013; S. Huang, 2015; Tashakkori & Teddlie, 2016). Particularly in the field of inclusive education, mixed methods studies are frequently

designed to obtain a full picture and in-depth understanding when answering research questions (e.g., Ballantyne et al., 2022; Hacibrahimoğlu, 2022; Mohamed, 2018; Nobel et al., 2020; Odongo & Davidson, 2016; Stevens & Wurf, 2018).

The current mixed methods research aimed to develop a comprehensive representation of teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour. There are many prior mixed methods studies involved pre- and post-test intervention to investigate the effectiveness of the UDL framework (e.g., Hitchcock et al., 2016; J. Katz, 2015; Sokal & Katz, 2015). However, prior studies often used a single quantitative or a qualitative method to investigate teacher perceptions and experiences of implementing the UDL framework (e.g., Anstead, 2016; Fuentes et al., 2016; Takemae et al., 2018). For example, Takemae et al. (2018) collected qualitative data from individual interviews, a focus group interview, lesson plan reviews, and descriptive and reflective field notes to obtain insights into effective approaches for preparing teacher candidates to implement the UDL framework in their actual teaching practices. The authors suggested that a larger sample size may provide a wider range of teacher candidates' unique perspectives and experiences, in which adding a quantitative phase would be a suitable choice in future research (Takemae et al., 2018). The current research project filled this methodological gap by using a mixed methods research design. Although the mixed methods research design seems more time-consuming and expensive, qualitative and quantitative data adds meaning and precision to a single study respectively (Caruth, 2013).

Soleas (2015) used a sequential explanatory mixed-methods design to examine the perceptions of inclusive practices for 44 new Canadian teachers. The study first conducted a complete audit of relevant teacher education course materials, followed by the collection of both quantitative and qualitative data through a mixed-methods questionnaire, and then semi-structured critical-case interviews with selected participants to elaborate and explain the survey results (Soleas, 2015). By combining findings from the course audit, questionnaire responses, and interview data, the study provided a more comprehensive understanding of how new teacher philosophies aligned with inclusive practices and what these new teachers needed to improve to implement inclusive practices (Soleas, 2015). Another study by Leblebici and Türkan (2021) investigated 133 pre-service teachers' attitudes and self-efficacy perceptions towards inclusive education using a parallel mixed-methods research design. In this design, quantitative scales were administered to measure attitudes, self-efficacy, and classroom practice tendencies, while qualitative data were collected concurrently to examine participants' views and metaphorical perceptions of inclusive education (Leblebici & Türkan, 2021). By

collecting and analysing quantitative and qualitative data within the same timeframe, the study enabled the two strands to complement each other, allowing the qualitative findings to explain, contextualise, and enrich the interpretation of the quantitative results (Creswell & Plano Clark, 2018; Leblebici & Türkan, 2021). Through this parallel integration, the mixed-methods design yielded a more comprehensive and coherent understanding than would have been possible using a single method alone (Leblebici & Türkan, 2021).

Types of Mixed Methods Research Designs. Researchers from various fields have defined the types of mixed methods research designs in different ways (Creswell et al., 2003). Table 3.1 outlines classification examples of mixed methods research designs determined by researchers in different fields. Creswell and Plano Clark (2018) pointed out that different typologies of mixed methods research design are available not only because researchers come from different disciplinary orientations, but also because each typology reflects researchers’ focus on different decision points and design features within mixed methods research.

There are four possible considerations in developing the typologies of mixed methods research designs: (a) the purpose of mixing quantitative and qualitative methods; (b) the relative order in which quantitative and qualitative methods are implemented relative to each other; (c) the relative priority given to quantitative or qualitative methods in addressing research questions; (d) the level of interaction that occurs between quantitative and qualitative methods (Creswell & Plano Clark, 2018). Most researchers utilise at least a couple of these considerations in developing their own typologies of mixed methods research designs (Creswell & Plano Clark, 2018). For example, as shown in Table 3.1, Morse (1991) and Sandelowski (2000) utilised the name ‘simultaneous’ and ‘sequential’ to indicate their focus on the relative timing of when the quantitative and qualitative data were collected and analysed relative to each other.

Table 3.1

Classification Examples of Mixed Methods Research Designs

Researchers	Mixed Methods Designs	Fields
Greene et al. (1989)	Initiation Expansion Development Complementary Triangulation	Evaluation

Morse (1991)	Simultaneous triangulation Sequential triangulation	Nursing
Morgan (1998)	Complementary designs Qualitative preliminary Quantitative preliminary Qualitative follow-up Quantitative follow-up	Health research
Sandelowski (2000)	Sequential Concurrent Iterative Sandwich	Nursing
Tashakkori & Teddlie (2003)	Concurrent mixed designs Concurrent mixed method design Concurrent mixed model design Sequential mixed designs Sequential mixed method design Sequential mixed model design Multistrand conversion mixed designs Multistrand conversion mixed method design Multistrand conversion mixed model design Fully integrated mixed model designs	Social and behavioural research
Creswell & Plano Clark (2018)	Convergent design Exploratory sequential design Explanatory sequential design	Social sciences

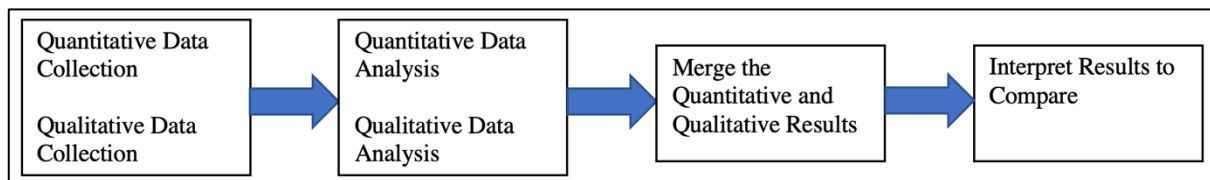
Note. Adapted from Creswell and Plano Clark (2018).

To advance a economical and practical typology of mixed methods research designs, Creswell and Plano Clark (2018) identified three core mixed methods research designs; the convergent design, the exploratory sequential design and the explanatory sequential design. As

shown in Figure 3.1, the convergent design occurs when a researcher collects both quantitative and qualitative data, analyses the two types of data, and then combines and compares the quantitative and qualitative results during the interpretation phase (Creswell & Creswell, 2023). Under the convergent design, it should be noted that quantitative and qualitative data collection are concurrent but typically separate, which means that one does not rely on the results of the other (Creswell & Plano Clark, 2018). The purpose of the convergent design is “to obtain different but complementary data on the same topic” (Morse, 1991, p. 122) in order to develop a complete understanding of research questions. The convergent design also helps researchers to reduce the time and costs of data collection as quantitative and qualitative data are collected during one phase of the research at roughly the same time (Alavi & Habek, 2016; Conrad & Serlin, 2011). Although the convergent design is popular in mixed methods research, it can be challenging if researchers do not have necessary expertise in merging quantitative and qualitative data or do not have requisite skills to analyse existing discrepancies when comparing quantitative and qualitative results (Alavi & Habek, 2016; Conrad & Serlin, 2011).

Figure 3.1

Convergent Design



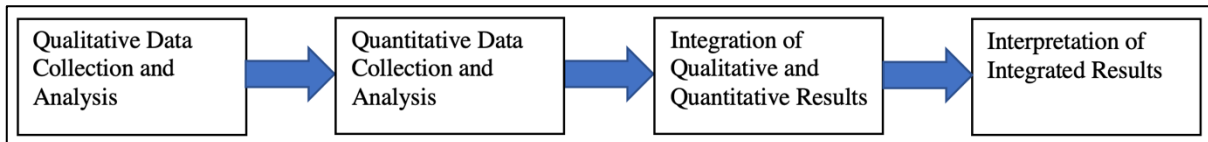
Note. Adapted from Creswell and Plano Clark (2018).

As shown in Figure 3.2, the exploratory sequential design begins with the collection and analysis of qualitative data, followed by researchers identifying and testing a quantitative feature (e.g., a new survey instrument, new experimental activities or new variables) based on the qualitative results (Creswell & Creswell, 2023). Then, researchers integrate the quantitative and qualitative results in the data analysis section and interpret how the quantitative results build on the initial qualitative results, providing a clear understanding of research questions (Alavi & Habek, 2016; Creswell & Plano Clark, 2018). Instead of comparing the quantitative and qualitative data, the intent of the exploratory sequential design is “to determine if the qualitative themes in the first phases can be generalised to a larger sample” (Creswell & Creswell, 2023, p. 307). Although the exploratory sequential design often needs extended time and costs to complete separate data collection phases, these separate phases make the

nominated design relatively straightforward to explain, apply and report (Alavi & Habek, 2016; Creswell & Plano Clark, 2018). Under the exploratory sequential design, the inclusion of quantitative method enables qualitative method to be easily accepted by quantitative-biased audiences (Creswell & Plano Clark, 2018).

Figure 3.2

Exploratory Sequential Design

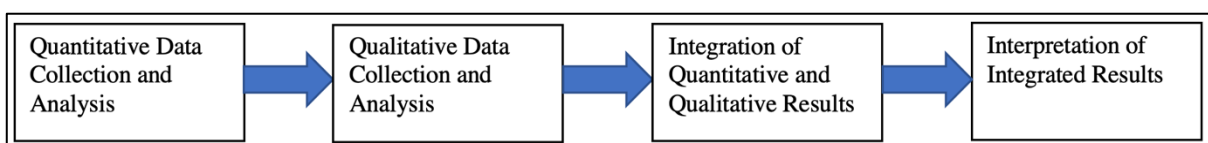


Note. Adapted from Creswell and Plano Clark (2018).

As shown in Figure 3.3, in the explanatory sequential design, quantitative data will be collected and analysed initially, and it will be “complemented, followed, and enhanced” by collecting and analysing qualitative data (Alavi & Habek, 2016, p. 64). Compared with convergent and exploratory sequential designs, the explanatory sequential design places primary emphasis on the quantitative phase, with the qualitative component serving to clarify, deepen, or contextualise the statistical results (Creswell & Creswell, 2023; Morgan, 1998). Under the explanatory sequential design, quantitative and qualitative data are collected and analysed separately, and then results integrated in the data analysis section (Creswell et al., 2025; Tashakkori & Teddlie, 1998). The primary intent of the explanatory sequential design is to use qualitative results to expand or explain initial quantitative results in more depth (Creswell & Creswell, 2023). Implementing the explanatory sequential design has similar strengths and challenges as the previous exploratory sequential design. Although the explanatory sequential design demands time and costs in separate data collection phases, it is a manageable design for researchers to conduct in separate phases (Creswell & Plano Clark, 2018).

Figure 3.3

Explanatory Sequential Design



Note. Adapted from Creswell and Plano Clark (2018).

Many previous studies in the field of inclusive education have applied the explanatory sequential design (e.g., Desutter, 2015; Love, 2018; Schwab et al., 2022). For example, McCracken et al. (2020) examined pre-service health and physical education teacher perceptions on inclusive education using an explanatory sequential design. A quantitative repeated measures survey was conducted and analysed at first, and then qualitative semi-structured interviews were designed to seek an explanation for the quantitative results (McCracken et al., 2020). The results and discussions of the quantitative and qualitative phases of the study were presented individually to highlight the various insights made by the two methods, and these insights were integrated and summarised into the conclusion (McCracken et al., 2020). Another study by Alshahrani and Abu-Alghayth (2023) also adopted the explanatory sequential design by combining both questionnaires and interviews to provide a comprehensive description of primary school teacher attitudes towards the availability of professional development for inclusive education in Saudi Arabia. The qualitative interviews were specifically used to explain and deepen the initial quantitative patterns, demonstrating how teachers' reported attitudes were shaped by contextual and experiential factors. The explanatory sequential design increased the depth of the results and provided a better understanding of the research questions (Alshahrani & Abu-Alghayth, 2023). These methodological precedents informed the choice of a sequential explanatory design in the present study, in which quantitative survey results were first examined, followed by qualitative inquiry to explain and contextualise those results.

The current study adopted the explanatory sequential mixed methods research design with changes. An overview of the research design and strategies is presented in Figure 3.4 and shows the three research phases and specific elements within each phase. The current study comprised the quantitative survey research, the qualitative survey research, as well as the observational research. In Phase 1 and Phase 2, the quantitative and qualitative survey research adopted the explanatory sequential design in which quantitative data collection (i.e., questionnaires) and analysis were followed by qualitative data collection (i.e., interviews) and analysis (i.e., QUANT → qual). This choice aligns with the key considerations in developing explanatory sequential mixed methods research designs as outlined by Creswell and Plano Clark (2018). Specifically, the purpose of mixing methods in this study was explanatory, using qualitative findings to interpret and elaborate on the quantitative results. The study implemented a sequential order, with quantitative methods preceding qualitative methods. Priority was given to the quantitative phase, indicated by the notation QUANT → qual, where

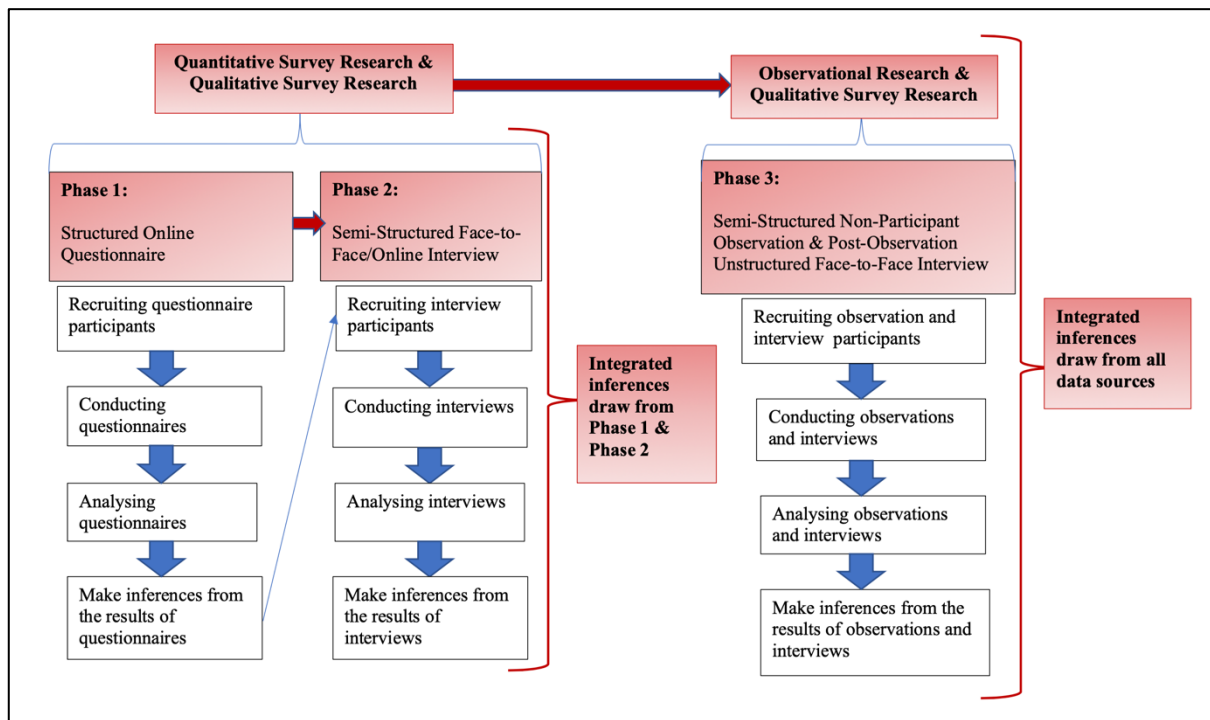
uppercase denotes the dominant component and lowercase denotes the complementary component (Morse, 2003). Integration occurred during the interpretation stage, where qualitative insights were brought together with the quantitative findings to provide a more comprehensive understanding of the research questions.

Adopting the Theory of Planned Behaviour in the survey, Phase 1 quantified teachers' attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour, while Phase 2 evaluated all the core components without actual teaching behaviour. Adopting the Theory of Planned Behaviour, the results of Phase 1 and Phase 2 were integrated to draw inferences about the overall intentions of teachers to implement inclusive practices through the lens of the UDL framework.

Phase 3 focused on measuring teachers' actual teaching behaviour. Within the Theory of Planned Behaviour, Phase 3 was used to investigate the extent to which teachers' actual teaching behaviour could be explained and predicted by their overall intentions to implement inclusive practices through the lens of the UDL framework. In Phase 3, the observational research and qualitative survey research applied an explanatory sequential design in a slightly different way by involving mixed methods observations and qualitative post-observation interviews (i.e., [QUANT → qual] → qual). Observation data were collected and analysed at first, then post-observation interview data were collected and analysed. It should be noted that observer field notes were completed by the researcher and to facilitate planning of post-observation interviews to gather participants' responses. Including a third phase is not a usual custom in explanatory sequential design (Creswell & Plano Clark, 2018), but the addition of qualitative post-observation interviews in the current study was anticipated to further clarify the observation data and enable teachers to reflect on their intentions towards implementing inclusive practices through the lens of the UDL framework.

Figure 3.4

An Overview of the Research Design and Strategies



Note. QUANT → qual → [QUANT → qual] → qual.

To summarise, the overall study was ‘sequential’ in that quantitative data were collected in Phase 1 followed by qualitative data collection across two phases of data collection. The study was ‘explanatory’ in that qualitative data collection and analysis were utilised to facilitate further exploration and clarification of quantitative results in order to address possible underlying mechanisms within the Theory of Planned Behaviour. Although qualitative data were positioned as complementing the quantitative data, the two types of data were considered to provide different, but necessary information (Love, 2018). To refine the statistical results and the perspectives expressed by participants, the study not only integrated results after Phase 2, but also integrated all the quantitative qualitative and observational research results in a final data analysis step (Engelbrecht & Savolainen, 2018). The integrated results were interpreted in the Discussion chapter to provide a comprehensive picture for the current study.

3.2.2. Research Strategies

Extensive prior studies have utilised a single research strategy (e.g., survey research, observational research or case study) to investigate teacher intentions to implement inclusive practices and their actual behaviour based on the Theory of Planned Behaviour (e.g., L. Wang

et al., 2015; Opoku et al., 2020; Z. Yan & Sin, 2014). For example, Sharma et al. (2018) adopted the Theory of Planned Behaviour and utilised a five-part survey questionnaire to investigate and compare 153 Australian and 156 Italian in-service teachers' attitudes, concerns, efficacy and intentions to teach in inclusive learning environments. The five-part survey questionnaire included the Attitudes towards Inclusion Scale, Concerns about Inclusive Education Scale, Teacher Efficacy for Inclusive Practices Scale, Intention to Teach in Inclusive Classroom Scale and participants' background information (Sharma et al., 2018). Based upon the quantitative survey results, the authors found that overall Italian teachers were more positive in their intentions to implement inclusive practices compared to Australian teachers (Sharma et al., 2018). Further observational research which may have been beneficial to present is whether Australian and Italian teachers' intentions to implement inclusive practices aligned with their actual teaching behaviour.

Limited previous studies have utilised various research strategies within a single study. Opoku et al. (2021) claimed that using only one research strategy to address teacher intentions and actual behaviour may not be adequate since there have been inconsistent results between studies that used different research strategies. While the quantitative survey responses appear to show more positive results, the qualitative-based studies often present a contradictory pattern (Opoku et al., 2020). For instance, MacFarlane and Woolfson (2013) developed a quantitative survey questionnaire for 111 mainstream classroom teachers in Scotland and concluded moderately positive teacher intentions concerning the inclusion of students who are at-risk of being excluded or marginalised (e.g., students with disabilities). L. Wang et al. (2015) recruited five secondary school physical education teachers as cases in the data analysis to examine their intentions and actual teaching behaviours in teaching students who were at-risk of being excluded or marginalised. Instead of having an overall positive result, L. Wang et al. (2015) found that some teachers excluded this group of students from cooperative classroom activities and only two participating teachers were willing to modify their instruction and equipment for these students. Although the different research contexts and participants contribute to different conclusions, various research strategies should also be considered as a trigger to draw different conclusions. Therefore, in the current research project, combining quantitative survey research, qualitative survey research and observational research provided a more complete picture of teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

Common survey forms include questionnaires and interviews (Kelley et al., 2003). In the current study, survey research was used to collect and analyse quantitative data and qualitative

data in Phase 1 questionnaires, Phase 2 interviews, as well as Phase 3 post-observation interviews. The quantitative and qualitative data collection methods can benefit from each other, leading in turn to improved quality of obtained information (Marsland et al., 2000). Compared to other research strategies, surveys have been identified as easy, time efficient and cost-effective tools to obtain information on individual perspectives in a relatively large cohort (Cowles & Nelson, 2015; Jones et al., 2013). Researchers often use the information from a sample of individuals to draw some inferences about the wider population (Nardi, 2018). It can reflect the intentions, attitudes, opinions, or preferences of different individuals (Rea & Parker, 2014). Multiple research questions could be addressed in one survey (Nardi, 2018).

In the current study, quantitative survey in Phase 1 emphasised breadth, while qualitative survey in Phase 2 and Phase 3 focused on details or depth of research topics (DeCarlo, 2018; Neuman, 2014). The breadth of coverage of many individuals means that quantitative surveys are more likely than other research strategies to gather data based on representative samples, and can thus be generalisable to a population (Kelley et al., 2003). However, numerical responses in a single quantitative part of survey may not provide an adequate view of teachers' attitudes, subjective norms, perceived behavioural control, intentions, and their actual teaching behaviour. In response to the drawback of the quantitative survey, qualitative survey in Phase 2 and Phase 3 were employed to develop further insights within the Theory of Planned Behaviour.

In addition to survey research, observational research was adopted in Phase 3 of the current study to collect behavioural data. Observational research strategy is used as a valuable tool to validate data collected from survey research (Godwin & Chambers, 2009; Taylor-Powell & Steele, 1996). Compared to other research strategies, observational research is suggested to be the most suitable research strategy for gathering direct information to decide who research participants are and what research participants actually are doing (Godwin & Chambers, 2009; Johannesson & Perjons, 2021). To collect behavioural data, the researcher needs to interact with the research participants directly. In the current study, the observational research complemented the survey research by observing teachers' actual teaching behaviour providing more insights, even though observational research is a highly labour-intensive research strategy and requires more time and cost to execute (Godwin & Chambers, 2009).

3.3. Participants/Sample

3.3.1. Participants/Sample in Phase 1

The population of interest was in-service regular classroom teachers working in regular secondary schools in metropolitan areas of China. According to the Development of National Education in 2022, there are approximately 61,584,000 secondary classroom teachers in China (Ministry of Education, 2023). In Phase 1, a snowball sampling method was utilised to recruit quantitative survey participants from randomly selected secondary schools in metropolitan areas of China. This approach was adopted because access to in-service teachers in Chinese secondary schools is often mediated by school administrators, and it is difficult for external researchers to directly contact teachers across different schools. The snowball sampling method therefore provided a practical strategy to reach a wider network of teachers through professional and collegial connections within schools.

An ideal sample size was $N = 385$ by setting a 95% confidence level and 5% margin of error (Qualtrics, 2023). Non-response rates were also considered when the sample was drawn. An invitation email containing a survey link was sent to secondary school principals in metropolitan areas of China, including cities such as Shanghai, Nanjing and Beijing. These school principals were invited to distribute the survey information to their teachers, who in turn were approached and encouraged to identify other colleagues from the same school.

Snowball sampling, also known as chain referral sampling, is a non-probability sampling method that selects the survey sample based on the subjective judgements of researchers instead of using random selection (Elfil & Negida, 2017; T. Johnson, 2014). The snowball sampling method is often used where one respondent identifies other respondents in a multi-stage process (Bhardwaj, 2019). After the initial source helps to recruit other respondents, the respondents then recruit others themselves, starting a process similar to a snowball rolling down a hill, until an acceptable number of respondents have been identified (Sadler et al., 2010). As it does not recruit a random sample, the recruited sample may include an over-representation of individuals with similar demographics, and thus conclusions reached in a study that uses the snowball sampling method might be biased (Berndt, 2020; Etikan et al., 2015; Sadler et al., 2010).

Compared to other traditional recruitment methods, the snowball sampling method diminishes the costs and shortens the time required to recruit sufficient participants (Bhardwaj, 2019). The technique is particularly effective in locating those hard-to-reach populations, for example, the powerless, poor, and otherwise marginalised teachers (Berndt, 2020; Etikan et al., 2015). In the current study, which used the snowball sampling method, inherent trust among colleagues may have increased the possibility of the identified teachers agreeing to participate

in the quantitative survey, although the technique does carry the risk of disclosure of personal information to others (Sadler et al., 2010; Sedgwick, 2013). Nominating others may “raise concerns of confidentiality and discourage informant candour” (T. Johnson, 2014, p. 2).

3.3.2. Participants/Sample in Phase 2 & Phase 3

In the current study, the convenience sampling method was applied in Phase 2 and Phase 3 respectively. At the end of the Phase 1 questionnaire, participants were asked whether they were willing to participate in the subsequent phases of the study (i.e., interviews and classroom observations). Teachers who indicated their willingness were invited to provide their contact details for follow-up participation. After analysing the survey results, 10 secondary school teachers who completed the quantitative survey in Phase 1 were recruited to participate in Phase 2. Then, three interviewed teachers were invited to participate in Phase 3. Convenience sampling, also known as accidental sampling or grab sampling, is the most used non-probability sampling method in research (Acharya et al., 2013; Simkus, 2023). Under convenience sampling, participants are selected in an ad hoc fashion on the basis of their convenient accessibility or proximity to the research (Bhardwaj, 2019; Jager et al., 2017). Farrokhi and Mahmoudi-Hamidabad (2012) stated that the members of a sample are recruited if they meet certain criteria, for example, “geographical proximity, availability at a certain time, easy accessibility, or the willingness to volunteer” (p. 785).

Compared to probability sampling methods, convenience sampling method is far less expensive, more efficient, requires less expertise and is simpler to execute (Farrokhi & Mahmoudi-Hamidabad, 2012; Jager et al., 2017). Also, it is not necessary to have a list of all the population elements (Acharya et al., 2013). However, similar to other non-probability sampling methods, the lack of generalisability of convenience samples makes the sample estimates often biased, which means the sample may poorly represent the population of interest (Etikan et al., 2016). The main purpose of Phase 2 and Phase 3 was to capture insights into teacher intentions to implement inclusive practices through the lens of the UDL framework. Despite the disadvantages in generalisability relative to probability sampling methods, the non-probability convenience sampling method was able to provide valuable information to answer the research questions (Jager et al., 2017).

3.4. Data Collection

3.4.1. Section Outline

Methodological triangulation refers to using “multiple strategies to cancel out the weaknesses of any one method” (Morgan & Ravitch, 2018, p. 3). In the current study, methodological triangulation was undertaken by pairing different data collection methods (i.e., questionnaires, interviews and observations) to establish the credibility, dependability, and transferability and confirmability of the research findings (Morgan & Ravitch, 2018). In the following sections of the current study, the structured online questionnaire in Phase 1, semi-structured face-to-face/online interview in Phase 2, semi-structured non-participant observation and post-observation unstructured face-to-face interview in Phase 3 of the current study are explained and discussed respectively.

3.4.2. Data Collection in Phase 1

Structured Online Questionnaire. In Phase 1, an online quantitative survey in the form of a structured self-report questionnaire was adopted to collect quantitative data (see Appendix A). The questionnaire consists of six sections to measure teachers’ demographic information, attitudes, subjective norms, perceived behavioural control, intentions, and behaviours, respectively. The corresponding instruments were Demographics, the modified Teachers’ Attitudes towards Inclusive Education Scale (Saloviita, 2015), the modified Perceived School Support for Inclusive Education Scale (Ahmmed, 2013), the self-designed Teachers’ Efficacy in Implementing the UDL Framework Scale, the modified version of the previously self-designed Teachers’ Intentions to implement the UDL Framework Scale (H. Chen, 2022), and the self-designed Teachers’ Actual Teaching Behaviour Scale. The overall questionnaire took approximately 30-40 minutes to complete. The key concepts and the instruments used in the current study with more specific interpretations are summarised in Section 3.5.2 of the methodology chapter.

With increasing access to the internet internationally, internet-based data collection methods, such as an online questionnaire, have become popular in recent years (Regmi et al., 2017). The structured online questionnaire “that consists of a set of standardised questions with a fixed scheme” can be identified as the primary data collection method in survey research (A. Cheung, 2021, p. 1). The structured online questionnaire is suitable to provide quantitative descriptions of large and diverse populations to improve the representativeness of the current study, although the structured design is often lacking the flexibility to change the research directions once the process of data collection has started (A. Cheung, 2021; Dewaele, 2018).

Compared to traditional mail or paper questionnaires, online questionnaire is an efficient and economical method as it does not require transferring written data onto a computer, and uses a low level of human resource efforts in collecting and managing data (Dillman et al., 2014; Regmi et al., 2017).

Another advantage of the structured online questionnaire is minimising social desirability bias by providing anonymity to participants (Rea & Parker, 2014). Since there are no face-to-face interactions between researchers and participants and no pressure on the latter to participate in the study, participants are less likely to distort or exaggerate their responses to please researchers, thus enhancing the level of honesty in responses (Dewaele, 2018). A. Cheung (2021) also suggested that the structured online questionnaire is easy to be compiled for immediate data analysis as all the scale items are carefully designed. However, there is bias in using any form of questionnaire due to all participants self-selecting whether to participate in the study or not (Dewaele, 2018). For instance, potential participants can refuse to fill out the questionnaire, withdraw in the middle of the questionnaire or provide their answers at random (Phellas et al., 2011). In addition, the emergence of AI-generated and automated questionnaire responses presents challenges to data authenticity, and these limitations cannot be fully mitigated at the survey stage alone (Lebrun et al., 2024). Therefore, the subsequent interviews and observations in this study played a critical role in validating and contextualising the survey findings.

3.4.3. Data Collection in Phase 2

Semi-Structured Face-to-Face/Online Interview. Phase 2 was conducted after the analysis of Phase 1 quantitative survey data. In Phase 2, the researcher designed semi-structured individual interviews with eight teachers. All interviews were conducted within 45-60 minutes in the teachers' preferred location, time and date. All interviews were audio recorded with the consent of participating teachers. After each interview, the researcher transcribed the audio recordings in Chinese, and then data coding was conducted on the Chinese transcripts. After coding was completed, the anonymised interview transcripts were translated into English by a bilingual NAATI certified translator and then back-translated into Chinese by the researcher to ensure semantic accuracy for reporting.

An interview guide was created based on the Theory of Planned Behaviour to capture insights in understanding teachers' attitudes, perceived behavioural control, subjective norms, and intentions (see Appendix A). Although the implementation of the semi-structured interviews had no rigid adherence, an outline of interview questions was prepared by the

researcher prior to the interviews (Stuckey, 2013). The interview questions were planned to solicit deeper responses from the teachers and allow for more clarification of the previous quantitative survey responses (Anstead, 2016). Further details about the interview guide are provided in Section 3.5.3 of the methodology chapter.

In Phase 2, participants were offered the choice of participating in either face-to-face or online interviews; however, all eight teachers chose to be interviewed online. Compared to face-to-face interviews, online semi-structured interviews reduce travel time and logistical constraints and allow participants to join from familiar environments, which may increase their comfort and willingness to speak openly (Archibald et al., 2019). In addition to verbal communication, the interactive nature of semi-structured interviews promotes small talk, politeness routines and asides in which the participants can fully express their humanity (Irvine et al., 2013). However, in online interview settings, the researcher has limited access to nonverbal cues, such as body language, facial expressions, and emotional reactions (Oltmann, 2016). Without these nonverbal signals, it is more difficult for the researcher to gauge participants' levels of engagement or understanding, which may reduce opportunities to adjust or clarify interview questions in real time (Vogl, 2013). The reduced visibility of nonverbal cues can also make it harder for participants to elaborate on or clarify their responses, potentially limiting the depth of meaning that can be conveyed (Irvine et al., 2013).

Regardless of being online or face-to-face interviews, the semi-structured interview setting creates room for free responses from participants and the responses of the participants provide the researcher with the flexibility to develop more enhanced interview questions than the drafted interview guide (Kakilla, 2021; Williamson, 2013). However, Adams et al. (2015) pointed out that semi-structured interviews, especially in face-to-face settings, are time-consuming, labour intensive and require interviewer sophistication. Compared to online interviews, face-to-face interviews are not economic in nature as travelling to fieldwork locations and interacting between researchers and participants are necessary (Vogl, 2013). Also, it is easy to introduce interviewer bias as researchers may receive many signals (e.g., gender, age, appearance and behaviour) from participants in face-to-face encounters, which decreases the internal validity of investigations (Adhabi & Anozie, 2017; Song & Chung, 2010; Vogl, 2013).

Interviewer bias refers to the phenomenon in which the researcher's own expectations, viewpoints or presence become key determinants of interview outcomes (Roller & Lavrakas, 2015). This means there is potential for interviewers' bias to influence the interviewees' responses or that interviewers cannot be objective or detached. In qualitative research, it is now

recognised that true objectivity is unattainable, because the researcher inevitably brings personal experience and interpretation into the process (Mann, 2016). Rather than treating participants as passive information resources, researchers should acknowledge their role as a research instrument and treat participants as human beings engaged in meaning-making (Mann, 2016). In this sense, the researcher should be aware of the existing interviewer bias and minimise this by involving processes of reflectivity in the qualitative research component. Reflectivity means “reflecting upon the ways in which our own values, experiences, interests, beliefs and political commitments shape our identities” (Ben-Ari & Enosh, 2011, p. 3). In the current study, reflectivity allowed the researcher to realise their personal position towards implementing inclusive practices through the lens of the UDL framework and take control over the influences of the personal position on the interview results.

3.4.4. Data Collection in Phase 3

Semi-Structured Non-Participant Observation & Post-Observation Unstructured Face-to-Face Interview. In Phase 3, the semi-structured non-participant observation data collection method was initially applied to capture the actual teaching behaviour of two previously interviewed teachers after analysing Phase 2 interview data. For each teacher, five lessons were video recorded on different days. Each lesson was 40 to 60 minutes in length. Video recording commenced when the teacher allowed the students into the classroom and ended when the teacher dismissed the students.

To develop observer field notes, an observation guide was prepared based on the Universal Design for Learning Observation Measurement Tool (UDL-OMT) created by Basham et al. (2020) (see Appendix A). As a pragmatic combination of the structured and unstructured recording procedures, the semi-structured observation setting is usually the most advantageous as it not only notes how frequently the UDL framework has been implemented but also includes descriptive comments in the observer field notes (Mukherji & Albon, 2022; Rozsahegyi, 2019). Both quantitative and qualitative data were collected in the semi-structured non-participant observation. Further explanations about the observation guide are provided in Section 3.5.4 of the methodology chapter.

Observation provides a direct opportunity to obtain a close understanding of what happens in mainstream classrooms for the current study (Delamont, 2016). L. Cohen et al. (2018) pointed out that observation is “more than just looking” (p. 542). It is looking and noting systematically people, behaviours, events, settings, routines and so on (L. Cohen et al., 2018; Rozsahegyi, 2019). For example, the implementation of inclusive practices through the lens of

the UDL framework, the use of teaching materials, the allocation of teaching assistants, and the frequency and nature of teacher-student interactions in the current study. In particular, non-participant observation suggests that researchers take the role of an outsider or a guest in observations without involvement with human interaction in the field (Ciesielska et al., 2018). Non-participant researchers are allowed to stay in the background and minimise their interference, thereby establishing natural circumstances for organisational life to retain its original rhythm and enabling good conditions for taking observer field notes (Ciesielska et al., 2018). By using a “fly-on-the-wall approach”, non-participant researchers simply watch, listen and record what participants are saying and doing, “being unobtrusive and dissociated from the happenings” (Papatheodorou et al., 2013, p. 75). Non-participant observation is helpful to gather objective and neutral data, although subjectivity may creep into how researchers comprehend, record and interpret the observed data (Rozsahegyi, 2019).

Compared to participant observation that requires researchers to engage with research settings for several weeks to several years, non-participant observation also saves research time relatively (Delamont, 2016). However, as researchers remain separate from the fieldwork context, some information might be misheard, missed or only partially seen (Rozsahegyi, 2019). To gather sufficient information in the current study, two videotaping devices were placed in the classroom (i.e., front and back). However, research participants may change their behaviour positively as a response to their awareness of being observed, which is known as the Hawthorne effect (Sedgwick & Greenwood, 2015). To reduce the Hawthorne effect, researchers are encouraged to strengthen their natural role in the fieldwork context, even in non-participant observations (Robson & McCartan, 2016). For example, in the current research, this was done by undertaking preliminary school visits, and being reassuring and professional in data collection. This not only reduces the participants’ novelty of being researched but also builds a trusting relationship to help participants feel comfortable and to continue their daily routines (Ciesielska et al., 2018; Rozsahegyi, 2019).

After each observation in Phase 3 of the current study, post-observation unstructured face-to-face interviews were conducted with each of the six teachers. All the face-to-face interviews were conducted in the teachers’ preferred location, time and date, and took 15-30 minutes for each interview. These interviews were also audio recorded and transcribed with the consent of the teachers. Unstructured interviews often occur in a free-flowing conversation manner between the researcher and participants (Chauhan, 2022; Jamshed, 2014). Without a predetermined interview guide or answer categories limiting the boundaries of exploration,

these unstructured interviews provide teachers with flexibility to discuss satisfaction and frustration with their prior teaching behaviour (Mueller & Segal, 2015; Wildemuth, 2017).

Based on previous observed lessons, the researcher planned to ask reflective questions, for example, teachers were asked if they thought the lesson went well. The unstructured setting provides an opportunity for teachers to reflect on their own teaching experiences, express their teaching perspectives, and explain their teaching behaviour in their own way and at their own pace. The post-observation interviews not only focused on teachers' actual teaching behaviour, but also allowed teachers to reflect on their mindset towards implementing inclusive practices through the lens of the UDL framework. Although there is a lack of structure in design, unstructured interviews allow the spontaneous generation of open-ended interview questions with follow-up questions, leading to a customised and meaningful interviewer experience (Chauhan, 2022; Mueller & Segal, 2015). It is also necessary for researchers to have careful preparation, sufficient practice and much patience to draw out in-depth data by deploying participants' interests (Bihu, 2020). Further details about the post-observation unstructured face-to-face interviews' preparation are provided in Section 3.5.4 of the methodology chapter.

3.5. Instruments

3.5.1. Section Outline

To examine teacher intentions to implement inclusive practices through the lens of the UDL framework and to understand their actual teaching behaviour, this study drew on the Theory of Planned Behaviour, focusing on attitudes, subjective norms, perceived behavioural control, intentions, and behaviour. These theory constructs were measured using different instruments across the three phases of the study. The following sections summarise and explain the six questionnaire instruments utilised in Phase 1, the interview guide designed in Phase 2, the observation guide applied and the preparation for the post-observation interview in Phase 3.

3.5.2. Phase 1 - Questionnaire Instruments

The questionnaire instruments used in this study were developed based on existing validated scales and newly designed measures aligned with the Theory of Planned Behaviour. Previously validated instruments were modified to suit the research context, while additional self-designed scales were developed to capture constructs that were not adequately addressed in existing measures.

The development of the self-designed scales followed a structured process. First, an initial pool of items was generated based on the three principles of the UDL framework (CAST, 2018), ensuring that the items reflected multiple means of representation, action and expression, and engagement. Second, the wording of the items was refined to ensure conceptual clarity and alignment with the intended constructs of the Theory of Planned Behaviour, following feedback from the research supervisor. The draft questionnaire instruments were then piloted, and reliability was examined using Cronbach's alpha; further details of the pilot study and reliability results are reported in Section 3.8 of the methodology chapter.

In line with the theoretical structure of the Theory of Planned Behaviour, the questionnaire measured five key constructs: attitudes, subjective norms, perceived behavioural control, intentions, and self-reported behaviour. Consistent with guidance provided by Ajzen (2006), the operationalisation of these constructs considered the Target, Action, Context, and Time (TACT) elements. According to Ajzen (2006), although the measurement of constructs should ideally correspond to the same TACT elements, the level of generality may vary depending on the conceptual nature of the construct. This flexibility allows attitudes to be defined at a broader conceptual level when they represent an evaluative belief system rather than a single behavioural act.

In this study, attitude was conceptualised as teachers' overall evaluation towards inclusive education or inclusive practices, capturing both their value-based endorsement of inclusive education as a pedagogical philosophy and their evaluation of inclusive practices as classroom actions. This broader attitudinal referent aligns with Ajzen's (2006) argument that attitudes may target abstract concepts or classes of behaviours. In contrast, subjective norms, perceived behavioural control, intentions and behaviour were anchored to specific behavioural contexts because they depend on situational expectations and perceived capacity to act. Therefore, attitudes were measured at a general level, whereas other theory constructs had the UDL framework elements incorporated into the design of the corresponding questionnaire instruments.

Demographics. Questionnaires typically include questions about demographic characteristics of participants in addition to valid and reliable research instruments (Ponto, 2015). Demographic questions such as gender, age, years of teaching experience, subject areas, educational levels and previous exposure to people/persons with disabilities were asked to construct the demographic profile of the secondary school teachers who participated in the

current study. To address Research Question 2, the demographic questions were utilised to explain the extent to which the demographic variables moderate the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and teacher intentions to implement inclusive practices through the lens of the UDL framework. The demographic profile helps to determine whether there is a representative sample which reflects that of the target quantitative survey population (Salkind, 2010).

A Modified Version of the Teachers' Attitudes towards Inclusive Education Scale (TAIS). Teacher attitudes towards inclusive education or inclusive practices were measured using a modified version of the Teachers' Attitudes towards Inclusive Education Scale (TAIS). The original TAIS was developed by Saloviita (2015), which has been shown to have "satisfactory psychometric properties" (p. 72). The 10-item scale has been trialled on large representative samples with high levels of reliability at 0.8-0.90 (Saloviita, 2020). In the current study, all the original TAIS items were modified to measure two dimensions of teacher attitudes towards inclusive education or inclusive practices, which include affective dimension (questions 1 to 3) and cognitive dimension (questions 4 to 9). Teachers were asked to indicate their agreement using a 7-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree). Higher scores indicate more positive teacher attitudes towards inclusive education or inclusive practices.

To measure the affective dimension of attitudes, the first three scale items asked how participants felt towards inclusive education or inclusive practices using the words 'unconcerned', 'comfortable' and 'overwhelmed' (Ajzen, 2002). Instead of focusing on a specific type of disability or students with special educational needs like the original TAIS, the modified TAIS concerned all students, including those with disabilities. The modification corresponded to the definition of inclusive education in the current study, which suggests accommodating the needs of diverse students in regular classrooms (CRPD, 2016). To measure the cognitive dimension of attitudes, six scale items examined the beliefs of participants towards inclusive education or inclusive practices (Ajzen, 2002). Accommodating the international trend of inclusive education, more contemporary issues such as the impacts of educating students with disabilities on students without disabilities, teacher preparation and teacher-parent collaboration were added to the modified TAIS.

A Modified Version of the Perceived School Support for Inclusive Education Scale (PSSIE). Teachers' perceived support for implementing inclusive practices through the lens of

the UDL framework was measured utilising a modified version of the Perceived School Support for Inclusive Education Scale (PSSIE). The PSSIE, originally designed by Ahmmed (2013), has been identified as a useful tool for measuring teachers' perceived school support for executing inclusive education in their regular classrooms. It presents a very satisfactory Cronbach's alpha of 0.86, indicating a high level of internal consistency in prior research applying the Theory of Planned Behaviour (Ahmmed et al., 2014). The original eight-item PSSIE was modified to better adapt to the context of the UDL framework in the current study. The modified nine-item PSSIE was developed to measure teachers' perceptions of the support they receive from significant others (i.e., principals, colleagues, and parents of students with or without disabilities) that encourages them to implement inclusive practices through the lens of the UDL framework in regular classrooms.

In comparison to the original PSSIE, the modified PSSIE detailed the perceived support to implement inclusive practices following the three principles of the UDL framework. For example, both teachers' perceived support from both principals and colleagues have been specified as providing alternative ways of representing learning concepts, providing students with a variety of ways to demonstrate their learning, and maximising engagement of students in different classroom activities. The modified PSSIE did not simply express perceived support for executing inclusive education, but rather attempted to clearly explain what support can be possibly perceived from significant others when implementing inclusive practices through the lens of the UDL framework. The modified scale also changed the focus from students with disabilities to all students following the development of inclusive education. In addition, Ajzen (1991) suggested that all scales adopting the Theory of Planned Behaviour should have the same number of scale points for equal comparison. Thus, the original 5-point Likert scale was changed to a 7-point Likert scale, ranging from strongly disagree (scored 1) to strongly agree (scored 7), with a neutral midpoint (scored 4). Higher scores indicated higher levels of teachers' perceived support for implementing inclusive practices through the lens of the UDL framework.

A Self-Designed Teachers' Efficacy in Implementing the UDL Framework Scale (TEIUF). A nine-item Teachers' Efficacy in Implementing the UDL Framework Scale (TEIUF) was specifically designed for the current study. Following the three principles of the UDL framework, the scale collected data on teachers' self-efficacy to implement inclusive practices through the lens of the UDL framework in three content areas, which included providing multiple means of representation (questions 1 to 3), providing multiple means of action and expression (questions 4 to 6), and providing multiple means of engagement (questions 7 to 9).

Teachers used the same 7-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree) as the previously modified TAIS and PSSIE to indicate their degree of agreement with the TEIUF items. Higher scores revealed higher levels of teachers' self-efficacy regarding the implementation of inclusive practices through the lens of the UDL framework.

A Self-Designed Teachers' Intentions to Implement the UDL Framework Scale (TIIUF). A self-designed Teachers' Intentions to Implement the UDL Framework Scale (TIIUF) was utilised to collect data on teacher intentions to implement inclusive practices through the lens of the UDL framework in their regular classrooms. The nine-item scale was also designed around the three principles of the UDL framework in three content areas, that is, providing multiple means of representation (questions 1 to 3), providing multiple means of action and expression (questions 4 to 6), and providing multiple means of engagement (questions 7 to 9). Teachers were asked to show the extent to which they agreed or disagreed with each item on a 7-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree). Higher scores indicated a stronger intention to implement inclusive practices through the lens of the UDL framework in regular classrooms.

A Self-Designed Teachers' Actual Teaching Behaviour Scale (TATB). A nine-item Teachers' Actual Teaching Behaviour Scale (TATB) was designed by the researcher for the current study to examine teachers' self-reported actual teaching behaviour. Teachers were required to reflect on the teaching they had completed over the previous two weeks and think about how often they implemented inclusive practices through the lens of the UDL framework in their regular classrooms. Similar to the self-designed TEIUF and TIIUF, the TATB specified different teaching measures in line with the three principles of the UDL framework, including providing multiple means of representation (questions 1 to 3), providing multiple means of action and expression (questions 4 to 6), and providing multiple means of engagement (questions 7 to 9). Teachers were asked to provide their answers in a 7-point Likert scale format (1 = never, 2 = very rarely, 3 = rarely, 4 = occasionally, 5 = frequently, 6 = very frequently, 7 = always). The higher the scores, the higher the frequency of implementing inclusive practices through the lens of the UDL framework in regular classrooms.

3.5.3. Phase 2 – Interview Guide

In Phase 2 of the current study, an interview guide containing 14 questions was designed based on the Theory of Planned Behaviour. Under the semi-structured interview setting, researchers have a certain amount of room to adjust the sequence and the wording of the interview questions, as well as to pose follow-up questions based on the participant's responses (Minichiello et al., 2008; Y. Zhang & Wildemuth, 2016). The level of flexibility in the semi-structured interviews enables the researcher to capture a “more valid explanation of the informant's perceptions and constructions of reality” (Minichiello et al., 2008, p. 51). In an empirical study, R. Field (2015) conducted both quantitative surveys and qualitative semi-structured interviews to examine teacher perceptions of inclusion in elementary school settings. Applying semi-structured interviews with an interview guide allowed participants not to feel obligated or pressured, but rather merely encouraged to expand data of the study (R. Field, 2015).

The semi-structured interviews attempted to obtain insights and clarify the Phase 1 quantitative survey responses in the current study. The predetermined interview questions addressed attitudes (questions 1 to 3), subjective norms (questions 4 to 7), perceived behavioural control (questions 8 to 10) and intentions (questions 11 to 14) within the Theory of Planned Behaviour. The 14 interview questions focused on teachers' attitudes towards inclusive education or inclusive practices, teachers' perceived support and their self-efficacy with reference to the UDL framework, as well as teachers' intentions to implement inclusive practices through the lens of the UDL framework. Considering that some teachers may not have been familiar with the research content, a brief introduction was given to inclusive education and the UDL framework prior to questions 1 and 3 (see Appendix A). The interview guide not only led teachers to identify learning barriers before, during and after their lessons, but also allowed teachers to consider their previous solutions and supports from principals, colleagues, or parents of students with and without disabilities in addressing the learning barrier. It also enabled teachers to express their personal feelings about their professional capacities to present learning materials in different formats, assess students' learning in different ways and design a variety of classroom activities.

3.5.4. Phase 3 – Observation Guide & Post-Observation Interview Preparation

The flexible, proactive and iterative nature of the UDL framework results in a lack of a consistent operationalised understanding of what constitutes UDL implementation and how to measure UDL implementation in practice (Basham et al., 2020; L. Zhang et al., 2022; Ok et al.,

2017). In the current study, an observation guide was designed based on the Universal Design for Learning Observation Measurement Tool (UDL-OMT) by Basham et al. (2020). The UDL-OMT is a 42-item semi-structured dynamic observation tool that was created according to the UDL Guidelines 2.0 and measures “the level of UDL alignment within an instructional environment or experience” (Basham et al., 2020, p. 234). The relationship between the UDL guidelines and the UDL-OMT items are shown in Appendix B (Basham et al., 2020). A field test of the UDL-OMT was conducted by two observers together in 11 classrooms for a total of 22 observations (Basham et al., 2020). Results of the field test indicated that the UDL-OMT had good to excellent internal consistency, which enabled observers who may hold either liberal or more conservative views to maintain consistency across various environments or individuals (Basham et al., 2020). The UDL-OMT provided the researcher of the current study with a reliable means to observe the UDL adoption in teachers’ actual teaching behaviour within different lessons.

The UDL-OMT comprises a UDL-OMT rating scale and another part called instructional components and summation. There are four sections in the UDL-OMT rating scale, including sections (A) introducing and framing new material, (B) content representation and delivery, (C) expression of understanding, and (D) activity and student engagement (Basham et al., 2020). Each section allows observers to comment on their perceptions of the effectiveness of UDL implementation (Basham et al., 2020). Individual items are scored using a scale of 0 to 3 (0 = no evidence of UDL, 1 = incomplete evidence of UDL in environment, 2 = UDL is occurring, 3 = dynamic, interactive UDL). Then, in the instructional components and summation part, a set of items records observers’ overall impression of the lesson and ask observers to reflect on students’ overall engagement and task focus during the observation (Basham et al., 2020). Both parts of the UDL-OMT were employed in Phase 3 of the current study to expand quantitative and qualitative data collection. In addition, Basham et al. (2020) suggested the inclusion of a post-observation procedure to clarify or refine the UDL-OMT results. In the current study, post-observation unstructured face-to-face interviews were conducted in the same research phase.

In post-observation unstructured face-to-face interviews of the current study, a formal interview guide with predetermined interview questions were not developed (Chauhan, 2022). Instead, the interviews ran like a conversation where the conversation was controlled by the researcher (Minichiello et al., 2008). In this sense, a careful interview preparation is necessary. The aims of the unstructured interviews were to ask teachers to reflect on their previous teaching behaviour and also make comments on their intentions to implement inclusive

practices through the lens of the UDL framework in future lessons. Focusing on this topic, a set of possible interview questions should be prepared in mind before conducting the post-observation unstructured face-to-face interviews. For example, interview questions such as ‘do you think you have implemented the UDL framework in your previous lessons’, ‘how would you like to evaluate your previous teaching experience’ and ‘is there anything that can be improved in your future lessons’ could be considered in this research phase.

3.6. Translation for the Study

In the current study, all invitation emails, the participant information statements and consent forms for principals, teachers, students and parents/guardians, as well as all parts of the Phase 1 online questionnaire, were originally written in English. All the documents were translated into Chinese by a bilingual NAATI certified translator and then the translation quality was checked by the researcher prior to the study. The invitation emails, as well as the information statements and consent forms in all research phases are shown in Appendices C, D, E, F, G, H, I, J, K, L, M, N, O, P respectively.

In Phase 2 and Phase 3 of the current study, all the interviews and observations were conducted in the Chinese context. The interview transcripts and observer filed notes were translated into English by a bilingual NAATI certified translator and then back-translated into Chinese by the researcher. Similar to other translated research (e.g., L. Wang et al., 2015; Song et al., 2019; Yada & Savolaine, 2017), any translation errors and inconsistencies between the back-translated documents and the original versions were negotiated until the researcher and the translator reached an agreement.

3.7. Ethical Considerations

Complying with the requirements of the University of Sydney Human Research Ethics Committee, the researcher obtained ethics approval and ethics modification (see Appendices Q and R). The general ethical issues include data security, anonymity, informed consent, potential risks and benefits (J. Huang et al., 2021). In Phase 1 of the current study, an electronic data capture tool, Qualtrics, was used to collect and store research data securely (Qualtrics, 2021). To treat every participant anonymously, the online questionnaire was constructed and managed by the researcher on the secure, fast, web-based application (Qualtrics, 2018). After Phase 1 data collection, the researcher was not able to trace a particular questionnaire back to the unique individual who had completed it (Coffelt, 2017).

In Phase 2 and Phase 3, the researcher needed some identified personal information to contact participants to conduct interviews and observations. All the contact details and working places of the participants were stored securely and kept strictly confidential in the secure Research Data Store at the University of Sydney (Ryen, 2016). All the participants in Phase 2 and Phase 3 were assigned a non-identifying name/pseudonym, and thus the real names of the participants would never be heard or seen by others including in the current study and any future publication (Newman et al., 2021). To conduct interviews in Phase 2 and post-observation interviews in Phase 3, audio recordings were completed through an audiotaping app called 'Voice Memos' on a mobile phone. The coded participants' information and the identifiable participants' information were secured in separate files for security purposes.

To conduct observations in Phase 3, two videotaping devices called Swivl's Reflectivity + Robot were used as secure and easy solutions to record lessons (Swivl Team, n.d.). An app called 'Swivl Capture' was utilised with the devices to control the settings and download the video recordings (Swivl Team, n.d.). All the interview transcripts, observer field notes, audio and video recordings were uploaded to Research Data Store – the University's primary research data storage service. Once all the materials were uploaded to the secure storage service, the original files in the 'Voice Memos' and 'Swivl Capture' were destroyed in line with ethics approval requirements.

Prior to each research phase, Participant Information Statement (Phase 1), Participant Information Statement (Phase 2) and Participant Information Statement (Phase 3) that outlined the research purposes, procedures, data anonymity, potential benefits and risks were provided to every participant (Abed, 2015). Informed consent was obtained by asking participants to complete Participant Consent Form (Phase 2) and Participant Consent Form (Phase 3) before conducting Phase 2 and Phase 3 of the study, respectively. The return of the questionnaire inferred teachers' consent to participate in Phase 1 of the study.

Especially prior to Phase 3, Student Information Sheet (Phase 3), Student Consent Form (Phase 3), Parent/Guardian Information Statement (Phase 3), Parent/Guardian Consent Form (Phase 3), Principal Information Statement (Phase 3) and Principal Consent Form (Phase 3) were required to sign by students, parents/guardians and school principals to allow the researcher to take videos of students during classroom observations. However, signatures from students, parents/guardians and school principals were sensitive information that the researcher could not obtain in China. After consulting with the University of Sydney Human Research Ethics Committee, only audio recordings or video recordings without capturing students' faces were permitted in the classroom observations.

The informed consent procedure aims to protect the researcher, participants, students and schools from harm (Field-Springer, 2017). Although participation in Phase 1 was a prerequisite for participation in the following Phase 2 and Phase 3, participants were not required to participate in all the research phases and they had the right to withdraw from the study at any time (Barrow et al., 2020).

The researcher was obliged to ensure that the benefits of participating in the current study would outweigh the potential risks and minimise any risks as much as possible (J. Huang et al., 2021). Aside from giving up the participants' time, the researcher did not expect that there would be any risks or costs associated with taking part in the study. To show appreciation, all the Phase 1 participants were added to a 30*50 CNY lottery pool. The number of gift vouchers was determined to be 10% of the sample size in Phase 1, and the cash amount was reasonable according to the general secondary school teachers' salaries in China. Each participant who was also involved in Phase 2 and Phase 3 was given an extra 200 CNY shopping voucher. All these tokens of appreciation were proportional to time and effort and distributed to every participant (National Health and Medical Research Council, 2007). The current study was financially supported by the University of Sydney under the Thomas and Ethel Mary Ewing Scholarships (Travelling Research) and Postgraduate Research Support Scheme (PRSS) in 2023.

3.8. Research Procedure

Phase 1 Research Procedure. A pilot study was conducted before Phase 1 of the current study to examine the internal consistency of the scales and ensure that the questionnaire items were clearly understood by participants. Adopting the snowball sampling method, the teacher survey link was distributed to secondary school teachers working in metropolitan areas of China. In total, 26 completed responses were returned and reviewed. The quantitative pilot survey data were cleaned and coded into the SPSS software version 29 to establish the internal consistency reliability of the items. In the pilot study, the Cronbach's alpha values of the five 7-point Likert scales were 0.557 for the modified TAIS, 0.915 for the modified PSSIE, 0.952 for the self-designed TEIUF, 0.959 for the self-designed TIIUF, and 0.884 for the self-designed TATB, respectively. Considering the low Cronbach's alpha of the first Likert scale (i.e., the modified TAIS), the researcher noticed that the mean values of the five previously reversed scale items (i.e., questions 1, 2, 3, 6, 7) were relatively lower than other items. After discussing with two experts, the five previously reversed scale items were changed to unreversed items. To improve the internal consistency of the first Likert scale, the phrases and key words 'worried'

changed to ‘unconcerned’, ‘uncomfortable’ changed to ‘comfortable’, ‘feel overwhelmed’ changed to ‘do not feel overwhelmed’, ‘reduce’ changed to ‘enrich’ and ‘special education teachers’ changed to ‘mainstream classroom teachers’ in questions 1, 2, 3, 6 and 7, respectively. Following these modifications, the Cronbach’s alpha for the modified TAIS increased from 0.557 in the pilot study to 0.859 in the main study.

In Phase 1 of the current study, a Phase 1 invitation email was sent to school principals from 66 secondary schools in metropolitan areas of China, including cities such as Shanghai, Nanjing, and Beijing, briefly describing all the research phases and including the questionnaire link for Phase 1. Also, the Participant Information Statement (Phase 1) and teacher invitation letter were attached to the invitation email. The return of the questionnaire presented teachers’ consent to participate in Phase 1 of the study. A total of 13 secondary schools agreed to participate in Phase 1. Once the school principals approved participation in the questionnaire, they were asked to nominate a member of the school administrative team to forward the questionnaire link to secondary school teachers. The questionnaire link was also shared amongst teacher networks to increase the response rate. Unless the school principals did not consent for teachers in their school to participate in the study, a reminder email was sent to the school principals one week after the initial invitation email was sent. A second reminder email was sent one week after the first reminder email was sent. Each questionnaire took approximately 30-40 minutes to complete. Phase 1 data collection was completed within a three-month period, from September to November 2023. A total of 209 questionnaire responses were collected in Phase 1, in which eight secondary school teachers agreed to participate in Phase 2 and Phase 3.

Phase 2 Research Procedure. Before Phase 2, a pilot face-to-face interview was conducted with a primary school teacher in Shandong, China. The pilot interview lasted 49:41 minutes and was used to evaluate the clarity, flow, and appropriateness of the interview questions. Following the pilot interview, the researcher discussed the original interview guide with an expert in the field of inclusive education and modified the questions based on the expert’s suggestions. For example, the phrase ‘all students’ was emphasised as ‘all students with and without disabilities’ in question 5 and question 6. In question 11, some specific examples (i.e., talking, laughing, crying) of students’ disruptive behaviour in classrooms were provided to teachers. Please see the attached Appendix A for further information about the modified Phase 2 interview guide.

In Phase 2, Participant Information Statement (Phase 2) and Participant Consent Form (Phase 2) were directly sent to teachers via the eight teachers’ contact details provided in Phase

1. Interviewees were invited to nominate an interview location, date and time to meet with the researcher who then confirmed them. All the interviews were conducted for about 45-60 minutes in online and one-on-one settings and were audio recorded with the consent of the interviewees. The interviews in Phase 2 were completed within a two-month period, from November to December 2024. After each interview, the researcher asked the teachers whether they were still willing to participate in Phase 3 of the current study. Two teachers confirmed their willingness to participate in Phase 3 observations and post-observation interviews.

Phase 3 Research Procedure. In Phase 3, Participant Information Statement (Phase 3) and Participant Consent Form (Phase 3) were sent to the two teachers who had agreed to participate in the research phase. Due to ethical considerations regarding the risk of capturing the students' faces, only the audio recordings of the first participating teacher and video recordings of the second participating teacher (without capturing students' faces) were collected in Phase 3. To build a trusting relationship between the participants and the researcher, these teachers were invited to suggest an available time to meet the researcher at their schools prior to conducting observations. The preliminary school visits allowed the researcher to explain the following research procedure, reiterate ethical considerations and address the teachers' concerns about the study. It also enabled the researcher to collect the consent forms, as well as to confirm with the teachers the time and date of conducting observations and post-observation interviews.

The researcher, who has extensive knowledge of the UDL framework (e.g., taught multiple teacher preparation lessons in the UDL framework, presented and published on the UDL framework) was the observer in the current study. Prior to each lesson, the observer took five minutes to set up the two videotaping devices and simply observe the overall climate of the classroom. Then, the observer began rating the implementation of the UDL framework using the UDL-OMT rating scale, shifting between Sections A through D as needed. The observer focused on identifying the occurrence of the UDL framework through observing student and teacher behaviour, use of instructional strategies, classroom activities and instrumental tools that were suggestive or explicit of UDL. For example, if a video recorded a conversation between a teacher and student(s) where the teacher provided multiple examples to demonstrate learning concepts, the observer also took field notes on the nature and degree of student-teacher interaction and dialogue among students working in small groups (Basham et al., 2020).

During each observation, the observer marked the UDL-OMT rating scale items when teachers' teaching behaviour supported UDL alignment or nonalignment. To develop observer

field notes, the observer simultaneously compiled an anecdotal record (i.e., narrative observations) to document specific and/or unique examples of applying the UDL framework or situations where the UDL framework should likely be present but was not. At the end of each observation, the observer completed Sections A to D of the UDL-OMT rating scale along with the accompanying field notes. The final instructional components and summation part of the UDL-OMT were finished as soon as possible after each observation.

Each teacher was observed by the researcher while teaching five regular classroom lessons on different dates. In total, 10 lessons were recorded, and each lesson was 40 to 60 minutes in length. All the classroom observations in Phase 3 were completed within a three-week period during March 2024. Following these observations, a post-observation interview was undertaken for approximately 15 to 30 minutes in face-to-face and one-on-one settings. These post-observation interviews were also conducted in the teachers' preferred location, time and date. Each interview was audio recorded with the consent of the teachers. The data collection of the post-observation interviews was finished within one week during March 2024 after the completion of each participating teacher's classroom observations.

3.9. Data Analysis

3.9.1. Section Outline

In the following sections, quantitative data analysis and qualitative data analysis were conducted to address seven research questions of the current study. The first five research questions were addressed by statistical analysis in Phase 1. Following the explanatory sequential mixed methods research design, the results of statistical tests in Phase 1 and the thematic analysis in Phase 2 were integrated to draw inferences about the overall intentions of teachers to implement inclusive practices through the lens of the UDL framework in Research Question 5. All the results of the three research phrases were integrated at the final data analysis step to further clarify teacher overall intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in Research Question 6 and Research Question 7.

3.9.2. Data Analysis in Phase 1

After Phase 1 questionnaires were completed, quantitative data analysis was conducted using SPSS software version 29. The first step was coding, setting up and entering data on SPSS (Greasley, 2008). The simple way to illustrate this is through defining and labelling each variable and assigning numbers to variable attributes in a detailed codebook (Pallant, 2016).

Since all data in SPSS should be entered as numbers, data which are not collected as numbers need to be converted into numbers (Greasley, 2008). For example, types of educational sector were coded as 1 = public school and 2 = private school. Concerning the five 7-point Likert scales, higher values given by the participants indicated more positive responses towards the topic.

To establish internal consistency of the key concept instruments, the reliability of each 7-point Likert scale was established by calculating a Cronbach's alpha (McNeish, 2017). Cronbach's alpha refers to "an adjusted proportion of total variance of the item scores explained by the sum of covariances between item scores" (Heo et al., 2015, p. 2). The statistic ranges between 0 and 1 if all covariance elements are non-negative (Heo et al., 2015). The value of Cronbach's alpha has a cut-off or threshold as a sufficient, acceptable or satisfactory level, which is normally seen as 0.7 or 0.6 (Taber, 2018; Van Griethuijsen et al., 2015). A high value of Cronbach's alpha suggests that scale items in an instrument "all, at least partially" measured the same topic (Vitale et al., 2015, p. 1438). The value of a Cronbach's alpha higher than 0.8 is preferable. In the current study, the Cronbach's alpha of the five 7-point Likert scales are 0.859, 0.891, 0.898, 0.885, 0.869, respectively. Following the reliability test, descriptive analysis, Pearson product-moment correlation coefficients, hierarchical regression, multiple regression and mediation analysis were used to address the Research Questions 1 to 7. Further details about the results of these statistical tests are provided in Chapter 4 Section 4.3.

Descriptive Analysis. To show the distributions of variables, descriptive statistics including mean scores and standard deviations were often calculated by the researcher (George & Mallery, 2018). Calculating mean scores is a measure of central tendency, while standard deviations refer to the positive square root of the variance, which is a measure of variability around the mean scores (George & Mallery, 2018). In Phase 1 of the current study, mean scores and standard deviations for the five 7-point Likert scales were computed to show the level of teacher attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour, respectively. The level of teacher attitudes, subjective norms, perceived behavioural control and intentions were calculated to develop teachers' overall intentions to implement inclusive practices through the lens of the UDL framework in Research Question 5 and Research Question 7. Further, the level of teachers' actual teaching behaviour was utilised to support the answering of Research Question 6 and Research Question 7.

Pearson Product-Moment Correlation Coefficients & Hierarchical Regression. To address Research Question 1, Pearson product-moment correlation coefficients were calculated to demonstrate individual relationships between each of the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) within the Theory of Planned Behaviour and teacher intentions to implement inclusive practices through the lens of the UDL framework. The Pearson product-moment correlation coefficient, often denoted as r , refers to a measure of the strengths of a linear association between two variables (Puth et al., 2014). The value of r lies between -1 and 1, with the value of 0 denoting no association at all (Prion & Haerling, 2014). The higher the absolute value of r , the stronger the relationship between the two variables (Prion & Haerling, 2014). A perfect correlation of -1 or 1 shows that all the data points lie exactly on a straight line (Schober et al., 2018). A positive value of r means that both variables move in the same direction, while a negative value of r means that there is a negative relationship between the variables of interest (Prion & Haerling, 2014). To interpret the absolute value of r , a reasonable rule of thumb is as follows: negligible (0 to 0.2), weak (0.21 to 0.35), moderate (0.36 to 0.67), strong (0.68 to 0.9), very strong (0.91 to 1) (Taylor, 1990; Shavelson, 1996).

Prior to conducting Pearson product–moment correlation analysis, several statistical assumptions were considered. The assumptions included variables measured on a continuous scale (i.e., interval or ratio scale), the absence of extreme outliers that may distort the correlation coefficient, the presence of a linear relationship between variables, and the approximate normal distribution of the variables (Hauke & Kossowski, 2011; Osborne & Overbay, 2019; Puth et al., 2014). In the current study, these assumptions were examined prior to the correlation analysis through visual inspection of scatterplots and assessment of the normality of each variable. The detailed results of these preliminary analyses are presented in Section 4.3.3 of the results chapter.

After calculating the Pearson product-moment correlation coefficients, hierarchical regression was applied to develop a comprehensive picture of the predictive utility of 1) the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) within the Theory of Planned Behaviour on teacher intentions to implement inclusive practices through the lens of the UDL framework in Research Question 1; and 2) the demographic variables (i.e., gender, age, length of teaching experience, professional development training on inclusive education) on teacher intentions to implement inclusive practices through the lens of the UDL framework in Research Question 2. Hierarchical regression refers to a type of

regression model that predicts a dependent variable based on two or more independent variables (Fein et al., 2022). Unlike standard multiple regression where all independent variables are entered at the same time, hierarchical regression requires the researcher to enter multiple independent variables in blocks and each block represents one step or model (Fein et al., 2022). It allows the researcher to investigate the variation in the dependent variable with each subsequent addition of an independent variable (Y. Jeong & Jung, 2016).

Before conducting hierarchical regression, the set of independent variables and the order of entering independent variables in blocks should be determined according to a logical or theoretical background (Y. Jeong & Jung, 2016). There are three steps to perform hierarchical regression, including (1) check the significance of the model to determine whether the model is significantly different from a null hypothesis, (2) check the R^2 value to demonstrate how much of the variance is explained by the model, and (3) recognise which variable contributed to the model and check the significance of that variable (Ahmmed et al., 2014; Y. Jeong & Jung, 2016). In the first two research questions, teacher intentions to implement inclusive practices through the lens of the UDL framework were identified as a dependent variable. Based upon the Theory of Planned Behaviour, the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and demographic variables (i.e., gender, age, length of teaching experience, professional development training on inclusive education) were entered into a hierarchical regression equation in Steps 1 and 2 respectively. The predictive strength of each set of these variables (i.e., the predictor variables and demographic variables) was calculated while controlling the other block of independent variables.

Multiple Regression & Mediation Analysis. Regarding the direct predictive paths of actual teaching behaviour within the Theory of Planned Behaviour, Research Question 3 was addressed by applying multiple regression to examine the impact of teacher intentions and perceived behavioural control on teachers' actual teaching behaviour. It was employed to explain to what extent teacher intentions and perceived behavioural control explained teachers' actual teaching behaviour. Multiple regression refers to an "extension of simple regression in which an outcome is predicted by a linear combination of two or more predictor variables" (A. Field, 2013, p. 880). The outcome variable was actual teaching behaviour, whilst the predictor variables were perceived behavioural control and intentions in Research Question 3. In comparison to simple linear regression, multiple regression provides more predictive power since it enables several independent variables to work together to explain a dependent variable (A. Field, 2013; J. Pederson, 2017). To ensure adequate statistical power and generalisability

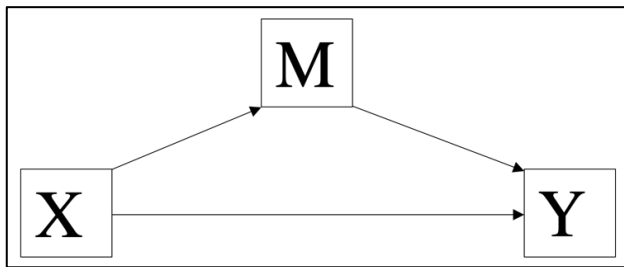
of the regression results, the required sample size for multiple regression was determined using Pallant's (2016) guideline: $N > 50 + 8 \times$ the number of independent variables. In Research Question 3, the minimum sample size should be 66 because there were two independent variables (i.e., perceived behavioural control and intentions) in the multiple regression. The actual sample size in Phase 1 exceeded this threshold, supporting the robustness of the analysis.

Following the regression analyses examining the direct predictive relationships among the Theory of Planned Behaviour constructs, mediation analysis was conducted to further explore the indirect predictive paths of actual teaching behaviour. According to the theoretical structure of the Theory of Planned Behaviour, intentions and/or perceived behavioural control may function as mediating variables linking attitudes, subjective norms and perceived behavioural control to actual teaching behaviour (Ajzen, 1985, 1991, 2020). Therefore, in the current study, mediation analysis was applied to examine whether teacher intentions and/or perceived behavioural control mediated the relationships between the predictor variables and teachers' actual teaching behaviour in Research Question 4.1 and Research Question 4.2.

Mediation analysis is frequently used to examine how an antecedent variable X transmits its effect on a consequent variable Y through one or more intervening variables M (Coutts & Hayes, 2022). The intervening variables, often called M, are conceptualised as the mechanism through which X influences Y (Hayes, 2022). This means that variation in X leads to variation in mediators M, which in turn leads to variation in Y (Hayes, 2022). Figure 3.5 depicts a simple mediation model with a single mediator M located between X and Y. To conduct mediation analysis, Hayes' (2022) freely-available PROCESS macro was downloaded to SPSS as a statistical modelling tool for estimating regression models with mediation effects. Through adopting the PROCESS macro, a series of ordinary least squares (OLS) regression analysis could be easily developed to estimate mediation models (Coutts & Hayes, 2022; Hayes, 2022).

Figure 3.5

A Simple Mediation Model



Notes. Adapted from Hayes (2022).

In Research Question 4.1, mediation analysis was conducted utilising PROCESS macro to investigate the mediating role of teacher intentions in the relationship between attitudes, subjective norms, perceived behavioural control and teachers' actual teaching behaviour. Similarly in Research Question 4.2, Hayes' (2022) PROCESS macro calculated the extent to which the perceived behavioural control and teacher intentions towards implementing inclusive practices through the lens of the UDL framework mediate the impact of attitudes and subjective norms on teachers' actual teaching behaviour. The relationship between the outcome variable (i.e., actual teaching behaviour) and predictor variables (i.e., attitudes and subjective norms) was tested with perceived behavioural control and teacher intentions towards implementing inclusive practices through the lens of the UDL framework as mediators.

3.9.3. Data Analysis in Phase 2

After conducting interviews in Phase 2, more insights about teachers' overall intentions to implement inclusive practices through the lens of the UDL framework in Research Question 5 and Research Question 7 were captured through thematic analysis, so as to complement and enhance the quantitative data in Phase 1. Thematic analysis is a widely used qualitative analytic method for identifying, examining and reporting themes (i.e., repeated patterns of meaning) within data (Boyatzis, 1998; Braun & Clarke, 2006). A theme "represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82). Themes can be identified in two primary approaches in thematic analysis, inductively or deductively (Braun & Clarke, 2006). An inductive approach implies that themes are strongly linked to the data themselves, while a deductive approach is driven by selected theoretical or analytic interests (Braun & Clarke, 2006; Patton, 1990). Also, there are two levels to identify themes, including a semantic level or a latent level (Boyatzis, 1998). A semantic level means that themes are

determined within the explicit or surface meanings, while a latent level involves examining the ideas, assumptions and conceptualisations underlying the data (Braun & Clarke, 2006).

A deductive approach was used in Phase 2 of the current study. The initial coding process was theoretically informed by the constructs of the Theory of Planned Behaviour (i.e., attitudes, subjective norms, perceived behavioural control and intentions). However, the coding process remained open to additional patterns and meanings emerging from the data. The themes were identified at a semantic level to analyse the explicit content of data, rather than looking for something beyond what the participants said during the interviews.

Compared to other qualitative analytic methods (e.g., content analysis, narrative analysis or grounded theory), thematic analysis is a relatively easy and quick method to bring a more in-depth understanding of the research topic (Braun & Clarke, 2006; Humble & Mozelius, 2022). Braun and Clarke (2006) outlined six steps to conduct a thematic analysis. The step-by-step guidelines include:

- Familiarising yourself with your data. It is important to immerse the researcher in the data, read and take notes to familiarise the researcher with the depth and breadth of the content.
- Generating initial codes. Codes refer to “the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon” (Boyatzis, 1998, p. 63).
- Searching for themes. Once there is a long list of the different codes, it is necessary to sort the different codes into potential themes and collate all the coded data extracts within the identified themes (Terry & Hayfield, 2020). This is a creative process to draw connections between different codes at a deeper and broader level (Fugard et al., 2019).
- Reviewing themes. Data extracts within themes should cohere together in a meaningful way, while there should be identifiable and clear distinctions between themes.
- Defining and naming themes. Refining the specifics of each theme and determining how the themes fit into an overall story the data analysis tells.
- Producing the report. The final stage involves the write-up of a report based on the fully worked-out themes and fine-tuning the overall story (Braun & Clarke, 2006).

The current study followed the step-by-step guidelines from Braun and Clarke (2006) to perform the deductive thematic analysis. All the interviews were audio-recorded with participants’ consent and were transcribed verbatim in Chinese by the researcher immediately

after each interview. Participants were invited to review their transcripts to confirm accuracy and clarify any intended meanings. The researcher coded the Chinese transcripts manually while remaining attentive to patterns of meaning that emerged from the data. Each data item was provided with full and equal attention during the coding process (Braun & Clarke, 2006). The researcher took notes on the interview extracts and highlighted words, phrases or sentences in different colours corresponding to different codes. All the interview extracts were coded in separate word processing files and then collated together within each code.

During the coding process, it is crucial to consider intercoder reliability, determining whether different coders, raters or observers would code the same data in the same way (K. Cheung & Tai, 2021). In the current study, the enrolment of eight participants in Phase 2 interviews resulted in 45 pages of interview transcripts. After the initial round of coding, the anonymised Chinese interview transcripts were translated into English. To assess intercoder reliability, the researcher sent the coded interview transcripts and shared the interview transcript with an expert who has sufficient background knowledge in the field of inclusive education. After the researcher and the expert conducted the coding process in isolation from each other, a meeting was held to compare the different coding results. A negotiated agreement approach was adopted to enable the researcher and the expert to explain how they interpreted each interview extract, how the codes were developed and what the codes meant (Belotto, 2018; Campbell et al., 2013). It allowed the researcher and the expert to reconcile the discrepancies and revise the codes again (Belotto, 2018). In this state, a strong intercoder reliability maintained the dependability of the current study.

At the stage of identifying and reviewing themes, the researcher developed a thematic map to incorporate the different codes into the predetermined themes (i.e., attitudes, subjective norms, perceived behavioural control and intentions). Additional themes, including 'inclusive pedagogies' and 'miscellaneous', were developed when patterns emerged from the data that were not fully captured by the initial coding categories informed by the Theory of Planned Behaviour. The researcher also checked the collated interview extracts for each potential theme and considered whether the themes accurately represented the entire data set. Afterwards, the researcher formulated exactly what the potential themes meant by describing the content of each individual theme. At the final stage, a thematic analysis report of the current study Phase 2 was developed in a coherent, concise, logical manner.

3.9.4. Data Analysis in Phase 3

Through identifying and reflecting on the UDL framework aligned teachers' actual teaching behaviour in Phase 3 of the current study, the results of the observations and post-observation interviews in Phase 3 also supported the answering of Research Question 6 and Research Question 7. After each observation, all the paper-based UDL-OMT rating scale and observer field notes were transcribed into the online form immediately. Reliability of the UDL-OMT rating scale was checked in a field test and the Cronbach's alpha being above 0.8 for all the sections of the tool (Basham et al., 2020). During data analysis, descriptive statistics including mean scores for each section (i.e., sections A to D) of the UDL-OMT rating scale, the overall mean score for the completed sections, as well as the corresponding standard deviations were calculated to develop some general characterisations about the level of UDL implementation within classrooms (Basham et al., 2020). In particular, as a measure of central tendency, the mean scores were computed by adding the number of items scored in a single section and dividing by the total possible points for a given section or multiple sections (Basham et al., 2020; George & Mallery, 2018). Table 3.2 presents four ways to characterise the mean scores.

Table 3.2*UDL-OMT Mean Score Ranges and Definitions*

Label	Mean Score Range	Definition
No or Low Occurrence	0-0.5	UDL is not occurring in this environment.
Pre-Emergent	0.6-1.5	UDL was not directly observed, however the environment is primed for UDL.
Emergent	1.6-2.3	UDL was observed, but it was not necessarily applied consistently during the observation. This implementation is likely not sustainable over long periods of time.
Ideal Implementation	2.4-3.0	UDL was obvious and being consistently implemented through sustainable practices.

Note. UDL-OMT = Universal Design for Learning Observation Measurement Tool

In addition to the UDL-OMT rating scale, the researcher was asked to take real-time observer field notes and complete an extra UDL-OMT part called ‘instructional components and summation’. Although the current study did not involve an extensive analysis of these additional qualitative data, the corresponding post-observation interviews in Phase 3 were conducted to support a fundamental understanding of teachers’ actual teaching behaviour.

To ensure interrater reliability, two video/audio recordings (15%) was selected at random and the UDL-OMT was completed by an extra expert in the field of inclusive education based on the selected video recordings (J. Cohen, 1960; McHugh, 2012). Both the researcher and the expert were familiar with the UDL-OMT. The results of the UDL-OMT were compared in a meeting to check the agreements and disagreements between the researcher and the expert. An initial 71.88% interrater reliability was calculated by a simple proportion agreement method (Morrissey, 1974). Then, a negotiated agreement approach was used to allow the researcher and the expert to illustrate how they interpreted the results of the UDL-OMT, how the scale

items were marked and what the observer field notes meant. Afterward, the level of interrater reliability was raised to 96.88%, which is considered to be a strong level of reliability.

A post-observation interview was conducted with each teacher in Phase 3 of the current study. After each interview, the researcher transcribed the audio recordings into Chinese, and the Chinese transcripts were used for inductive thematic coding. An inductive form of thematic analysis was adopted based on the previously mentioned six-step guidelines by Braun and Clarke (2006): (1) familiarising yourself with your data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. Without trying to fit codes into predetermined themes, inductive thematic analysis in Phase 3 was a data-driven approach allowing the researcher to read and re-read the data for any themes related to the research topic, and code diversely (Braun & Clarke, 2006). This was the main difference in analysing Phase 2 and Phase 3 interviews. In Phase 3, diverse codes and themes were generated in relation to teachers' actual teaching behaviour as well as their mindset towards implementing the UDL framework. After initial coding was completed, the anonymised transcripts were translated into English by a bilingual NAATI-certified translator and then back-translated into Chinese by the researcher to ensure semantic accuracy.

Similar to Phase 2, intercoder reliability were calculated to strengthen the reliability of the analysis of the Phase 3 post-observation interviews (K. Cheung & Tai, 2021). After the researcher coded all the interview transcripts independently, a randomly selected interview transcript was coded by an additional expert in the field of inclusive education. A negotiated agreement approach was used for explaining the coding process and resolving the disagreements between the researcher and the expert (Campbell et al., 2013). In this circumstance, a strong intercoder reliability was confirmed by the researcher and the expert.

3.9.5. Integrated Data Analysis

After Phase 2 of the current study, the results of statistical tests in Phase 1 and thematic analysis in Phase 2 were initially integrated to draw inferences about teachers' overall intentions to implement inclusive practices through the lens of the UDL framework in Research Question 5. Adopting the Theory of Planned Behaviour, both quantitative and qualitative data related to teacher attitudes, subjective norms and perceived behavioural control were also linked to enhance the understanding of the overall teacher intentions. The qualitative interview data were used to enhance and clarify the quantitative questionnaires results (Engelbrecht & Savolainen, 2018). In Phase 3, the researcher observed and interviewed the teacher to examine how their actual teaching behaviour aligned with the UDL framework. After Phase 3, the final

process of the study was to integrate inferences drawn from all the quantitative and qualitative data.

Following the explanatory sequential mixed methods research design, the data analysis results of questionnaires, interviews, observations and post-observation interviews were integrated to develop a comprehensive picture of the research phenomenon (Younas et al., 2025). The UDL framework aligned teachers' actual teaching behaviour was reflected in Phase 1 and Phase 3, so as to address Research Question 6. To address Research Question 7, the final integrated results were used to check the consistency and inconsistency between teacher's actual teaching behaviour and their overall intentions to implement inclusive practices through the lens of the UDL framework expressed in Phase 1 and Phase 2. Instead of merely looking at agreements or disagreements between the quantitative and qualitative data analysis results, the integration process involved completeness and linking of results in each of the three research phases to develop meaningful conclusions (Fielding, 2012). It was anticipated that more insights into teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour could be generated throughout the final integration process.

3.10. Transition Section

In summary, this chapter has outlined the methodology underpinning the current study, including the research design and strategies, participant recruitment and sampling procedures, instruments employed, data collection approaches, and analytic strategies across the three research phases. An explanatory sequential mixed methods research design with some modifications was adopted in three research phases. All questionnaires, interviews, observations and post-observation interviews were utilised to collect data in the Chinese context. Various statistical tests and thematic analysis procedures were applied and explained in the data analysis section. These methodological decisions were made to ensure that the quantitative and qualitative components were meaningfully connected, enabling the explanatory sequential mixed methods research design to capture both teachers' reported intentions and their demonstrated teaching behaviour. With the ethical considerations and data quality assurance procedures also addressed, the study is now positioned to present the findings. The next chapter reports the results of the quantitative and qualitative analyses conducted in Phases 1, 2, and 3.

Chapter 4

Results

4.1. Introduction

The previous chapter described the methodology of the current research. An explanatory sequential mixed methods research design was applied to examine teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour. The questionnaires, interviews, observations and post-observation interviews were utilised in three research phases. In this chapter, quantitative and qualitative data quality and the results of each research phase will be reported.

Specifically, demographics, descriptive analysis results, preliminary analysis results and inferential analysis results will be developed in interpreting Phase 1 results. In Phase 2, the demographics of the interviewees and thematic analysis results of Phase 2 interviews will be provided on a step-by-step basis. In the final part of the chapter an overview of participants and school or classroom contexts, descriptive analysis results of classroom observations, and the thematic analysis results of post-observation interviews will be provided.

4.2. Evidence of Quality

4.2.1. Phase 1 Data Quality

The quality of the Phase 1 data was demonstrated through evidence of internal validity, external validity, reliability, and objectivity in the quantitative survey research (Fraenkel et al., 2019). Internal validity refers to the extent to which inferences drawn from a study are credible and logically supported by the research process (Phillips et al., 2013). It examines how well a study was designed, conducted and analysed (Andrade, 2018). To enhance internal validity in quantitative research, choosing an appropriate research design, having a standardised sampling method, obtaining more relevant characteristics of study subjects, as well as capturing more information on study details (e.g., where and when the study takes place) are suggested methods (Fraenkel et al., 2019).

In the current study, internal validity was supported first through the use of a quantitative online questionnaire developed for the explanatory sequential design. The questionnaire comprised separate sections assessing demographic information, attitudes, subjective norms, perceived behavioural control, intentions, and behaviours. Each section targeted a specific variable in the Theory of Planned Behaviour, which improved clarity by organising the questionnaire into distinct conceptual domains (Krosnick, 2018). Particularly, responses to the

demographic questions in the first section of the survey presented the diverse characteristics of participants (see Appendix A).

Internal validity was further strengthened through consistent data collection procedures. A snowball sampling method was employed to recruit classroom teachers from randomly selected secondary schools in metropolitan areas of China. The optimal sample size was calculated as $N = 385$ using a 95% confidence level and a 5% margin of error (Qualtrics, 2023). The current study Phase 1 was completed within a 3-month period, from September to November 2023. A total of 284 online questionnaires were collected in three months. Among these, 75 incomplete questionnaires were excluded from analysis due to only consent forms or demographic information being provided by the participants. Therefore, there were 209 questionnaires used for the following data analysis, in which 201 participants completed all the survey sections and another eight participants completed over three-quarters of the survey sections. The high response completion rate further strengthened the internal validity of the findings. Although the final number of valid questionnaires ($N = 209$) did not reach the calculated optimal target of 385, it substantially exceeded the minimum sample size required for regression analysis in Phase 1 of the current study, which was $N > 66$ based on Pallant's (2016) guideline of $N > 50 + 8 \times$ the number of independent variables. Thus, the achieved sample size was more than sufficient to generate stable regression estimates and was considered adequate for drawing meaningful quantitative inferences.

To analysis the quantitative data, both descriptive analysis and inferential analysis were implemented in addressing Research Questions 1 to 7. The integration of standardised measures, consistent administration procedures, and rigorous analytical techniques collectively provides strong evidence of internal validity in the Phase 1 quantitative component.

Along with internal validity, external validity refers to the extent to which the research findings of a study can be generalised from the research sample to the population (A. Singh, 2017). In Phase 1 of the current research, the snowball sampling method was utilised to increase teacher responses and decrease research costs and time. The snowball sampling method is often criticised for its lack of external validity, generalisability and representativeness (Parker et al., 2019). The Phase 1 sample in the current study may not be fully representative of the wider population, which makes it difficult to generalise the research findings beyond the secondary schools and participants included in the sample. Nevertheless, the results may be transferable to similar secondary school contexts. The demographic information collected, including variations in teaching experience, subject areas and school characteristics, provides

background detail to support the credibility of the sample and allows readers to judge the extent to which the findings may apply to comparable settings.

Evaluating the reliability of the instruments utilised in a study is also imperative to advance the accuracy and credibility of research findings (Creswell & Plano Clark, 2018; DeVellis & Thorpe, 2021; Streiner et al., 2024). Reliability refers to “the consistency of a measure” (Heale & Twycross, 2015, p. 1). It presents the extent to which a research instrument consistently produces the same results when used repeatedly in the same circumstance (Heale & Twycross, 2015; Pentang, 2023). To check the reliability of a research instrument, internal consistency is an important attribute to test the extent to which all the items on a scale measure the same construct (Pallant, 2016). Cronbach’s alpha is the most frequently utilised test to determine the internal consistency of a research instrument (Heale & Twycross, 2015). The result of Cronbach’s alpha is a number between 0 and 1 (Heo et al., 2015). An acceptable value of Cronbach’s alpha is 0.7 or 0.6 and higher (Taber, 2018; Van Griethuijzen et al., 2015). As shown in Table 4.1, in Phase 1 of the current study, the Cronbach’s alpha of the modified TAIS, the modified PSSIE, the self-designed TEIUF, the self-designed TIIUF and the self-designed TATB were above 0.8. Based on the high Cronbach’s alpha value, the five 7-point Likert scales all have preferable, strong reliability.

Table 4.1

Reliability Test

Reliability Statistics		
Scales	Cronbach’s Alpha	N of Items
The Modified TAIS	0.859	9
The Modified PSSIE	0.891	10
The Self-Designed TEIUF	0.898	9
The Self-Designed TIIUF	0.885	9
The Self-Designed TATB	0.869	9

Note. The modified TAIS, modified PSSIE, self-designed TEIUF, self-designed TIIUF and self-designed TATB measured the core components within the Theory of Planned Behaviour (i.e., attitudes, subjective norms, perceived behavioural control, intentions, behaviour).

A final consideration of quality quantitative survey research is objectivity. Objectivity refers to “the absence of subjective judgements” (Fraenkel et al., 2019, p. 112). Although

complete objectivity is largely impossible, researchers should attempt to reduce subjectivity from the judgements they develop about the achievements, performance, or characteristics of participants (Fraenkel et al., 2019; Nahrin, 2015). For instance, ensuring the anonymity and confidentiality of participants is a way to improve objectivity in quantitative research to an anticipated extent (Nahrin, 2015). Following the ethics procedure, the Phase 1 questionnaire cannot be traced back to any unique individual in the current study, eliminating personal bias and prejudices that the researcher may have based on the participants' demographic information. All the collected data were stored securely and kept confidential, as stated in the Participant Information Statement (Phase 1) and outlined in the data store plan.

4.2.2. Phase 2 Data Quality

Trustworthiness refers to the degree of confidence in data, methods and interpretations utilised to ensure the usefulness and integrity of research findings (Cope, 2014; Pilot & Beck, 2014). Developing trustworthiness is imperative to persuade researchers and readers that their research findings are worthy of attention (Lincoln & Guba, 1985). The widely accepted criteria introduced by Lincoln and Guba (1985) were chosen to demonstrate trustworthiness in Phase 2 of the current study. A total of eight interview transcripts were generated from this phase. To assess trustworthiness of the qualitative research part, Lincoln and Guba (1985) created four trustworthiness criteria, including credibility, dependability, confirmability and transferability. In 1994, the authors added a fifth trustworthiness criterion called authenticity (Guba & Lincoln, 1994).

The five trustworthiness criteria are explained as follows. Credibility deals with “the fit between respondents' views and the researcher's representation of them” (Nowell et al., 2017, p. 3). To establish the rigour of the inquiry, peer debriefing is a suggested strategy for the researcher to seek scholarly guidance from other professionals throughout the research process (Anney, 2014). In Phase 2 of the current study, the researcher presented the generated codes and themes to an expert in the field of inclusive education for comments. Feedback was then incorporated to refine theme boundaries, clarify overlapping codes, and ensure that the interpretations aligned closely with the participants' accounts. This process strengthened the credibility and analytical rigour of the research findings.

Member checking, also known as respondent validation or participant validation, is another recommend technique to enhance the credibility of qualitative research findings (Birt et al., 2016). It allows participants to confirm or deny the interpretations of data, enabling the

researcher to accurately characterise the original voices of participants (Candela, 2019). During the Phase 2 data analysis in the current study, all eight interview transcripts were shared with the corresponding participants to confirm the completeness and accuracy of the transcripts. All participants indicated that the transcripts accurately reflected their views, and no substantive amendments were requested.

The second trustworthiness criterion is called dependability, which concerns the stability of the data throughout the research (Elo et al., 2014). In qualitative research, dependability can be linked to reliability and represents to what extent a study could be repeated by a separate researcher in the same context and produce similar findings (Chowdhury, 2015). A study is auditable when other researchers can clearly follow the theoretical or methodological decision trail (Nowell et al., 2017). To create an audit trail during the interview coding process, for example, keeping records of original interview transcripts can facilitate the researcher systemise, relate and cross-reference data, as well as simplify the reporting of the research findings (Anney, 2014; Nowell et al., 2017). In the current study, all the audio recordings and interview transcripts were dated and stored in a secured folder in Research Data Store at the University of Sydney. The research procedure was traceable, logical and clearly documented by the researcher.

Dependability could also be established by checking the intercoder reliability (Connelly, 2016). The intercoder reliability was assessed by allowing the researcher and an expert to code a randomly selected interview transcript separately and compare the results (Anney, 2014; K. Cheung & Tai, 2021). To improve the dependability of the inquiry, any inconsistencies between the researcher and an expert in the field of inclusive education needed to be addressed through a negotiated agreement approach. A strong intercoder reliability was established in Phase 2 of the current study. Further details about evaluating intercoder reliability are provided in Section 3.9.3 of the methodology chapter.

Another trustworthiness criterion is confirmability, requiring the researcher to demonstrate that the research findings were clearly derived from the data (Nowell et al., 2017). Developing an auditable study also establishes confirmability of the study (Anney, 2014). To maintain confirmability, the researcher explicitly demonstrates the research process of collecting, analysing and interpretation of the data (Moon et al., 2016). In Phase 2 of the current study, an expert in the field of inclusive education was invited to review the thematic analysis process to prevent bias and enhance confirmability (Connelly, 2016). The expert not only checked intercoder reliability in data coding but also reviewed the generated themes and the drafted report during weekly meetings with the researcher.

Transferability refers to the extent to which the research findings in the current study are useful to researchers in other settings (Polit & Beck, 2018). Different from statistical generalisation, transferability emphasises that the stories of the interviewees are not everyone's story (Connelly, 2016). To establish the transferability of the interviews in Phase 2, the researcher is responsible for being transparent about the thematic analysis and providing thick descriptions of the interviewees, contexts and locations (Cope, 2014; Nowell et al., 2017). This provides insights for helping other researchers replicate the study with similar conditions in other possible circumstances (Anney, 2014). A detailed description of the methodology, interviewees and contexts were provided in Section 4.4 of the results chapter.

The final trustworthiness criterion is authenticity, indicating the extent to which the researcher expresses a range of realities in a fair and faithful manner (Connelly, 2016). The researcher's personal perspectives, interests and beliefs can have a significant influence on the qualitative data analysis process (Birt et al., 2016; Elo et al., 2014). Proficient data analysis skills help the researcher to report the research findings correctly and thus enhance the authenticity of a study (Elo et al., 2014). To facilitate the authenticity of the interviews in Phase 2 of the current study, the researcher searched and consulted a range of literature and consulted relevant experts to enhance the statistical analysis knowledge and skills required for conducting the thematic analysis.

4.2.3. Phase 3 Data Quality

In Phase 3 of the current study, two teachers who completed the first two research phases participated in classroom observations and post-observation interviews. The researcher observed five lessons for each teacher and conducted individual face-to-face interviews with each teacher after the fifth and final classroom observations. To strengthen internal validity, Phase 3 followed the explanatory sequential design by first collecting and analysing quantitative observation data and then drawing on qualitative evidence, including observation field notes and post-observation interview transcripts, to explain and clarify the quantitative results. In particular, the focus of the classroom observations was the quantitative data collected using the UDL-OMT rating scale, while the qualitative field notes were used to provide a comprehensive picture of what happened in chronological order. Although the researcher did not conduct an extensive analysis of these qualitative field notes, these descriptive notes supported the quantitative data in understanding teachers' actual teaching behaviour.

In Phase 3, like Phase 2, a convenience sampling method was used to collect data efficiently (Jager et al., 2017). Similar to the previously employed snowball sampling method

in Phase 1, the non-probability sampling technique often generates biased samples with insufficient external validity and generalisability (Etikan et al., 2016). The convenience sampling method limits the extent to which the research findings can be generalised from the sample to the population of interest. In the current study Phase 3, the researcher provided a thick description of the methodology, participants' demographics and research contexts, as shown in Section 4.5 of the results chapter. These valuable pieces of information provide the potential for the study to be transferred or applied in other similar settings.

Strong reliability of the UDL-OMT rating scale was confirmed by Basham et al. (2020), with the Cronbach's alpha being above 0.8 among all parts of the scale. In Phase 3 classroom observations of the current study, interrater reliability was checked by having a separate expert code two randomly selected video recordings (J. Cohen, 1960). An initial 71.88% interrater reliability was revised to 96.88% through a negotiated agreement approach, as shown in Section 3.9.4 of the methodology chapter. The high level of interrater reliability indicates that the research findings would be consistent if the classroom observations are replicated.

Another consideration for the quantitative data collected in classroom observations is objectivity. In Phase 3 of the current study, all the participants were assigned a non-identifying name/pseudonym (i.e., Participant 1 and Participant 2) to anonymise participant identities. As outlined in the Participant Information Statement (Phase 3), all the collected data were stored in the secure Research Data Store at the University of Sydney, and the contact details and locations of the two participants were kept strictly confidential.

To develop credibility in Phase 3 post-observation interviews of the current study, an expert in the field of inclusive education provided an external check on the interview process, and examined preliminary research findings against the raw data (Nowell et al., 2017). Further, the interview transcripts were presented to the corresponding participants to solicit their feedback regarding the accuracy of data (Stahl & King, 2020). To establish dependability and confirmability, the audio recordings, interview transcripts, as well as coding drafts and notes were clearly documented, creating an audit trail of the methodological decisions made during the analysis (Amin et al., 2020). Consistent with Phase 2 of the current study, an external expert in the field of inclusive education coded a randomly selected interview transcript. The independent coding showed a high level of agreement between the researcher and the external expert, indicating acceptable intercoder reliability for the Phase 3 post-observation interviews.

Similar to quantitative research, qualitative inquiry anticipates expanding understanding by transferring research findings from one context to another (Stahl & King, 2020). Transferability can only be achieved by having "a rich enough portrayal of circumstance for

application to others' situations" (Stahl & King, 2020, p. 27). As stated above, a thick description of the methodology, participants' demographics and research contexts was provided in Phase 3 of the current study to improve the transferability. In Phase 3 post-observation interviews, techniques such as member checking, peer debriefing and thick description, discussed before, also served for authenticity (Amin et al., 2020). Authenticity is crucial in qualitative research, signifying that the researcher attempts to clarify a range of realities in a balanced, impartial manner (Amin et al., 2020).

4.3. Interpretation of Phase 1 Results

This section presents the descriptive and inferential analysis results of the Phase 1 survey of the current study, addressing Research Questions 1 to 4.2. Following the reliability test outlined in the methodology chapter, Pearson product-moment correlation coefficients, hierarchical regression, multiple regression and mediation analysis all have specific assumptions that depict characteristics of the quantitative data. These assumptions must be met for the statistical tests to be validly interpreted (Y. Jeong & Jung, 2016). Failure to meet these specific assumptions may lead to biased research findings (Y. Jeong & Jung, 2016). In Phase 1 of the current study, preliminary analyses associated with the Theory of Planned Behaviour were conducted to ensure the assumptions of linearity, normality, homoscedasticity, independence of residuals, no multicollinearity or auto-correlation were not violated (Hankins et al., 2000). Prior to presenting the main statistical results, preliminary analyses were conducted to examine whether these assumptions were met. The results of these preliminary checks are reported in the following sections.

4.3.1. Description of Phase 1 Demographics

A descriptive analysis of the demographics of secondary school teachers is presented in this section. Frequencies and percentages have been applied to summarise demographic information. Basic demographic information of Phase 1 participants, such as gender, age and years of teacher experience, are presented in Table 4.2. Training-related demographic information including the completion of a pre-service teacher training degree, the completion of a unit of study in special and inclusive education, the completion of professional learning workshops/seminars about special and inclusive education, as well as participants' knowledge of the UDL framework are listed in Table 4.3.

Table 4.2*Basic Demographic Information of Phase 1 Participants*

	Basic Demographics	Frequency	Percent
Gender	Male	90	43.1%
	Female	115	55%
	Non-binary/third gender	1	0.5%
	Prefer not to say	3	1.4%
	Total	209	100%
Age	18-24	52	24.9%
	25-34	118	56.5%
	35-44	30	14.4%
	45-55	8	3.8%
	55+	1	0.5%
	Total	209	100%
Years of teaching experience	<=5 years	146	70.2%
	6-10 years	43	20.7%
	11-15 years	10	4.8%
	16+ years	9	4.3%
	Total	208	100%
Subject area(s) currently taught	Chinese/English	99	48.8%
	Mathematics	48	23.6%
	Physics	23	11.3%
	Chemistry	6	3%
	History	12	5.9%
	Politics	8	3.9%
	Physical Education	1	0.5%
	Geography	1	0.5%
	Psychology	1	0.5%
	Biology	1	0.5%
	Arts	3	1.5%
	Total	203	100%
Types of educational sector	Public school	161	77.4%
	Private school	47	22.6%

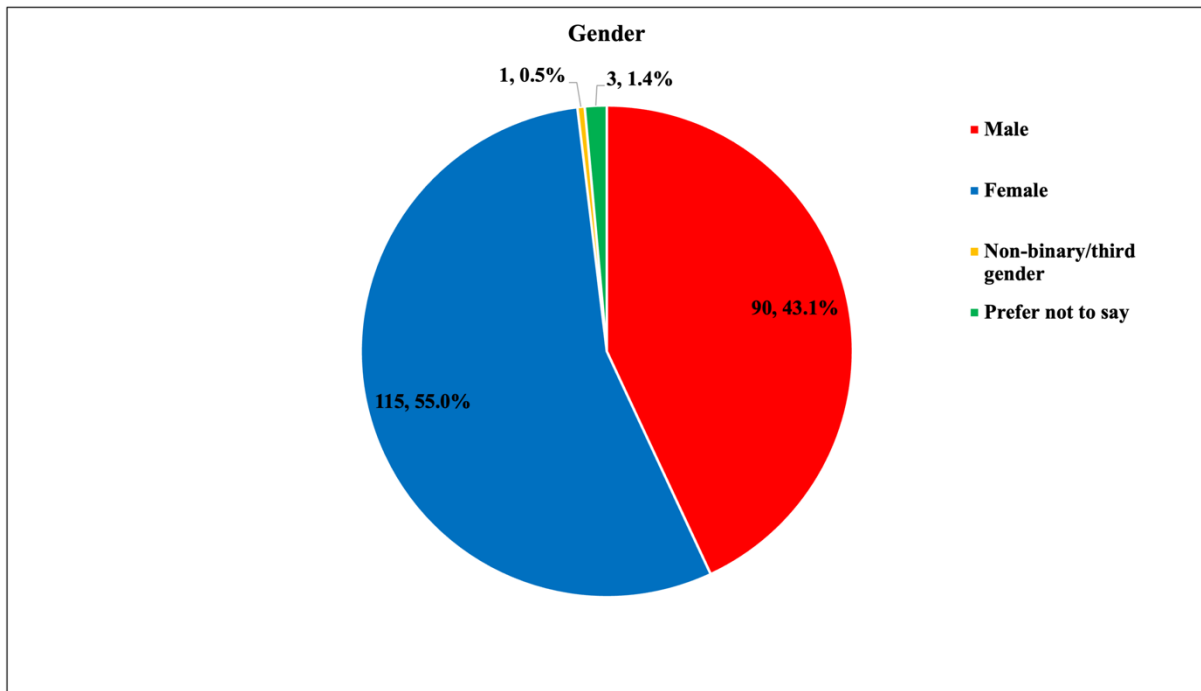
Basic Demographics		Frequency	Percent
	Total	208	100%
Highest degree earned	High School Certificate	2	1%
	Bachelor Degree	108	51.7%
	Masters Coursework Degree	66	31.6%
	Masters Degree by Research	33	15.8%
	Total	209	100%
Previous contact with people/persons with disabilities	Yes	139	66.8%
	No	69	33.2%
	Total	208	100%

Note. The total number of participants was 209 ($N = 209$).

As shown in Table 4.2 basic demographics, and Figure 4.1, the number of female ($n = 115$, 55%) and male ($n = 90$, 43.1%) participants in Phase 1 was similar. Only one (0.5%) participant identified as non-binary/third gender, with another three (1.4%) participants not disclosing their gender identity. According to World Bank Gender Data, 60.3% of China's secondary-school teachers were female in 2024 (World Bank, n.d.). The sample's female proportion of 55% was slightly below this benchmark, a point that should be considered when assessing the generalisability of the results.

Figure 4.1

Basic Demographics – Gender



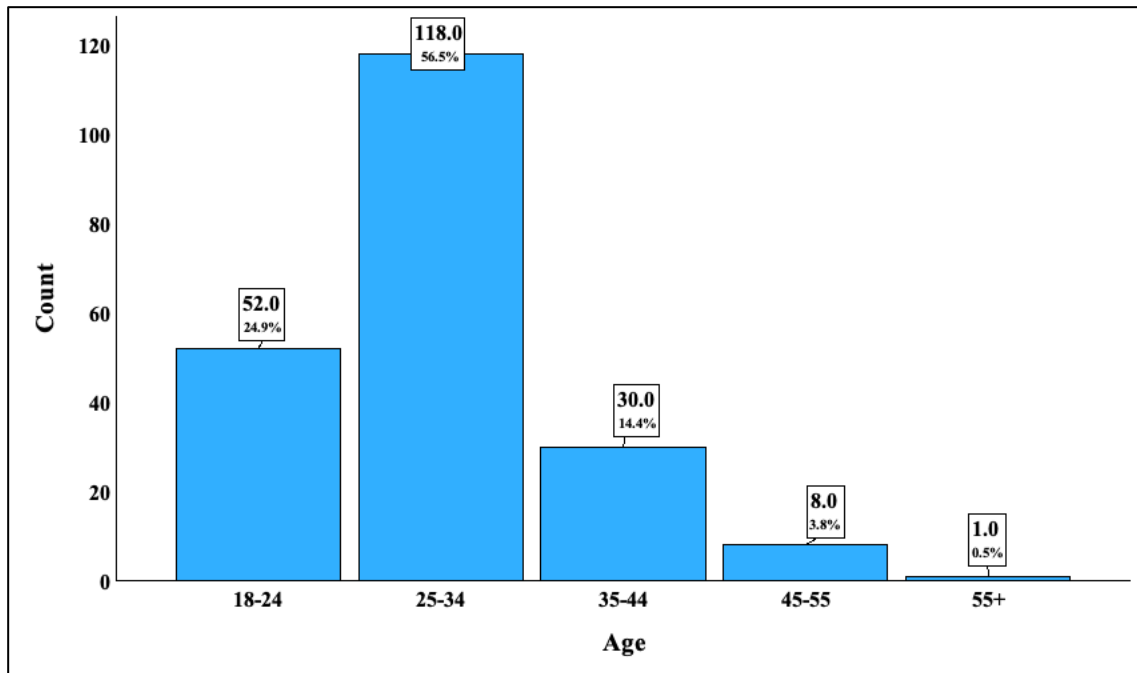
Note. The total number of respondents was 209 ($N = 209$).

As shown in Figure 4.2, the majority of respondents were aged 25 to 34 ($n = 118$, 56.5%). Almost a quarter of participants were aged 18 to 24 ($n = 52$, 24.9%). Thirty participants were aged 35 to 44 (14.4%), while only one participant was more than 55 years (0.5%). The remaining eight participants were aged between 45 and 55 (3.8%). Regarding the length of teaching in Figure 4.3, most teachers were in their first five years of teaching ($n = 146$, 70.2%), while about one-fifth of teachers were in their sixth to tenth year of teaching ($n = 43$, 20.7%). The number of teachers with 11 to 15 years or more of teaching experience was almost the same ($n = 10$, 4.8% and $n = 9$, 4.3% respectively).

Participants in Phase 1 taught a wide range of subject areas. Almost half were teaching Chinese or English ($n = 99$, 48.8%), while participants teaching physical education, geography, psychology and biology only accounted for 0.5% each ($n = 1$). Approximately a quarter of participants were teaching mathematics ($n = 48$, 23.6%). The subject areas of remaining participants were history ($n = 12$, 5.9%), politics ($n = 8$, 3.9%), chemistry ($n = 6$, 3%) and arts ($n = 3$, 1.5%) in descending order. More than three-quarters of participants reported that they worked in public schools ($n = 161$, 77.4%), while 22.6% of participants worked in private schools ($n = 47$).

Figure 4.2

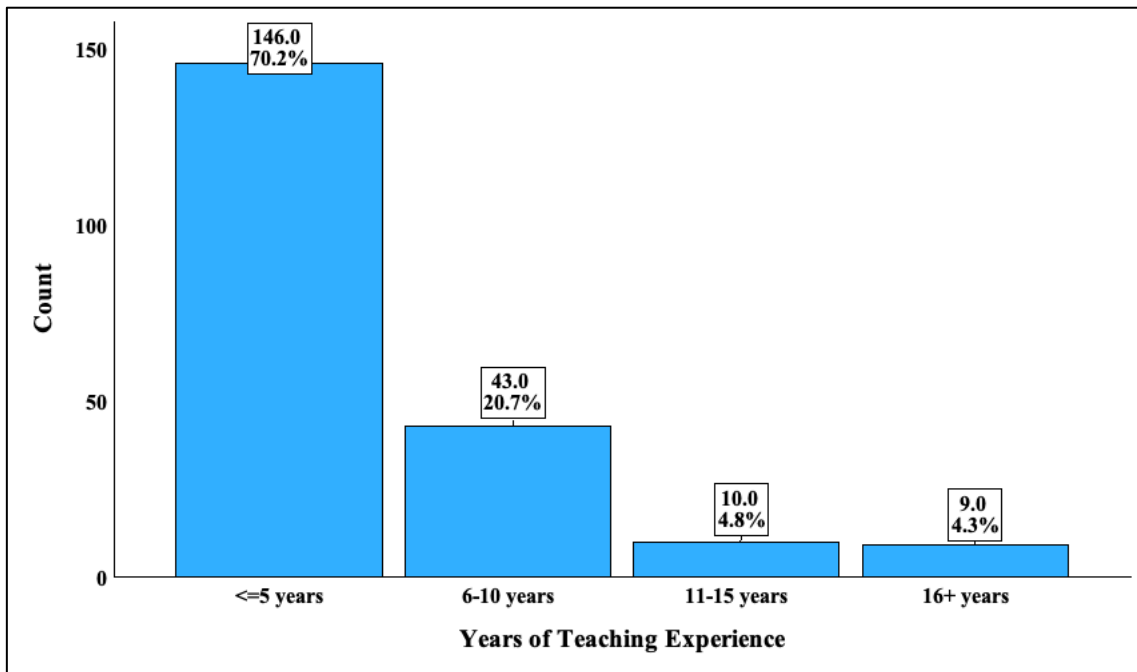
Basic Demographics – Age



Note. The total number of respondents was 209 ($N = 209$).

Figure 4.3

Basic Demographics – Years of Teaching Experience



Note. The total number of respondents was 208 ($N = 208$).

In terms of highest degree earned, around half of participants had completed an undergraduate degree ($n = 108$, 51.7%), while 1% of participants only had obtained a high school certificate ($n = 2$). Participants who had completed a postgraduate coursework degree ($n = 66$, 31.6%) were twice as many as those who had completed a postgraduate research degree ($n = 33$, 15.8%). Concerning previous contact with people/persons with disabilities, the majority of participants reported having had such contact with people/persons with disabilities before ($n = 139$, 66.8), while 69 (33.2%) participants reported not having such contact.

As shown in Table 4.3 training-related demographics, 171 (81.8%) participants reported that they had completed a pre-service teacher training degree and more than half of the participants reported that they had completed a unit of study in special and inclusive education ($n = 114$, 55.1%). For further professional development training shown in Figure 4.4, most participants reported that they had participated in professional learning workshops/seminars about special and inclusive education ($n = 129$, 61.7%). Specifically, when asked about their understanding of the UDL framework, 129 (61.7%) participants reported that they had heard of the UDL framework, which is the same as the number of participants who had participated in further professional training. Then, teachers who had heard of the UDL framework rated their confidence in implementing it using a 0–100% slider scale. As shown in Figure 4.5, among teachers who had heard of the UDL framework, the majority of them had a confidence level of 50% to 75% ($n = 56$; 43.4%) or higher than 75% ($n=54$, 41.9%) in implementing the UDL framework, with a roughly even distribution.

Table 4.3*Training-related Demographic Information of Phase 1 Participants*

Training-related Demographics		Frequency	Percent
Completed a pre-service teacher training degree	Yes	171	81.8%
	No	38	18.2%
	Total	209	100%
Completed a unit of study in special and inclusive education	Yes	114	55.1%
	No	93	44.9%
	Total	207	100%
Completed professional learning workshops/seminars about special and inclusive education	Yes	129	61.7%
	No	80	38.3%
	Total	209	100%
Heard of the UDL framework	Yes	129	61.7%
	No	80	38.3%
	Total	209	100%

Note. The total number of participants was 209 ($N = 209$).

Figure 4.4

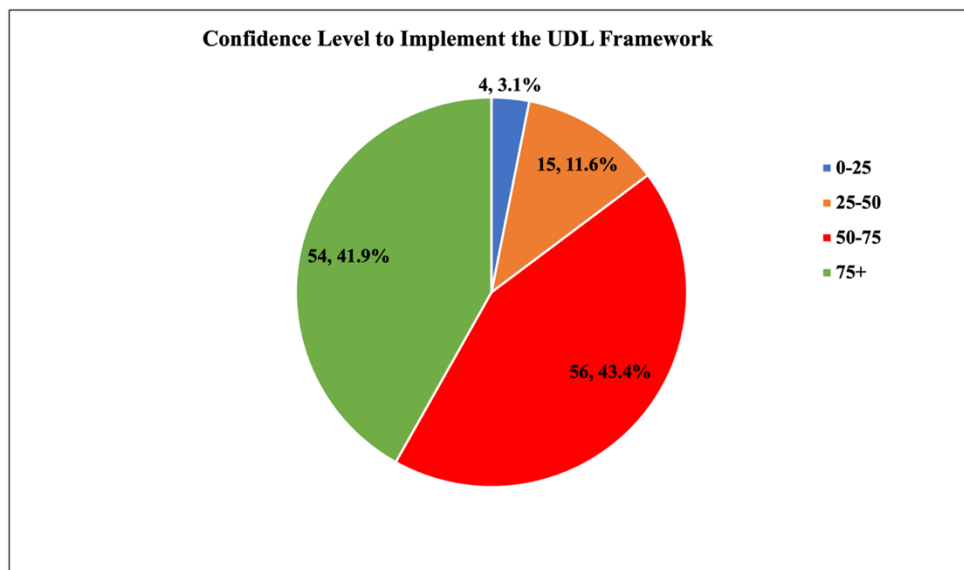
Training-related Demographics – Professional Development Training



Note. The total number of respondents was 209 ($N = 209$).

Figure 4.5

Training-related Demographics – Confidence Level to Implement the UDL Framework



Note. The total number of participants who had heard of the UDL framework was 129 ($n = 129$). Colours represent different levels of confidence in applying the UDL framework: blue (0–25%), orange (25–50%), red (50–75%), and green (75%+).

4.3.2. Description of Descriptive Analysis Results: Quantitative Survey

As shown in Table 4.4, mean scores and standard deviations of the five 7-point Likert scales (i.e., the modified TAIS, the modified PSSIE, the self-designed TEIUF, the self-

designed TIIUF and the self-designed TATB) were presented in the current study Phase 1 to display the level of teacher attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour, respectively. All the overall mean scores were above the neutral midpoint of the five Likert scales. Also, all the overall mean scores were around five or higher on the 7-point Likert scales, indicating that the teachers reported relatively high levels of attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour. The descriptive analysis results were utilised to support addressing Research Question 5 to Research Question 7 in Section 4.6 of the results chapter.

Table 4.4

Descriptive Analysis in Phase 1

	Mean	Std. Deviation	N
Attitudes	4.95	1.013	209
Subjective Norms	5.23	0.949	203
Perceived Behavioural Control	5.52	0.799	202
Intentions	5.69	0.743	201
Actual Teaching Behaviour	5.34	0.756	200

Note. The results of mean scores and standard deviations were produced by SPSS software version 29.

The following Tables 4.5 to Table 4.9 show the mean scores, standard deviations and the number of responses for each item concerning attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour scales respectively. An examination of the item-level means across the five 7-point Likert scales (i.e., the modified TAIS, the modified PSSIE, the self-designed TEIUF, the self-designed TIIUF and the self-designed TATB) showed a pattern consistent with the overall scale means. The individual item results showed generally high scores across all five constructs. However, a small number of items, particularly those relating to access to teaching resources and opportunities for in-service training, received comparatively lower ratings. These items suggest areas that may warrant further attention in strengthening inclusive education. More insights regarding teacher attitudes, subjective norms, perceived behavioural control, intentions and their actual teaching behaviour were followed up via interviews and observations in Phase 2 and Phase 3 of the current study.

The mean scores of the individual item responses in the attitudes scale (Table 4.5) indicated generally positive teacher attitudes towards inclusive education or inclusive practices. Responses to Item 4 ($M = 5.36$, $SD = 1.201$), Item 8 ($M = 5.36$, $SD = 1.287$) and Item 9 ($M = 5.93$, $SD = 1.042$) had the highest mean scores. The high level of mean scores showed that teachers believed in the importance of removing learning barriers for all students, improving professional knowledge of inclusive practices and collaborating with parents/carers. Nevertheless, the lowest mean scores were presented in Item 1 responses ($M = 4.35$, $SD = 1.605$), Item 2 responses ($M = 4.46$, $SD = 1.740$) and Item 3 responses ($M = 4.58$, $SD = 1.616$), indicating some concern about the enrolment of students with disabilities in regular schools, some discomfort about the involvement of students with disabilities in regular classroom activities, as well as some overwhelmed feelings about the development of curricula to meet the learning needs of all students.

Most mean scores of the individual items in the subjective norms scale were above 5.0 (Table 4.6), indicating teachers' positive perceptions of support from principals, colleagues and families. Responses to Item 6 ($M = 5.50$, $SD = 1.050$) showed that teachers felt strongly supported by colleagues in providing students with a variety of ways to demonstrate their learning, and responses to Item 9 ($M = 5.73$, $SD = 0.995$) indicated that teachers perceived high levels of family support in teaching students with disabilities. However, an examination of the individual items of the subjective norms scale also expressed some different outcomes with the overall mean score. Compared to other individual items in the subjective norms scale, responses to Item 4 ($M = 4.64$, $SD = 1.781$) and Item 10 ($M = 4.56$, $SD = 1.896$) suggested relatively lower levels of teachers' perceived support from schools regarding the provision of in-service teacher training and necessary teaching resources.

Table 4.5*Descriptive Analysis in Phase 1 - Attitudes*

Item	Mean	Std. Deviation	N
1. I feel unconcerned when students with disabilities are enrolled in regular schools	4.35	1.605	209
2. I feel comfortable involving students with disabilities in regular classroom activities	4.46	1.740	209
3. I do not feel overwhelmed developing curriculum to meet the learning needs of all students	4.58	1.616	209
4. I believe that quality inclusive education focuses on removing barriers to access and participation in learning for all students	5.36	1.201	209
5. I believe that educating students with disabilities in regular classrooms promotes greater appreciation of student differences	4.92	1.555	209
6. I believe that educating students with disabilities in regular classrooms enriches the learning opportunities of students without disabilities	5.00	1.484	209
7. I believe that the learning of students with disabilities can be addressed by mainstream classroom teachers	4.56	1.676	208
8. I believe that teachers with professional knowledge of inclusive practices are able to enhance the learning of all students	5.36	1.287	209
9. I believe that collaboration between the parent/carer and teacher is the key to promoting learning of students with disabilities.	5.93	1.042	209

Note. The results of mean scores and standard deviations were produced by SPSS software version 29.

Table 4.6*Descriptive Analysis in Phase 1 – Subjective Norms*

Item	Mean	Std. Deviation	N
1. I receive necessary support from the principal to provide alternative ways of representing learning concepts	5.00	1.292	203
2. I receive necessary support from the principal to provide students with a variety of ways to demonstrate their learning	5.24	1.183	203
3. I receive necessary support from the principal to maximise engagement of students in different classroom activities	5.35	1.325	203
4. I am supported to access regular in-service training in teaching all students in classroom including students with disabilities	4.64	1.781	203
5. I receive support from colleagues to provide alternative ways of representing learning concepts	5.38	1.206	203
6. I receive support from colleagues to provide students with a variety of ways to demonstrate their learning	5.50	1.050	203
7. I receive support from colleagues to maximise engagement of students in different classroom activities	5.47	1.127	203
8. I receive necessary support from the family of students with disabilities when teaching their children	5.39	1.195	203
9. I receive necessary support from the family of students without disabilities when teaching their children	5.73	0.995	203
10. I receive necessary resources from the school to teach students with disabilities when needed (e.g., Braille for blind students).	4.56	1.896	203

Note. The results of mean scores and standard deviations were produced by SPSS software version 29.

The mean scores ranged from 5.38 to 5.69 in the perceived behavioural control scale (Table 4.7), suggesting a strong sense of perceived behavioural control among teachers. Item

3 responses ($M = 5.69$, $SD = 1.053$) indicated that teachers had the strongest belief in their ability to connect new information with prior knowledge by providing a variety of scaffolds for all students. Teachers were confident in anchoring their instruction by linking to and activating relevant prior knowledge, which corresponds to the second UDL principle of representation. The lowest mean score in Item 1 responses ($M = 5.38$, $SD = 1.091$) pertained to providing learning information in different formats, though it still indicated a positive perception.

Table 4.7*Descriptive Analysis in Phase 1 – Perceived Behavioural Control*

Item	Mean	Std. Deviation	N
1. I am confident to provide learning information in different formats (e.g., video, audio, written text) for all students in learning	5.38	1.091	202
2. I am confident to embed visual, non-linguistic supports to clarify terminology knowledge for all students	5.39	1.155	202
3. I am confident to provide a variety of scaffolds for all students to connect new information with their prior knowledge	5.69	1.053	202
4. I am confident in using different forms of assessment for all students	5.49	1.075	202
5. I am confident to provide differentiated feedback that can be customised to individual students	5.51	1.164	202
6. I am confident to provide guides for students to break long-term learning goals into reachable short-term learning goals	5.62	0.991	202
7. I am confident to provide all students choice in level of autonomy during their learning	5.52	0.953	202
8. I am confident to vary the degree of complexity within which classroom activities can be completed	5.59	0.994	202
9. I am confident in supporting all students to collect data on their own behaviour for the purpose of monitoring their learning progress.	5.47	1.189	202

Note. The results of mean scores and standard deviations were produced by SPSS software version 29.

In analysing the intentions scale, (Table 4.8), all the mean scores of the individual items were notably high, indicating that teachers were generally willing to implement inclusive practices through the lens of the UDL framework. The individual scale result was aligned with the overall mean score result. The highest mean scores observed in Item 7 responses ($M = 5.81$,

$SD = 0.964$) reflected a commitment to minimising threats and distractions through a supportive classroom climate. The lowest mean score in Item 5 responses ($M = 5.35$, $SD = 1.211$) related to providing a range of supportive learning tools, indicating an area that may require more focus or attention from schools.

Table 4.8

Descriptive Analysis in Phase 1 – Intentions

Item	Mean	Std. Deviation	N
1. I intend to provide choices of representations of learning concepts	5.57	0.983	201
2. I intend to clarify terminology knowledge through multiple presentations	5.80	1.024	200
3. I intend to review prior knowledge required by each student to access every learning session	5.79	1.022	200
4. I intend to provide multiple ways for students to show their learning (e.g., pen, keyboard)	5.74	1.009	200
5. I intend to provide all students with a range of supportive learning tools (e.g., grammar checker, calculator)	5.35	1.211	200
6. I intend to provide a wide set of examples for all students on how to set learning goals	5.74	0.915	200
7. I intend to minimise threats and distractions in the classroom through building a supportive classroom climate	5.81	0.964	200
8. I intend to provide various opportunities for collaboration and communication (e.g., peer-tutors, flexible rubrics)	5.67	0.953	199
9. I intend to support all students in building self-regulation strategies.	5.80	1.062	199

Note. The results of mean scores and standard deviations are produced by SPSS software version 29.

The mean scores of the individual items in the actual teaching behaviour scale (Table 4.9) indicated that teachers were actively engaged in teaching behaviour that aligned with the UDL framework implementation. The highest mean score in Item 3 responses ($M = 5.75$, $SD = 1.045$) reflected that teachers placed a strong emphasis on key learning concepts to all students. Also, Item 1 responses ($M = 5.05$, $SD = 0.993$) and Item 5 responses ($M = 5.14$, $SD = 1.220$) suggested teachers felt they were not as positive in providing access to a range of alternative learning materials and using multiple media to support student communication.

Table 4.9

Descriptive Analysis in Phase 1 – Actual Teaching Behaviour

Item	Mean	Std. Deviation	N
1. I provided access to a range of alternative learning materials for all students	5.05	0.993	200
2. I clarified networks of ideas in teaching key concepts to all students	5.54	1.056	200
3. I emphasised key learning concepts to all students	5.75	1.045	200
4. I provided all students choice of assessment tasks to show their learning	5.24	1.100	200
5. I used multiple media (e.g., texts, discussion forums) to support communication with all students	5.14	1.220	200
6. I provided various guides for all students to take learning notes	5.26	1.130	200
7. I designed various classroom activities that allow active participation for all students	5.34	1.068	200
8. I provided all learners with mastery-orientated, timely feedback	5.35	1.079	200
9. I provided differential support for all students to develop their personal coping skills (e.g., problem-solving, emotional regulation, stress management).	5.35	1.031	200

Note. The results of mean scores and standard deviations are produced by SPSS software version 29.

Overall, the descriptive findings suggest that teachers reported generally positive attitudes, subjective norms, perceived behavioural control, intentions, and actual teaching behaviour, with individual item patterns largely consistent with the overall scale means. These descriptive patterns form the foundation for the inferential analyses presented in the following sections.

4.3.3. Addressing Research Questions 1 & 2

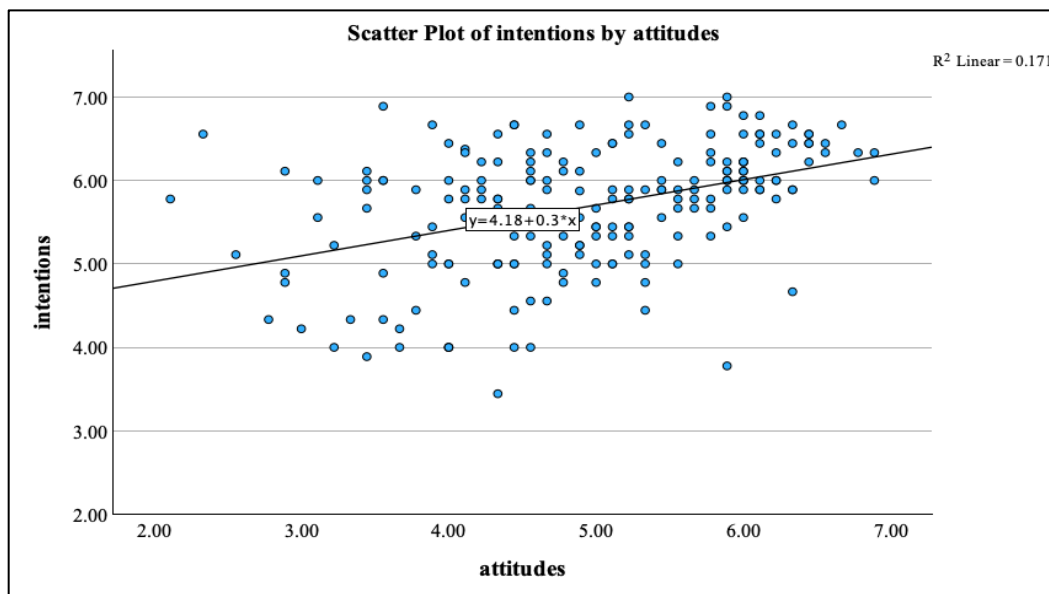
Preliminary Analyses Before Pearson Product-Moment Correlation Coefficients.

Before conducting the Pearson product–moment correlation analysis, preliminary analyses were performed to examine the statistical assumptions described in Section 3.9.2 of the methodology chapter. The first assumption stated that the two variables of interest should be measured on a continuous scale (i.e., interval or ratio scale) (Hauke & Kossowski, 2011). In the current study, the five 7-point Likert scales including the modified TAIS, the modified PSSIE, the self-designed TEIUF, the self-designed TIIUF and the self-designed TATB were continuous scales that followed this requirement. Also, the Pearson product-moment correlation coefficient assumed that there were no extreme outliers in data analysis as a single outlier can have a great distorting effect on the research findings (Osborne & Overbay, 2019; Schober et al., 2018). However, outlier detection was not appropriate for the 7-point Likert scale because responses at the extreme values (i.e., 1 or 7) simply reflected participants' positions on the scale rather than statistical outliers.

A linear relationship between two variables was another assumption and scatterplots were inspected to check for linearity (Hauke & Kossowski, 2011). To confirm this assumption in the current study, three scatterplots that depicted the relationship between intentions and attitudes, subjective norms and perceived behavioural control were created and shown in Figure 4.6, Figure 4.7 and Figure 4.8 respectively. The straight lines are trend lines designed to be as close to all data points as possible. To visually inspect the scatterplots, the pattern of intentions and attitudes, subjective norms and perceived behavioural control were similar to lines with a positive slope. The scatterplots indicate the linear relationships between intentions and attitudes, intentions and subjective norms, as well as intentions and perceived behavioural control.

Figure 4.6

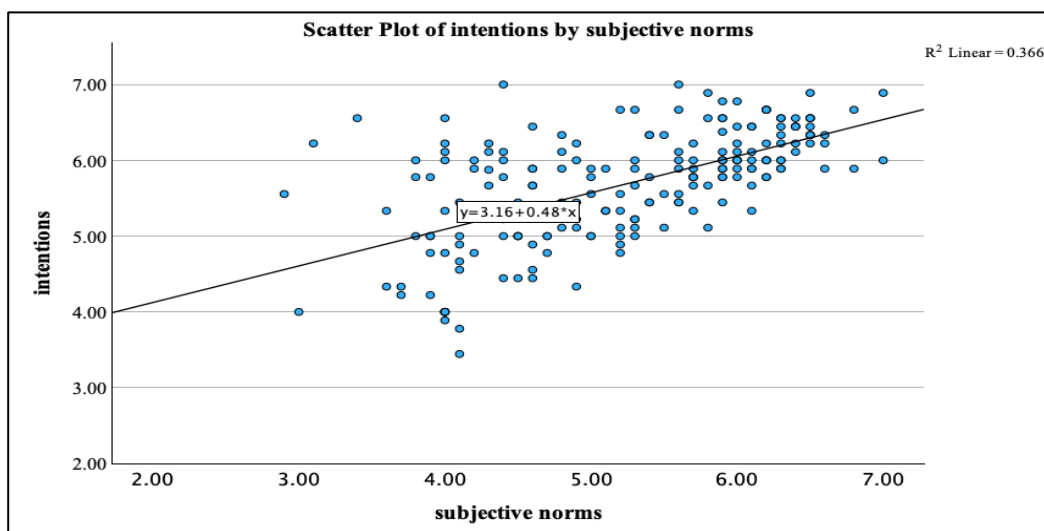
A Scatterplot between Teacher Intentions to implement inclusive practices through the lens of the UDL Framework and Teacher Attitudes towards Inclusive Education or Inclusive Practices



Note. Intentions measured by the self-designed TIIUF, and attitudes measured by the modified TAIS.

Figure 4.7

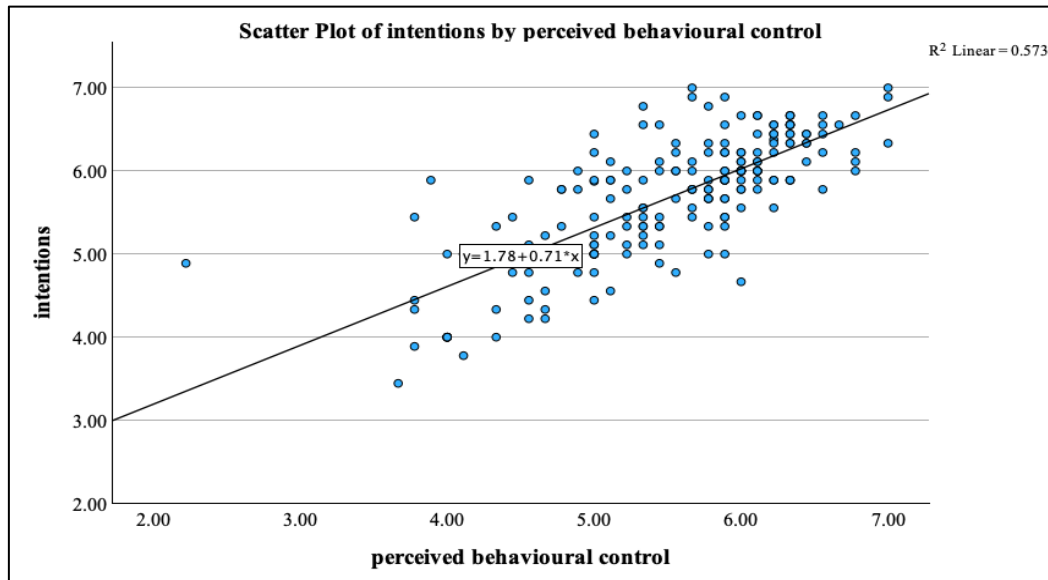
A Scatterplot between Teacher Intentions to Implement Inclusive Practices Through the Lens of the UDL Framework and Teachers' Perceived Support for Implementing Inclusive Practices through the Lens of the UDL Framework



Note. Intentions measured by the self-designed TIIUF, and subjective norms measured by the modified PSSIE.

Figure 4.8

A Scatterplot between Teacher Intentions to Implement Inclusive Practices through the Lens of the UDL Framework and Teachers' Efficacy in Implementing Inclusive Practices through the Lens of the UDL Framework



Note. Intentions measured by the self-designed TIIUF, and perceived behavioural control measured by the self-designed TEIUF.

The final assumption was bivariate normality, which indicates that two variables of interest are normally distributed (Puth et al., 2014). To evaluate bivariate normality, a simple method was used to determine the normality of each variable separately (Puth et al., 2014). Normal distribution refers to a probability distribution where data is symmetric about the mean score (Brereton, 2014). There are various methods to test the normality of continuous data, including the Kolmogorov-Smirnov test, the Shapiro-Wilk test, skewness, kurtosis, histogram, P-P plot, Q-Q plot, bot plot (Mishra et al., 2019). Although bivariate normality was not a strict requirement, it affected the accuracy of significance testing for the Pearson product-moment correlation coefficients (Bishara & Hittner, 2017; Puth et al., 2014).

To test the normality hypothesis of each variable, skewness and kurtosis of intentions, attitudes, subjective norms and perceived behavioural control were summarised in Table 4.10. Skewness refers to “a measure of the asymmetry of the distribution of a variable” (Kim, 2013, p. 52). Kurtosis can be defined as “a measure of the peakedness of a distribution”, while kurtosis (excess) can be obtained by subtracting three from the original kurtosis (Kim, 2013, p. 53). A distribution is *approximately* normally distributed if skewness or kurtosis (excess) of the data are between -1 and $+1$ (Mishra et al., 2019). In the current study, all the skewness

and kurtosis (excess) values were between -1 and $+1$, indicating that the responses on intentions, attitudes, subjective norms and perceived behavioural control were *approximately* normally distributed.

Table 4.10

Skewness and Kurtosis (Excess) for Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control

	Sample Size (<i>n</i>)	Skewness		Kurtosis (excess)	
		Statistic	Std. Error	Statistic	Std. Error
Intentions	201	-0.704	0.172	0.016	0.341
Attitudes	209	-0.296	0.168	-0.505	0.335
Subjective Norms	203	-0.323	0.171	-0.794	0.340
Perceived Behavioural Control	202	-0.778	0.171	0.644	0.341

Note. The skewness and kurtosis (excess) values are produced by SPSS software version 29.

However, Mishra et al. (2019) also pointed out that simply checking the skewness and kurtosis (excess) values for a small-to-medium sample size (i.e., $n < 300$) is a less reliable method as the standard error cannot be adjusted. To address this issue, a Z score could be calculated by dividing the skewness or kurtosis (excess) values by their standard errors (Mishra et al., 2019). A medium-sized sample (i.e., $50 < n < 300$) is normally distributed if the absolute Z scores are less than 3.29 (Kim, 2013). Bishara and Hittner (2017) suggested that kurtosis (excess) values are more important than skewness values in developing useful inferences using the Pearson product-moment correlation coefficients. In the current study, $Z_{kurtosis (excess)}$ has been calculated to test normality as shown in Table 4.11. Since all the absolute Z scores were less than 3.29, the distributions of intentions, attitudes, subjective norms and perceived behavioural were considered to be normally distributed.

Table 4.11

Kurtosis (Excess) and the Corresponding $Z_{kurtosis (excess)}$ for Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control

	Kurtosis (excess)		$Z_{kurtosis (excess)}$
	Statistic	Std. Error	
Intentions	0.016	0.341	0.047
Attitudes	-0.505	0.335	-1.507
Subjective Norms	-0.794	0.340	-2.335
Perceived Behavioural Control	0.644	0.341	1.889

Note. The kurtosis (excess) values are produced by SPSS software version 29.

Pearson Product-Moment Correlation Coefficients. In the current study, the Pearson product-moment correlation coefficients (r) were calculated after the preliminary analyses. As stated in Section 3.9.2 of the methodology chapter, there was a negligible correlation between two variables if r was from 0 to 0.2, a weak correlation if r was from 0.21 to 0.35, a moderate correlation if r was from 0.36 to 0.67, a strong correlation if r was from 0.68 to 0.9, or a very strong correlation if r was from 0.91 to 1 (Taylor, 1990; Shavelson, 1996). Table 4.12, Table 4.13 and Table 4.14 present the individual relationships between each of the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) within the Theory of Planned Behaviour and teacher intentions to implement inclusive practices through the lens of the UDL framework.

Table 4.12 demonstrates that there was a moderate correlation between teacher intentions to implement inclusive practices through the lens of the UDL framework and their attitudes towards inclusive education or inclusive practices, and the relationship was statistically significant ($r = 0.413$, $p < 0.001$). The moderate positive correlation indicates a positive relationship between intentions and attitudes. Teachers who were more willing to implement inclusive practices through the lens of the UDL framework tended to have more positive attitudes towards inclusive education or inclusive practices.

Table 4.12*The Correlation Analysis between Intentions and Attitudes*

		Intentions	Attitudes
Intentions	Pearson Correlation	1	0.413**
	Sig. (2-tailed)		< 0.001
	<i>N</i>	201	201
Attitudes	Pearson Correlation	0.413**	1
	Sig. (2-tailed)	< 0.001	
	<i>N</i>	201	209

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Table 4.13 illustrates that there was also a moderate and statistically significant correlation between teacher intentions to implement inclusive practices through the lens of the UDL framework and their perceived support for implementing inclusive practices ($r = 0.605$, $p < 0.001$). The positive value of r suggests that both intentions and subjective norms move in the same direction. With the increasing willingness of teachers to implement inclusive practices through the lens of the UDL framework, they perceived more support from significant others (i.e., principals, colleagues, and parents of students with or without disabilities) when implementing inclusive practices through the lens of the UDL framework.

Table 4.13*The Correlation Analysis between Intentions and Subjective Norms*

		Intentions	Subjective Norms
Intentions	Pearson Correlation	1	0.605**
	Sig. (2-tailed)		< 0.001
	<i>N</i>	201	201
Subjective Norms	Pearson Correlation	0.605**	1
	Sig. (2-tailed)	< 0.001	
	<i>N</i>	201	203

Note. ** Correlation is significant at the 0.01 level (2-tailed).

As shown in Table 4.14, teacher intentions to implement inclusive practices through the lens of the UDL framework had a strong positive correlation with teachers' efficacy in

implementing inclusive practices through the lens of the UDL framework, in which the relationship was also statistically significant ($r = 0.757, p < 0.001$). Teachers who had higher intentions of implementing inclusive practices through the lens of the UDL framework had more confidence in their skills, knowledge and abilities to implement inclusive practices through the lens of the UDL framework.

Table 4.14

The Correlation Analysis between Intentions and Perceived Behavioural Control

		Intentions	Perceived Behavioural Control
Intentions	Pearson Correlation	1	0.757**
	Sig. (2-tailed)		< 0.001
	<i>N</i>	201	201
Perceived Behavioural Control	Pearson Correlation	0.757**	1
	Sig. (2-tailed)	< 0.001	
	<i>N</i>	201	202

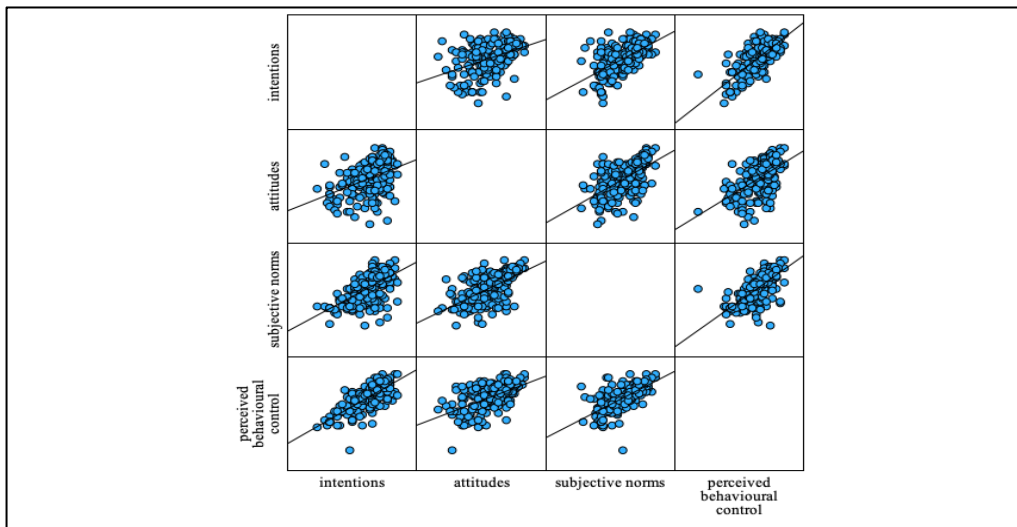
Note. ** Correlation is significant at the 0.01 level (2-tailed).

Preliminary Analyses Before Hierarchical Regression. To perform hierarchical regression, the assumptions of linearity, homoscedasticity, normality of residuals, independence of residuals and no multicollinearity needed to be met, which are also the assumptions of standard multiple regression (Y. Jeong & Jung, 2016). A linear relationship between the dependent variable and each independent variable, as well as between the dependent variable and all independent variables combined, was assessed by visually inspecting scatterplots and partial regression plots (Osborne & Waters, 2002). To check the criteria in Research Question 1 and Research Question 2 of the current study, the relationships between the dependent variable (i.e., intentions) and every independent variable (i.e., attitudes, subjective norms, perceived behavioural control, age, length of teaching experience, gender and professional development training on inclusive education) were presented in two scatterplot matrices in Figure 4.9 and Figure 4.10. The assumption of linearity was considered acceptable because the scatterplot matrices demonstrated approximate linear patterns with visible directional trends across most continuous predictors. In Figure 4.9, intentions show a

positive linear association with attitudes, subjective norms, and perceived behavioural control. In Figure 4.10, weak but observable linear trends are present for age, length of teaching experience and professional development training, whereas gender forms categorical clusters as expected.

Figure 4.9

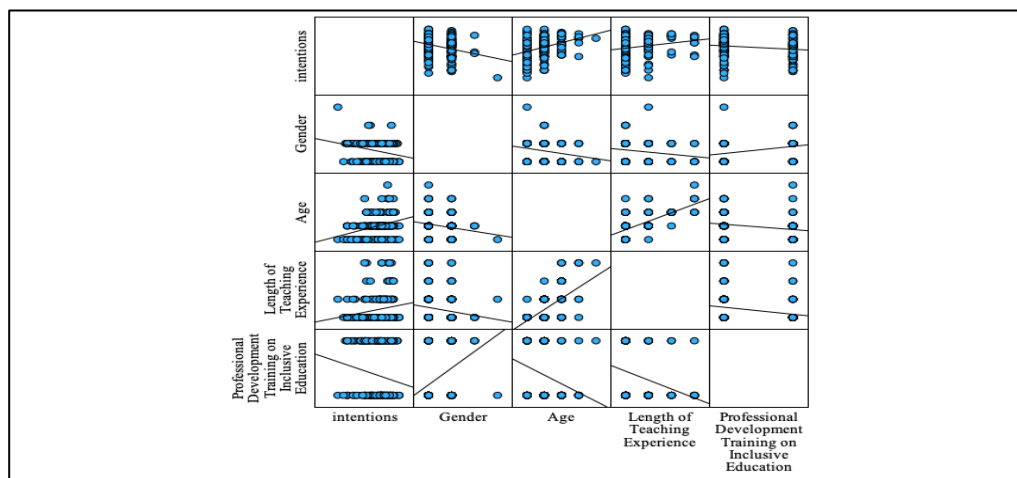
A Scatterplot Matrix between Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The scatterplot matrix was used for the hierarchical regression.

Figure 4.10

A Scatterplot Matrix between Intentions, Age, Length of Teaching Experience, Gender and Professional Development Training on Inclusive Education

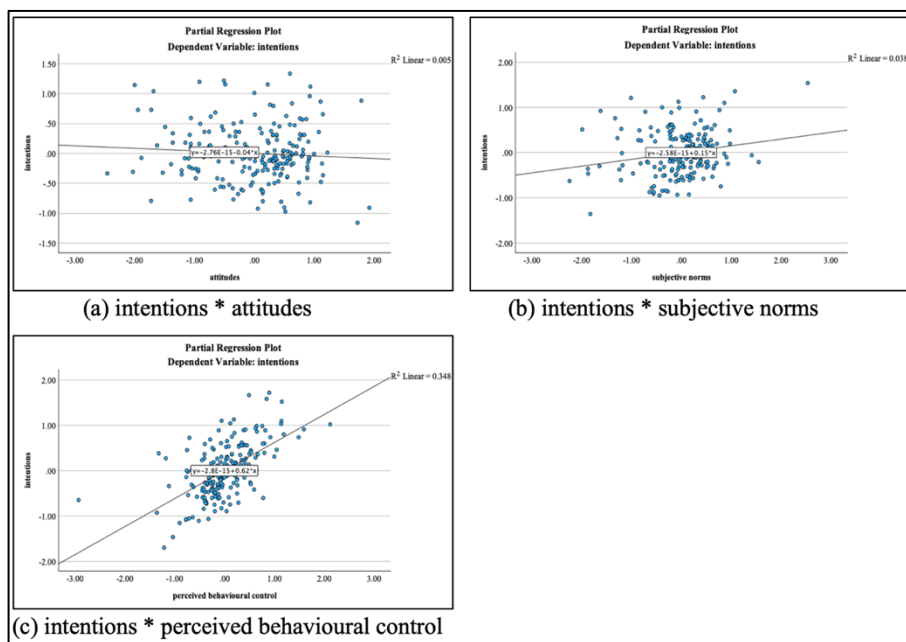


Note. The scatterplot matrix was used for the hierarchical regression.

To check the collective linearity between the dependent variable and multiple independent variables, Figure 4.11 depicts the partial regression plots between intentions and three predictor variables within the Theory of Planned Behaviour collectively, whilst Figure 4.12 presents the partial regression plots between intentions and the selected demographic variables collectively. All the plots follow the trend lines, indicating that the collective linearity can be confirmed in the current study.

Figure 4.11

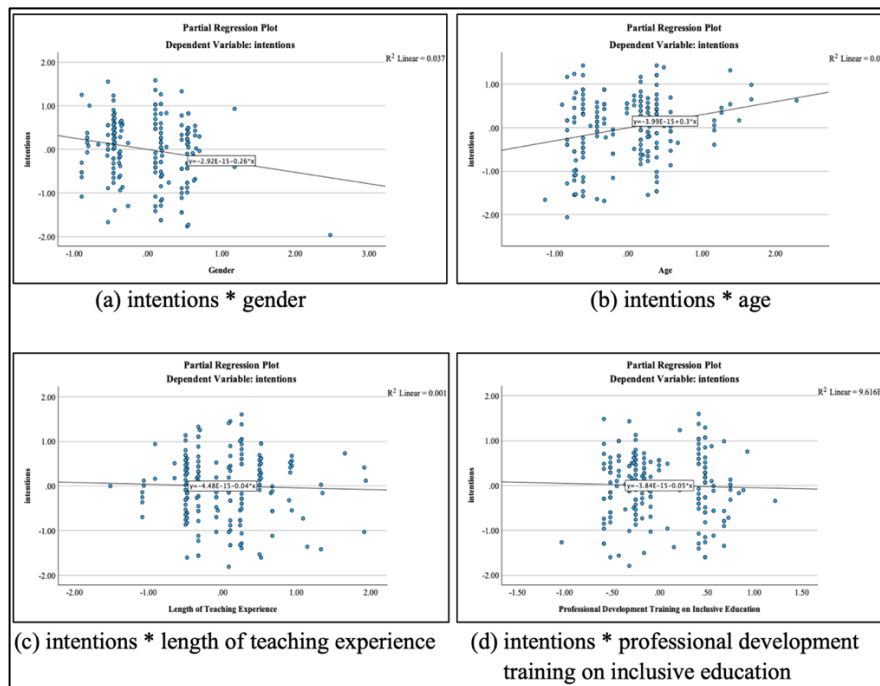
Partial Regression Plots between Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The partial regression plots were used for the hierarchical regression.

Figure 4.12

Partial Regression Plots between Intentions, Age, Length of Teaching Experience, Gender and Professional Development Training on Inclusive Education



Note. The partial regression plots were used for the hierarchical regression.

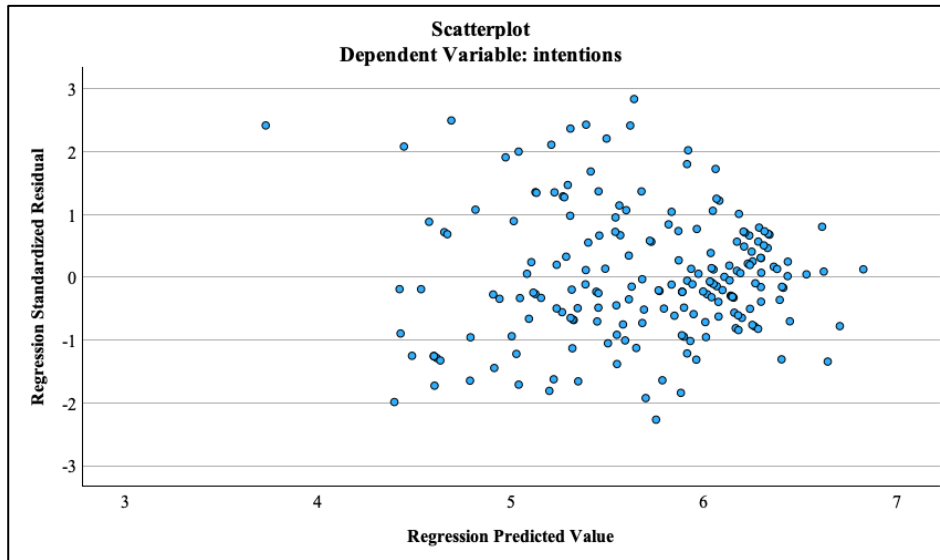
The assumption of homoscedasticity means that the variance of errors is constant across all levels of independent variables (Osborne & Waters, 2002). The assumption of homoscedasticity was checked by examining the scatterplots of the standardised residuals (i.e., the errors) (K. Yang et al., 2019; Williams et al., 2013). When the points in the residual plot (i.e., plotting standardised residuals against predicted values) are randomly scattered, then the assumption of homoscedasticity is met. In the current study, two scatterplots of the standardised residuals were created, as shown in Figure 4.13 and Figure 4.14. Both Figure 4.13 and Figure 4.14 have intentions as the dependent variable. Figure 4.13 identifies independent variables as attitudes, subjective norms and perceived behavioural control. In contrast, Figure 4.14 shows age, length of teaching experience, gender and professional development training on inclusive education as independent variables.

Figure 4.13 follows the assumption of homoscedasticity. However, in Figure 4.14, the residual plots are not randomly scattered, indicating the assumption homoscedasticity may be violated. Alih and Ong (2015) stated that outliers could distort a homoscedastic model, making the model heteroscedastic. As mentioned earlier, outliers in a 7-point Likert scale could not be applied, and thus the homoscedasticity may not be correctly identified in the current study. The

researcher recognised the mild violations of the homoscedasticity assumption but decided to continue the analysis (Hayes, 2022).

Figure 4.13

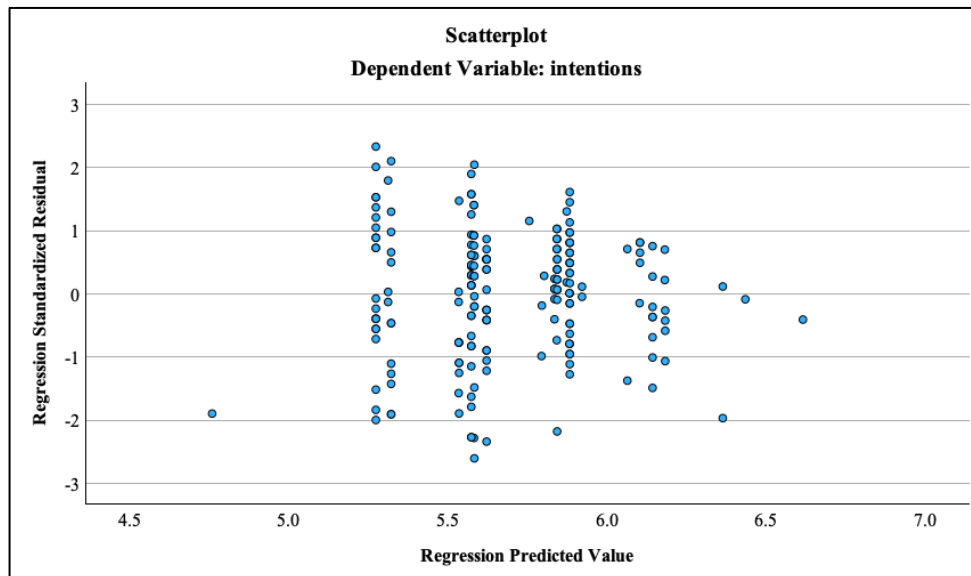
Residual Plot of Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The residual plot was used for the hierarchical regression.

Figure 4.14

Residual Plot of Intentions, Age, Length of Teaching Experience, Gender and Professional Development Training on Inclusive Education

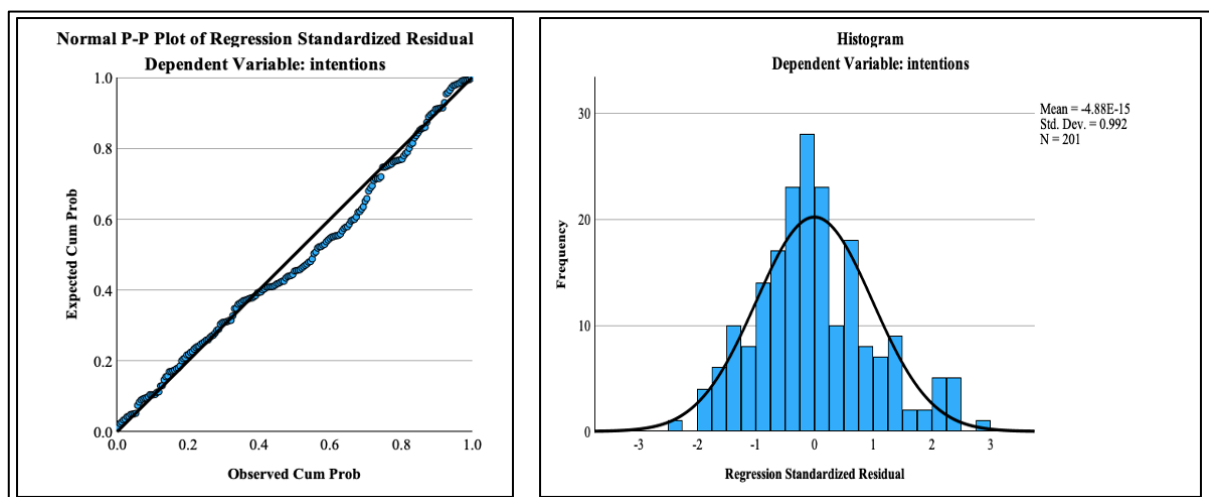


Note. The residual plot was used for the hierarchical regression.

Then, the histogram or the Normal P-P Plot (i.e., Normal probability plot) could be implemented to check whether the residuals were normally distributed (Y. Jeong & Jung, 2016). The smaller the sample size (e.g., <100 cases), the greater the impact that violations of normality have on standard errors and significance values (Williams et al., 2013). If the residuals were approximately normally distributed, the points on the Normal P-P Plot should generally follow the diagonal line and the histogram should be presented as a bell curve. Since the Normal P-P Plots remain close to the diagonal line and the histograms were approximately bell-shaped, the normality of residuals was confirmed in the current study, as shown in Figure 4.15 and Figure 4.16.

Figure 4.15

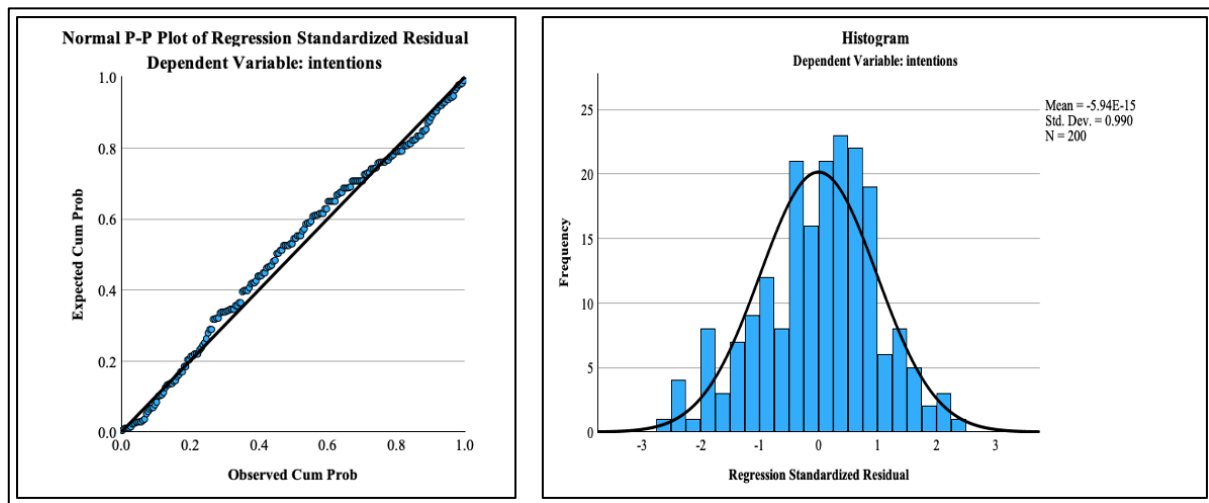
Normal P-P Plot and Histogram of Intentions, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The plot and histogram were used for the hierarchical regression.

Figure 4.16

Normal P-P Plot and Histogram of Intentions, Age, Length of Teaching Experience, Gender and Professional Development Training on Inclusive Education



Note. The plot and histogram were used for the hierarchical regression.

To ensure that there was no linear autocorrelation in the data, the independence of residuals was examined using the Durbin–Watson statistic (d) (Ho, 2013; Tremblay, 2013). If the value of d falls between 1.5 and 2.5, no linear autocorrelation is indicated. In the current study, no autocorrelation was found in the data. This applied both when the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) were used to predict intentions, and when the selected demographics (i.e., age, length of teaching experience, gender and professional development training on inclusive education) were used as independent variables ($d = 1.969$ and $d = 2.104$, respectively).

Another assumption of no multicollinearity means that the independent variables are not highly correlated with each other (Pallant, 2016). The correlation coefficients, tolerance and variance inflation factor (VIF) can be calculated to diagnose multicollinearity (A. Field, 2013). A violation is indicated when any one of the following conditions is met: the correlation coefficient is higher than 0.8, the tolerance of independent variables is less than 0.1, or the VIF is greater than 10 (Y. Jeong & Jung, 2016). As shown in Table 4.15 and Table 4.16, the correlation coefficients in the current study ranged from -0.237 to 0.691. In Table 4.17, the tolerance values ranged from 0.465 to 0.868 and the VIFs among independent variables were from 1.153 to 2.150. The results indicated that there were no multicollinearity issues in this analysis.

Table 4.15*Correlation Coefficients – Attitudes, Subjective Norms and Perceived Behavioural Control*

	Attitudes	Subjective norms	Perceived behavioural control
Attitudes		0.546	0.517
Subjective norms	0.546		0.691
Perceived behavioural control	0.517	0.691	

Note. Attitudes ($n = 209$), Subjective norms ($n = 203$), Perceived behavioural control ($n = 202$).**Table 4.16***Correlation Coefficients – Age, Length of Teaching Experience, Gender and Professional Development Training on Inclusive Education*

	Gender	Age	Length of teaching experience	Professional development training on inclusive education
Gender		-0.197	-0.189	0.334
Age	-0.197		0.647	-0.229
Length of teaching experience	-0.189	0.647		-0.237
Professional development training on inclusive education	0.334	-0.229	-0.237	

Note. Gender ($n = 209$), Age ($n = 209$), Length of teaching experience ($n = 208$), Professional development training on inclusive education ($n = 209$).

Table 4.17*Multicollinearity Diagnostics for Research Question 1 & Research Question 2*

	Collinearity Tolerance	Statistics VIF
Attitudes	0.614	1.629
Subjective norms	0.465	2.150
Perceived behavioural control	0.501	1.997
Gender	0.868	1.153
Age	0.604	1.656
Length of teaching experience	0.607	1.647
Professional development training on inclusive education	0.834	1.198

Note. Dependent variables: intentions.

Hierarchical Regression. To conduct a hierarchical regression in the current study, the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) of intentions were entered in Step 1 and the selected demographics (i.e., gender, age, length of teaching experience, professional development training on inclusive education) were added in Step 2 of the hierarchical regression equation. The results of the hierarchical regression are summarised in Table 4.18.

Table 4.18*Results of Hierarchical Regression*

	<i>B</i>	Std. Error of <i>B</i>	β	Sig.
Step 1				
Attitudes	-0.043	0.043	-0.058	0.323
Subjective norms	0.149	0.054	0.187	0.006
Perceived behavioural control	0.618	0.060	0.660	< 0.001
Step 2				
Attitudes	-0.040	0.044	-0.055	0.363
Subjective norms	0.159	0.058	0.200	0.006
Perceived behavioural control	0.604	0.061	0.645	< 0.001
Gender	-0.060	0.069	-0.044	0.385
Age	0.028	0.062	0.029	0.648
Length of teaching experience	0.054	0.059	0.055	0.357
Professional development training on inclusive education	0.156	0.081	0.102	0.057

Note. Dependent variable: intentions.

In Step 1, the model accounted for more than half of the variance [$R^2 = 0.588$, $F(3, 196) = 93.080$, $p < 0.001$], and was statistically significant. In the first model, subjective norms ($\beta = 0.187$, $p = 0.006$) and perceived behavioural control ($\beta = 0.660$, $p < 0.001$) were statistically significant predictors of intentions. The positive β values of subjective norms and perceived behavioural control implied that more perceived support for implementing inclusive practices through the lens of the UDL framework and higher teachers' efficacy in implementing inclusive practices through the lens of the UDL framework positively contributed to teacher intentions to implement inclusive practices through the lens of the UDL framework. Perceived behavioural control was found to be the strongest and significant predictor of intentions. However, attitudes ($\beta = -0.058$, $p = 0.323$) was not a significant predictor of teacher intentions to implement inclusive practices through the lens of the UDL framework.

In Step 2, adding the selected demographics (i.e., gender, age, length of teaching experience, professional development training on inclusive education) to the model resulted in a small but not significant change to R^2 ($R^2 = 0.599$, $R^2_{change} = 0.012$, $F_{change}(4, 192) = 1.422$, $p = 0.228$). This means the selected demographics explained an additional 1.2% of the variance

in intentions, after controlling for attitudes, subjective norms and perceived behavioural control. At this step, subjective norms ($\beta = 0.200, p = 0.006$) and perceived behavioural control ($\beta = 0.645, p < 0.001$) remained the only statistically significant predictors of intentions. In terms of the selected demographics, male teachers ($\beta = -0.044, p = 0.385$), older teachers ($\beta = 0.029, p = 0.648$) teachers with more years of teaching experience ($\beta = 0.055, p = 0.357$) and participation in more professional development training on inclusive education ($\beta = 0.102, p = 0.057$) presented higher intentions to implement inclusive practices through the lens of the UDL framework than their counterparts. However, none of the relationships were significant since the selected demographics did not make a significant contribution to explaining the variance in willingness to implement inclusive practices through the lens of the UDL framework. None of the selected demographic variables were identified as statistically significant predictors of intentions in this model.

Section Summary. Regarding Research Question 1, the results of Pearson product-moment correlation coefficients revealed that across all three correlations there were moderate positive associations between attitudes and intentions, moderate positive associations between subjective norms and intentions, as well as strong positive associations between perceived behavioural control and intentions. Although all three correlated relationships were statistically significant, only subjective norms and perceived behavioural control were positive and significant predictors of Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework, as stated in the hierarchical regression. In terms of Research Question 2, the selected demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) moderated the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and intentions in a small but not statistically significant way.

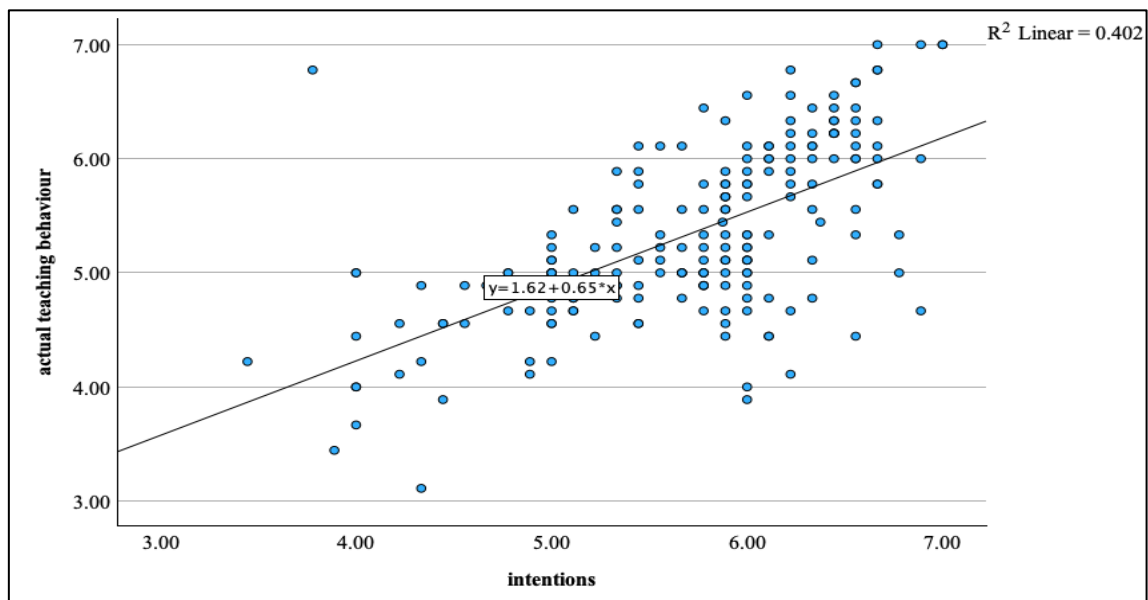
4.3.4. Addressing Research Questions 3 & 4.1 & 4.2

Preliminary Analyses Before Multiple Regression/Mediation Analysis. The preliminary analyses before conducting multiple regression or mediation analysis are the same as the preliminary analyses before hierarchical regression, including checking for linearity, homoscedasticity, normality of residuals, independence of residuals and no multicollinearity (Hayes, 2022; Y. Jeong & Jung, 2016). To check the assumption of linearity in Research Question 3, two scatterplots (as shown in Figure 4.17 and Figure 4.18) were generated to

describe the individual relationships between actual teaching behavioural and intentions, as well as actual teaching behavioural and perceived behavioural control, respectively. Since the assumption of linearity should also be confirmed before conducting mediation analysis in Research Question 4.1 and Research Question 4.2, scatterplots depicting the actual teaching behavioural against attitudes and actual teaching behavioural against subjective norms were developed (Figure 4.19 and Figure 4.20). The data points in the four scatterplots were visually inspected and were found to cluster roughly along the trend lines. This visual pattern indicates that the assumption of linearity was met.

Figure 4.17

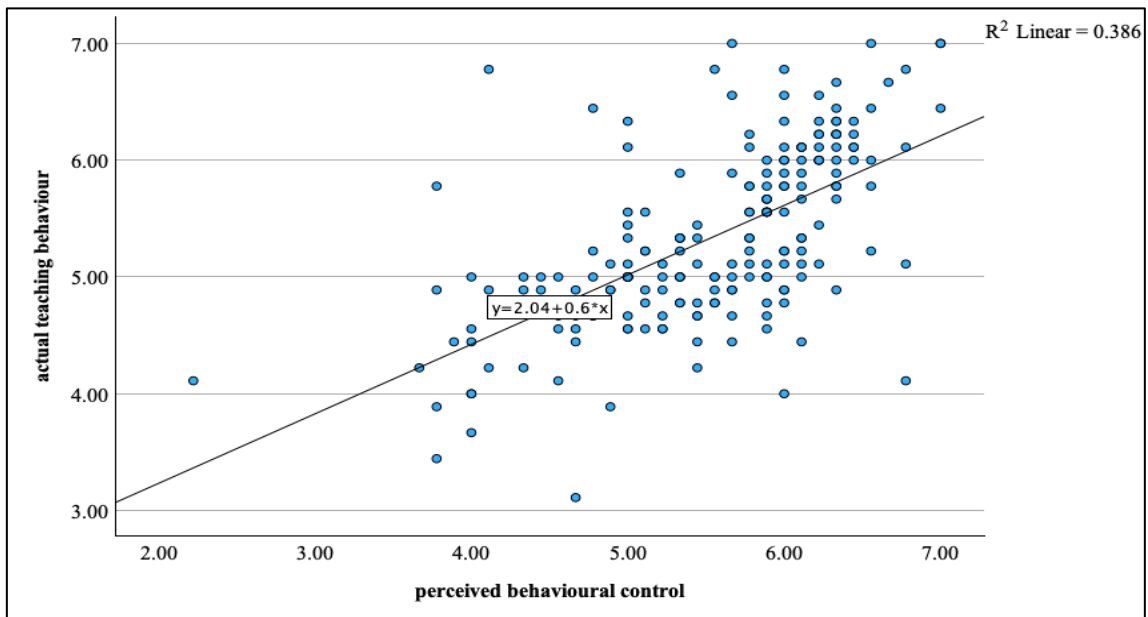
A Scatterplot between Teacher Intentions to Implement Inclusive Practices through the Lens of the UDL Framework and their Actual Teaching Behaviour



Note. Intentions measured by the self-designed TIIUF, and actual teaching behaviour measured by the self-designed TATB.

Figure 4.18

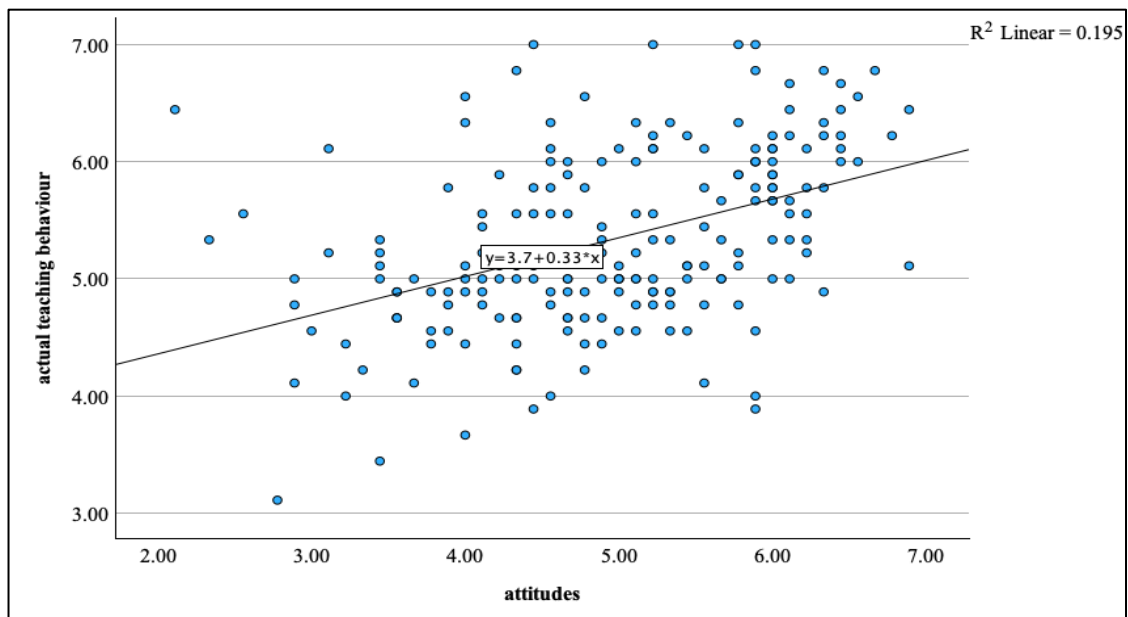
A Scatterplot between Teachers' Efficacy in Implementing Inclusive Practices through the Lens of the UDL Framework and their Actual Teaching Behaviour



Note. Perceived behavioural control measured by the self-designed TEIUF, and actual teaching behaviour measured by the self-designed TATB.

Figure 4.19

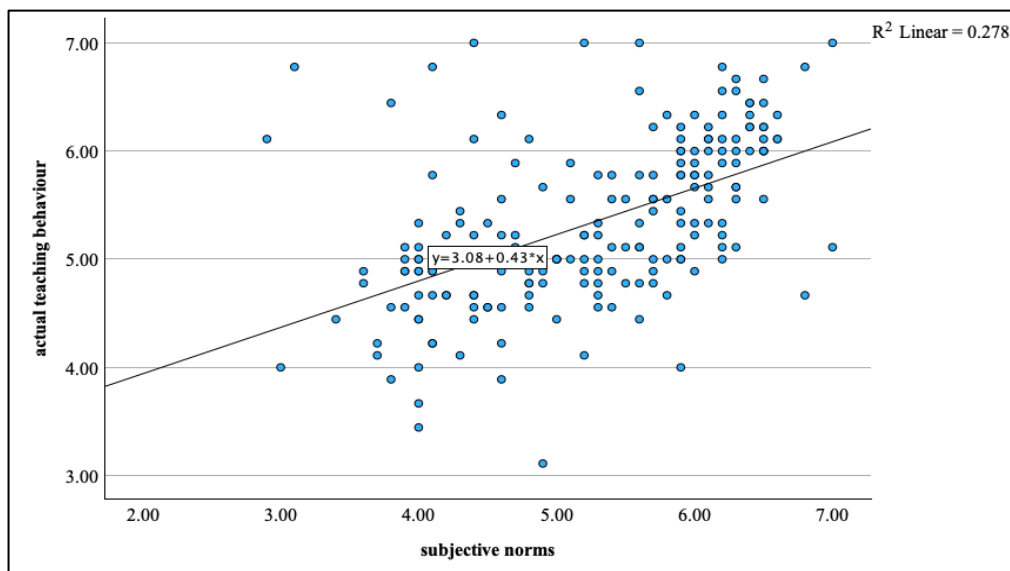
A Scatterplot between Teacher Attitudes towards Inclusive Education or Inclusive Practices and their Actual Teaching Behaviour



Note. Attitudes measured by the modified TAIS, and actual teaching behaviour measured by the self-designed TATB.

Figure 4.20

A Scatterplot between Teachers' Perceived Support for Implementing Inclusive Practices through the Lens of the UDL Framework and their Actual Teaching Behaviour

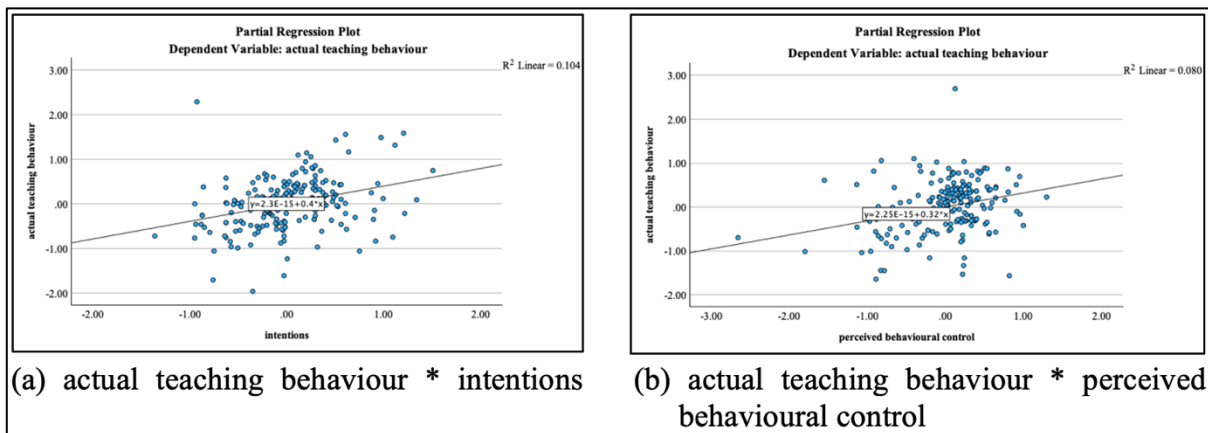


Note. Subjective norms measured by the modified PSSIE, and actual teaching behaviour measured by the self-designed TATB.

Figure 4.21 illustrates the partial regression plots used to check collective linearity between the dependent variable (i.e., actual teaching behaviour) and independent variables (i.e., intentions and perceived behavioural control) for Research Question 3 of the current study. Figure 4.22 provides supplementary partial regression plots showing the relationships between actual teaching behaviour and attitudes, subjective norms, and perceived behavioural control for Research Question 4.1. For Research Question 4.2, partial regression plots between the dependent variable (i.e., actual teaching behaviour) and independent variables (i.e., attitudes and subjective norms) were also generated (Figure 4.23). It was found that the plots followed the trend lines and that collective linearity was achieved.

Figure 4.21

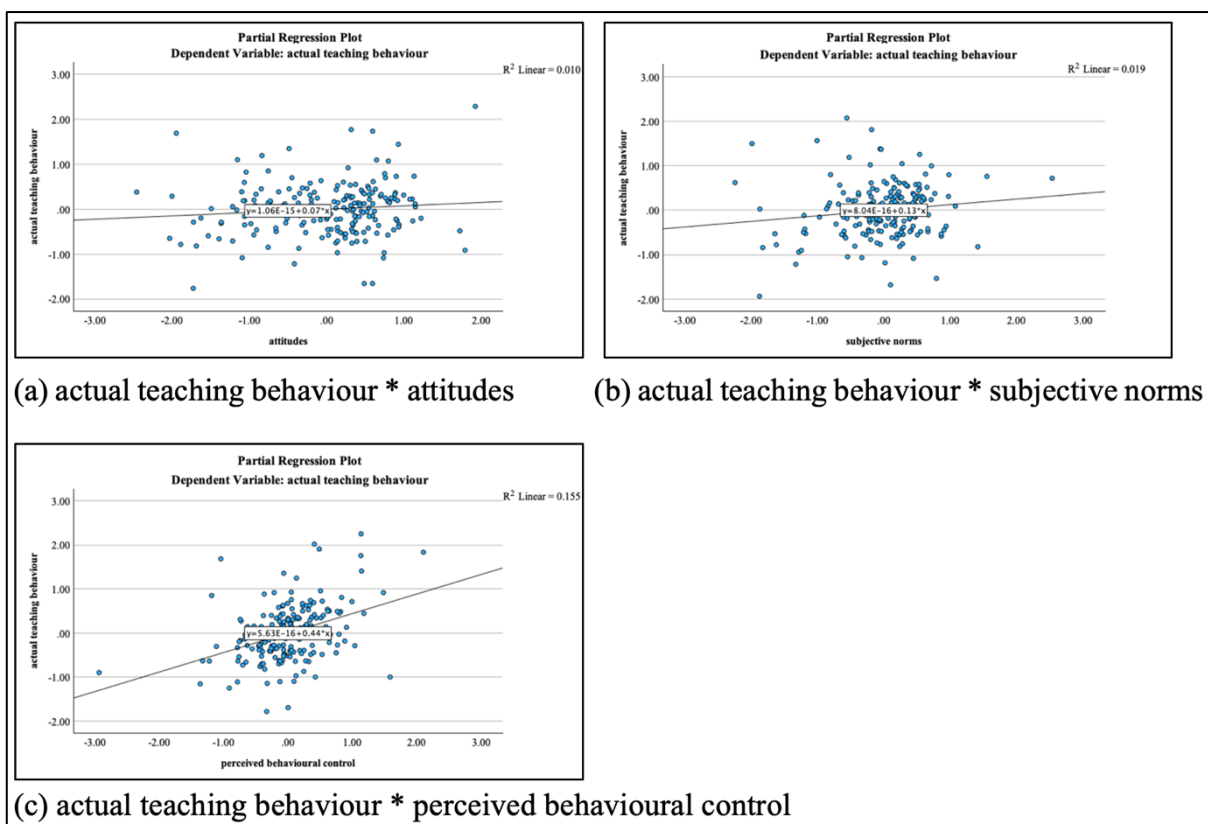
Partial Regression Plots between Actual Teaching Behaviour, Intentions and Perceived Behavioural Control



Note. The partial regression plots were used for the multiple regression.

Figure 4.22

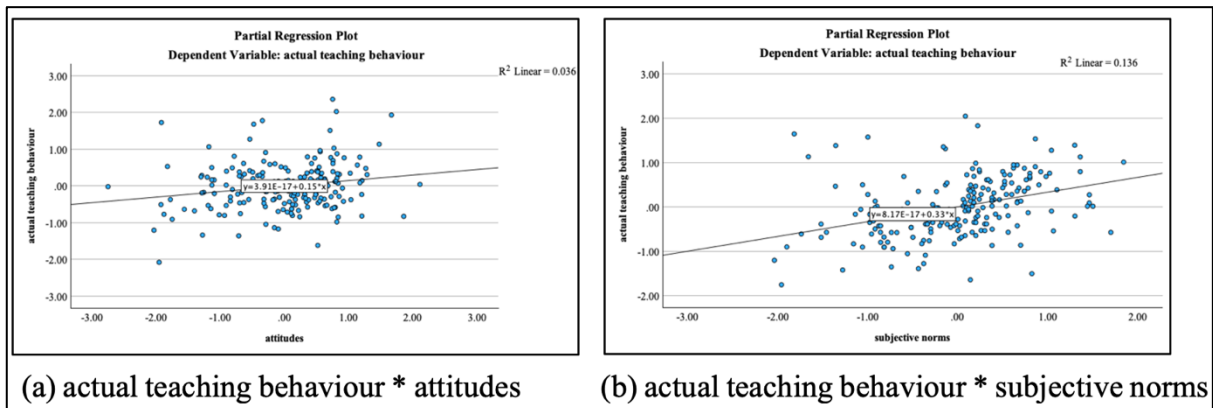
Partial Regression Plots between Actual Teaching Behaviour, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The partial regression plots were used for the mediation analysis.

Figure 4.23

Partial Regression Plots between Actual Teaching Behaviour, Attitudes and Subjective Norms

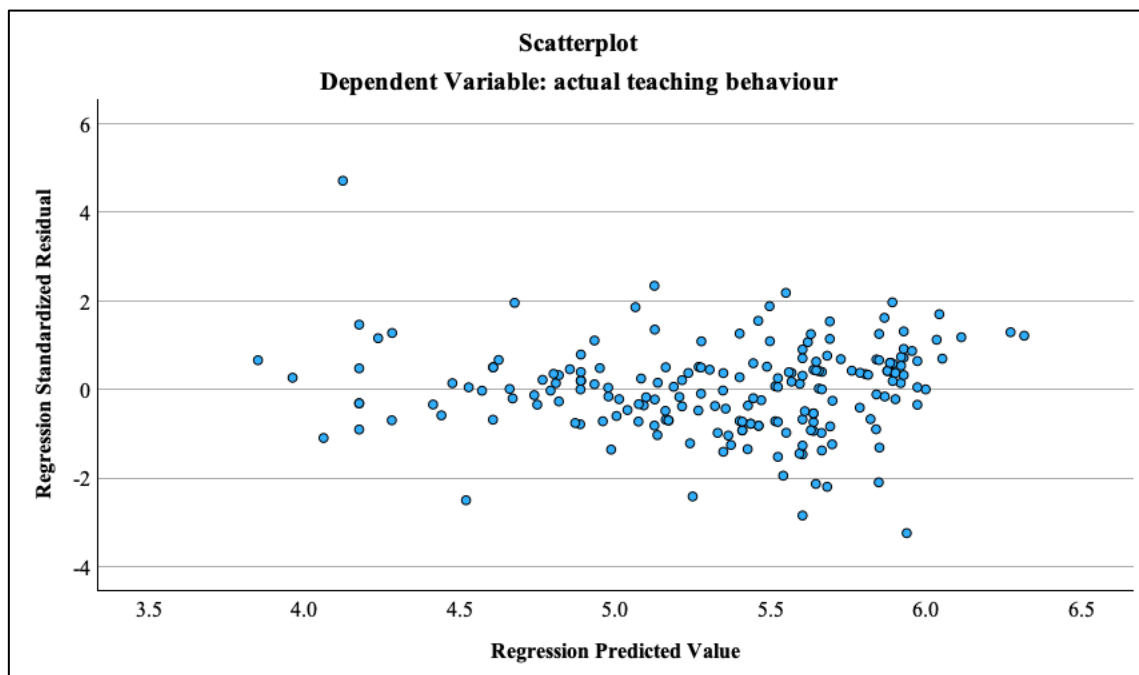


Note. The partial regression plots were used for the mediation analysis.

To check the assumption of homoscedasticity, Figure 4.24, Figure 4.25 and Figure 4.26 presented scatterplots of the standardised residuals in Research Question 3, Research Question 4.1 and Research Question 4.2, respectively. The residuals were randomly scattered around the zero point on the horizontal line. Thus, the assumption of homoscedasticity was satisfied before conducting multiple regression and mediation analysis.

Figure 4.24

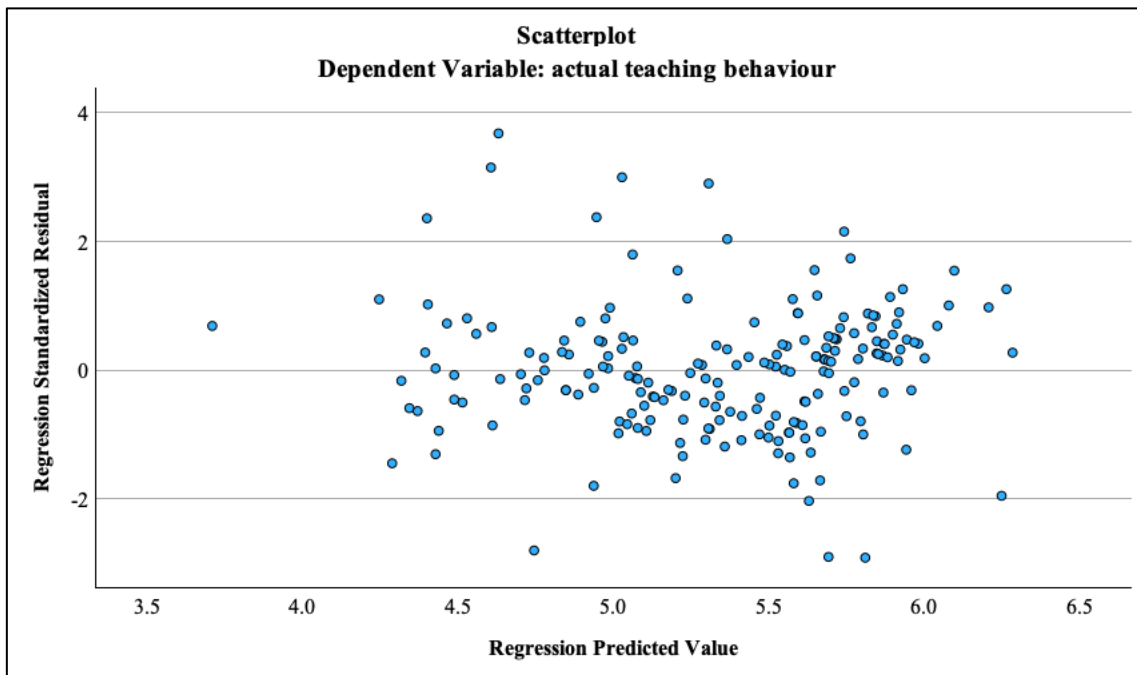
Residual Plot of Actual Teaching Behaviour, Intentions and Perceived Behavioural Control



Note. The residual plot was used for the multiple regression.

Figure 4.25

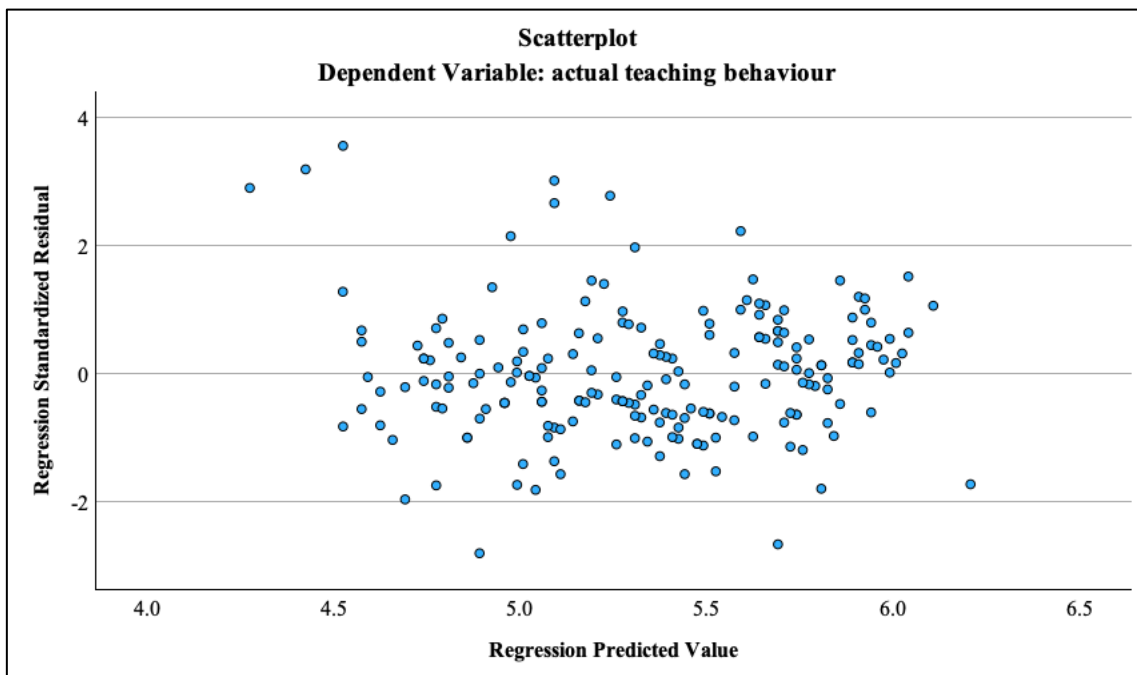
Residual Plot of Actual Teaching Behaviour, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The residual plot was used for the mediation analysis.

Figure 4.26

Residual Plot of Actual Teaching Behaviour, Attitudes and Subjective Norms

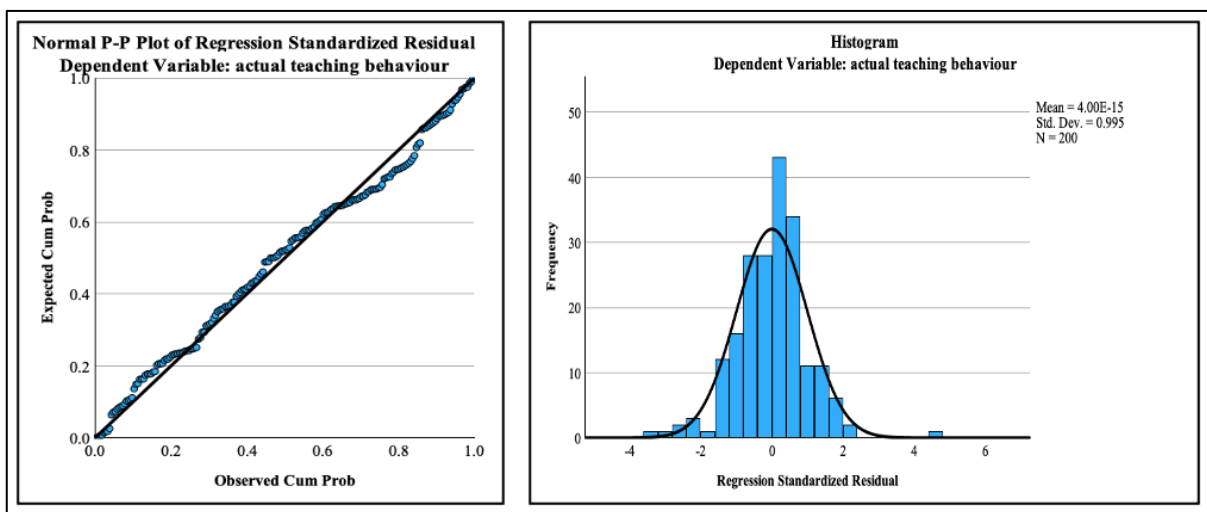


Note. The residual plot was used for the mediation analysis.

Prior to multiple regression and mediation analysis, the normality of residuals was checked using the Normal P-P Plots and the histograms, as shown in Figure 4.27, Figure 4.28 and Figure 4.29. The data points on the Normal P-P Plots roughly aligned with the diagonal line, and the histograms were displayed as a bell curve. Hence, the normality of residuals was not violated for Research Question 3 to Research Question 4.2 of the current study.

Figure 4.27

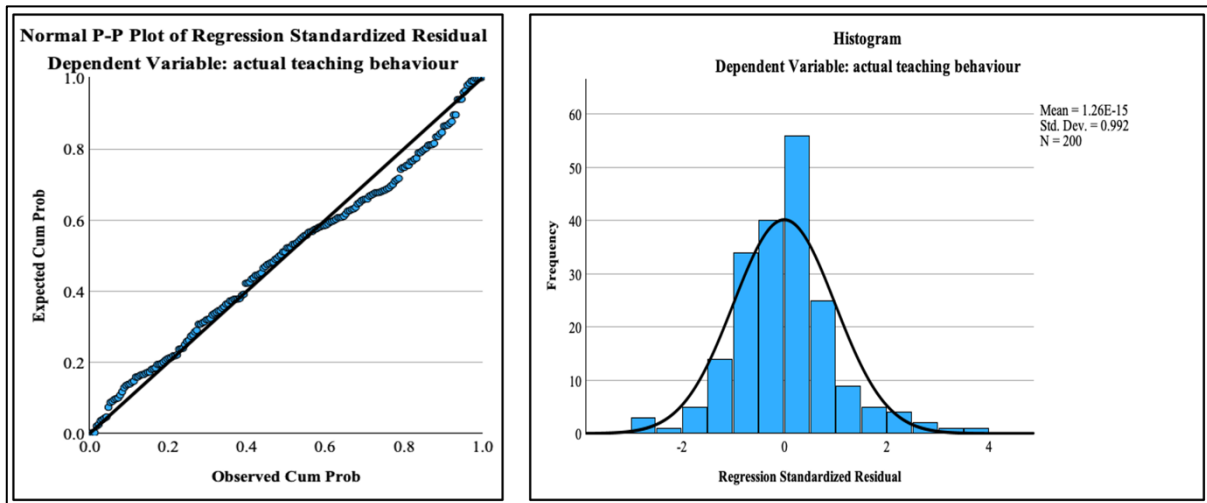
Normal P-P Plot and Histogram of Actual Teaching Behaviour, Intentions and Perceived Behavioural Control



Note. The plot and histogram were used for the multiple regression.

Figure 4.28

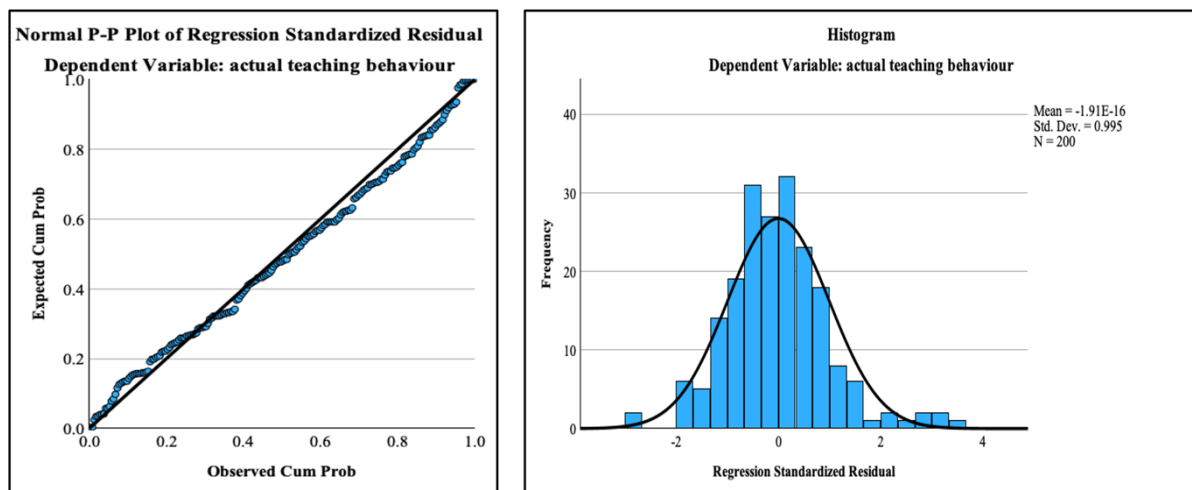
Normal P-P Plot and Histogram of Actual Teaching Behaviour, Attitudes, Subjective Norms and Perceived Behavioural Control



Note. The plot and histogram were used for the mediation analysis.

Figure 4.29

Normal P-P Plot and Histogram of Actual Teaching Behaviour, Attitudes and Subjective Norms



Note. The plot and histogram were used for the mediation analysis.

To check the independence of residuals, Durbin-Watson statistics (d) was produced in Research Question 3 to Research Question 4.2. The common dependent variable was actual teaching behaviour in these three research questions. Where intentions and perceived behavioural control were independent variables, d was found to be 2.079, and where attitudes, subjective norms and perceived behavioural control were independent variables, d was 2.063.

If only attitudes and subjective norms were the independent variables, d was 1.913. All the d statistics were between 1.5 and 2.5. Therefore, there was no linear autocorrelation issue before using multiple regression and mediation analysis.

To examine the final assumption of no multicollinearity, Table 4.19 to Table 4.22 were developed to present the correlation coefficients, the tolerance values of independent variables and the VIFs from Research Question 3 to Research Question 4.2. Table 4.19 and the previous Table 4.15 and Table 4.16 show that the listed correlation coefficients ranged from -0.237 to 0.757, which were less than 0.8. As shown in Table 4.20, Table 4.21 and Table 4.22, the tolerance values of independent variables ranged from 0.434 to 0.655, which were greater than 0.1. The VIFs ranged from 1.528 to 2.302, which were less than 10. A violation of multicollinearity is typically assumed when correlation coefficients exceed 0.80, tolerance drops below 0.10, or VIF rises above 10 (Y. Jeong & Jung, 2016). Thus, the independent variables were not highly correlated with each other from Research Question 3 to Research Question 4.2.

Table 4.19

Correlation Coefficients – Intentions and Perceived Behavioural Control

	Intentions	Perceived behavioural control
Intentions		0.757
Perceived behavioural control	0.757	

Note. Intentions ($n = 201$), Perceived behavioural control ($n = 202$).

Table 4.20

Multicollinearity Diagnostics for Research Question 3

	Collinearity Tolerance	Statistics VIF
Intentions	0.434	2.302
Perceived behavioural control	0.434	2.302

Note. Dependent variables: actual teaching behaviour.

Table 4.21*Multicollinearity Diagnostics for Research Question 4.1*

	Collinearity Tolerance	Statistics VIF
Attitudes	0.616	1.622
Subjective norms	0.469	2.131
Perceived behavioural control	0.505	1.979

Note. Dependent variables: actual teaching behaviour.**Table 4.22***Multicollinearity Diagnostics for Research Question 4.2*

	Collinearity Tolerance	Statistics VIF
Attitudes	0.655	1.528
Subjective norms	0.655	1.528

Note. Dependent variables: actual teaching behaviour.

Multiple Regression. To address Research Question 3 of the current study, the results of the multiple regression indicated that intentions and perceived behavioural control explained 45% of the variance in secondary school teachers' actual teaching behaviour ($R^2 = 0.450$). The model was statistically significant ($F(2, 200) = 80.577, p < 0.001$). As shown in Table 4.23, the results indicated that both intentions ($\beta = 0.384, p < 0.001$) and perceived behavioural control ($\beta = 0.332, p < 0.001$) were positive and statistically significant predictors of actual teaching behaviour. A higher willingness and self-efficacy of teachers to implement inclusive practices through the lens of the UDL framework can directly predict that their actual teaching behaviour was more consistent with the UDL framework. Among these two independent variables (i.e., intentions and perceived behavioural control), teacher intentions to implement inclusive practices through the lens of the UDL framework made a relatively stronger contribution in explaining teachers' actual teaching behaviour.

Table 4.23*Results of Multiple Regression*

	<i>B</i>	Std. Error of <i>B</i>	β	Sig.
Intentions	0.395	0.082	0.384	< 0.001
Perceived behavioural control	0.318	0.077	0.332	< 0.001

Note. Dependent variable: actual teaching behaviour.

Mediation Analysis. To detect the indirect predictive paths of actual teaching behaviour, PROCESS macro was applied in the mediation analysis (Hayes, 2022). Both direct effect from an independent variable to a dependent variable, indirect effects from an independent variable to a dependent variable through one or more mediators, and total effects (i.e., adding the direct effect and indirect effect) were calculated using a series of ordinary least squares (OLS) regression in the PROCESS macro (Hayes, 2022). Hayes (2022) suggested using the Confidence Interval (CI) to assess the significance of the effects. For example, if CI is above zero, the indirect effect is statistically significant and thus the independent variable influences the dependent variable indirectly through mediators.

For Research Question 4.1, in having teacher intentions as a mediator, the relationships tested were those between attitudes and actual teaching behaviour, subjective norms and actual teaching behaviour, and perceived behavioural control and actual teaching behaviour. As shown in Figure 4.30, statistically significant mediation effects of intentions were found in the relationship between attitudes and actual teaching behaviour ($\beta = 0.17$, 95% CI [0.09, 0.25]), subjective norms and actual teaching behaviour ($\beta = 0.24$, 95% CI [0.14, 0.35]), and perceived behavioural control and actual teaching behaviour ($\beta = 0.28$, 95% CI [0.14, 0.43]).

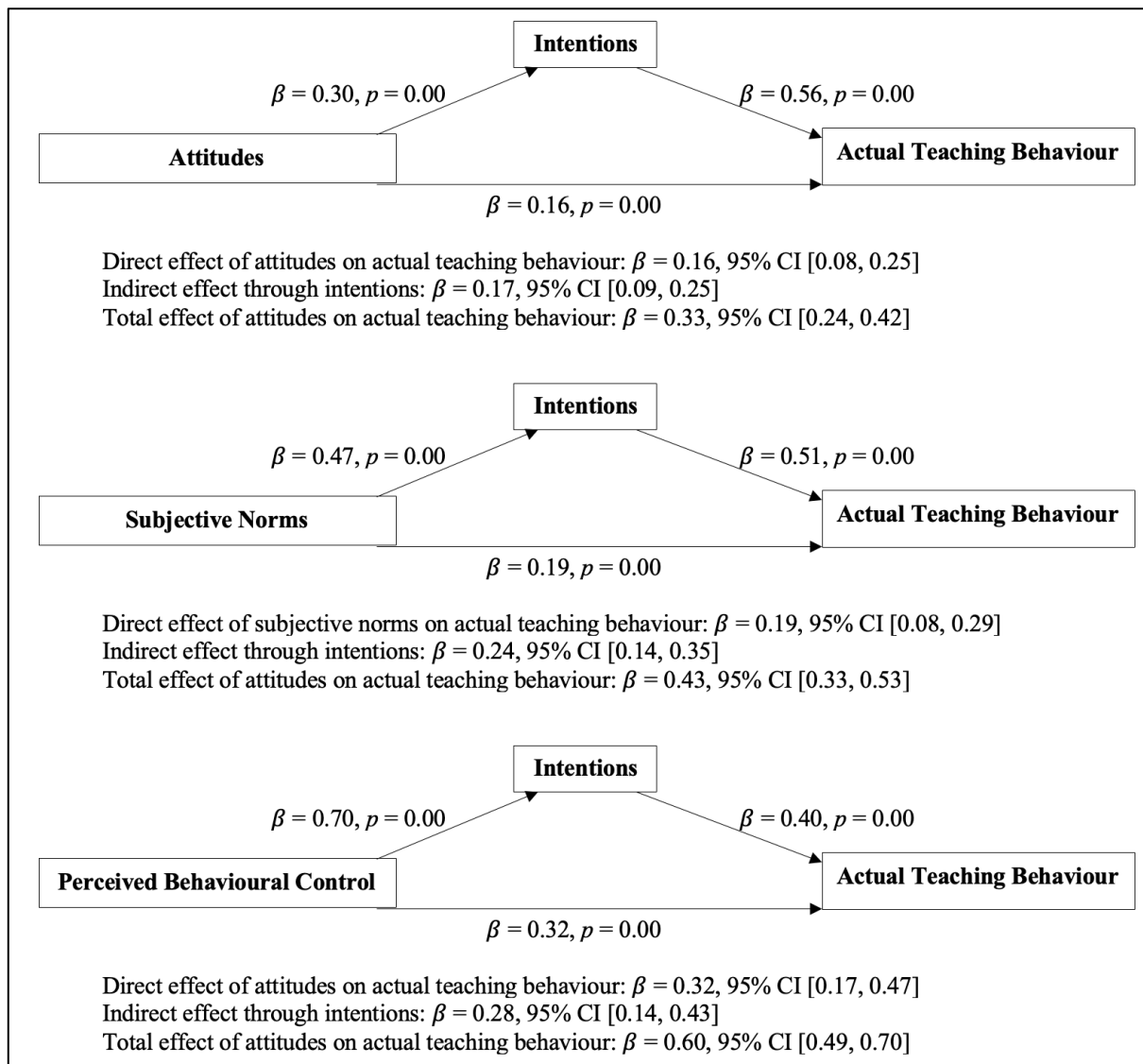
Teachers who had positive attitudes towards inclusive education or inclusive practices and had strong intentions to implement inclusive practices through the lens of the UDL framework exhibited 0.17 units greater behaviour-UDL alignment, whereas those with negative attitudes and weak intentions showed lower consistency. Teachers who perceived sufficient support in implementing inclusive practices through the lens of the UDL framework and had strong willingness to implement inclusive practices through the lens of the UDL framework presented 0.24 units higher consistency between their actual teacher behaviour and the UDL framework than those who perceived inadequate support and had low willingness to implement inclusive practices through the lens of the UDL framework. Also, teachers who reported high levels of self-efficacy and strong intentions to implement inclusive practices

through the lens of the UDL framework demonstrated actual teaching behaviour that aligned more closely with the UDL framework ($\beta = 0.28$) than those with low self-efficacy and weak intentions.

The direct effects of attitudes ($\beta = 0.16$, 95% CI [0.08, 0.25]), subjective norms ($\beta = 0.19$, 95% CI [0.08, 0.29]) and perceived behavioural control ($\beta = 0.32$, 95% CI [0.17, 0.47]) on actual teaching behaviour were also statistically significant. According to the positive values of β , teachers who held positive attitudes towards inclusive education or inclusive practices, perceived sufficient support from significant others when implementing inclusive practices through the lens of the UDL framework, or demonstrated high levels of self-efficacy to implement inclusive practices through the lens of the UDL framework tended to present high consistency between their actual teacher behaviour and the UDL framework.

Figure 4.30

Mediation Analysis for Research Question 4.1



Note. Mediator: teacher intentions to implement inclusive practices through the lens of the UDL framework.

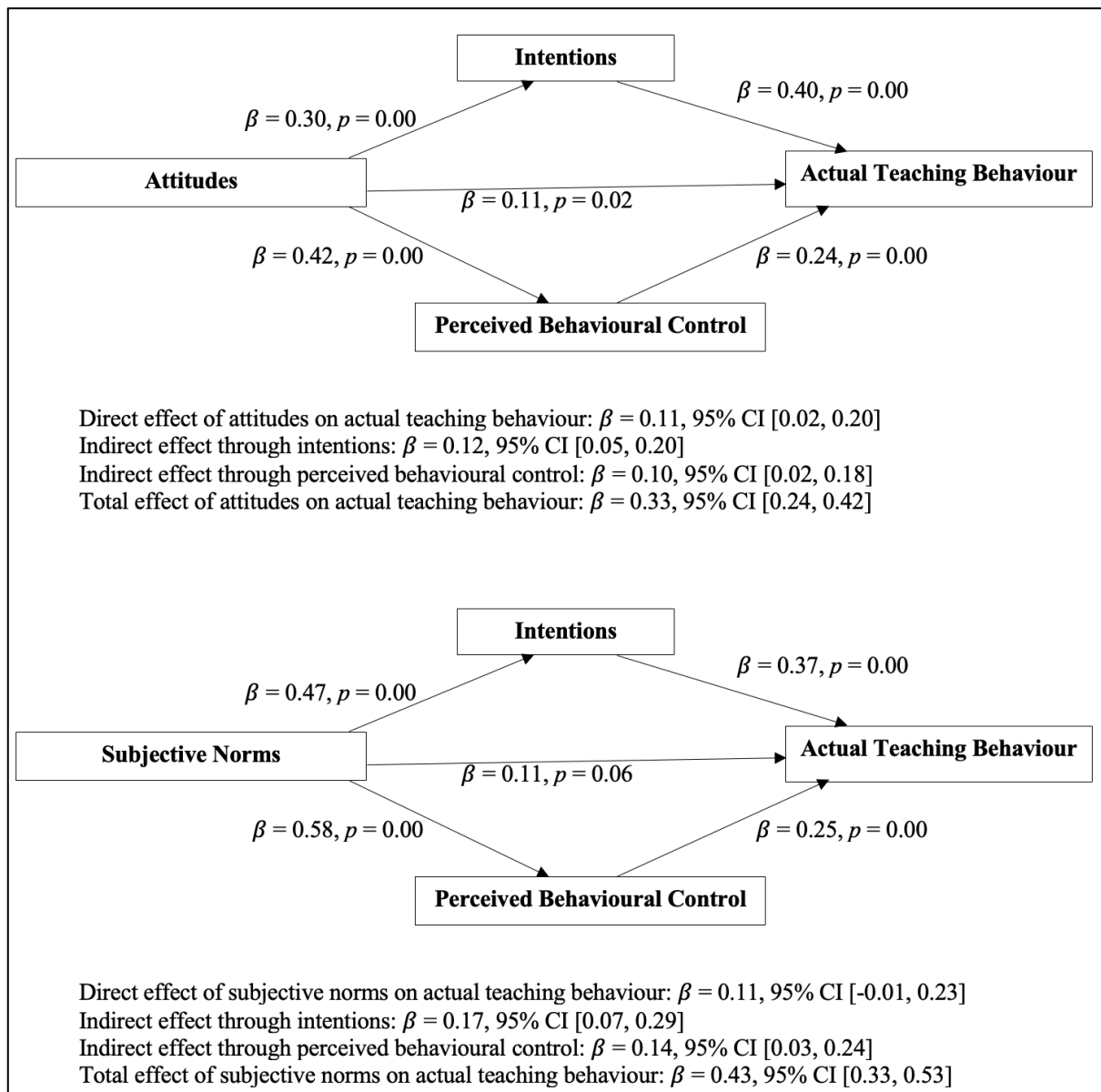
Regarding Research Question 4.2 (a), intentions and perceived behavioural control were identified as two mediators to test the relationships between attitudes and actual teaching behaviour, as well as subjective norms and actual teaching behaviour. Figure 4.31 shows that mediation effects of intentions and perceived behavioural control were identified between attitudes and actual teaching behaviour ($\beta = 0.12, 95\% \text{ CI } [0.05, 0.20]$ and $\beta = 0.10, 95\% \text{ CI } [0.02, 0.18]$, respectively), subjective norms and actual teaching behaviour ($\beta = 0.17, 95\% \text{ CI } [0.07, 0.29]$ and $\beta = 0.14, 95\% \text{ CI } [0.03, 0.24]$, respectively). Attitudes had 0.12 units of indirect effects on actual teaching behaviour through intentions, and 0.10 units of indirect

effects on actual teaching behaviour through perceived behavioural control. Subjective norms had 0.17 units of indirect effects on actual teaching behaviour through intentions, and 0.14 indirect effects on actual teaching behaviour through perceived behavioural control. These indirect effects were small but statistically significant with CIs above zero.

Similarly in Research Question 4.1, there was a statistically significant direct effect of attitudes on actual teaching behaviour ($\beta = 0.11$, 95% CI [0.02, 0.20]). However, the direct relationship between subjective norms and actual teaching behaviour was not statistically significant ($\beta = 0.11$, 95% CI [-0.01, 0.23]). Teachers' perceived support from significant others when implementing inclusive practices through the lens of the UDL framework did not directly predict their actual teaching behaviour. However, it positively influenced actual teaching behaviour when teachers had strong willingness or high levels of self-efficacy to implement inclusive practices through the lens of the UDL framework.

Figure 4.31

Mediation Analysis for Research Question 4.2 (a)



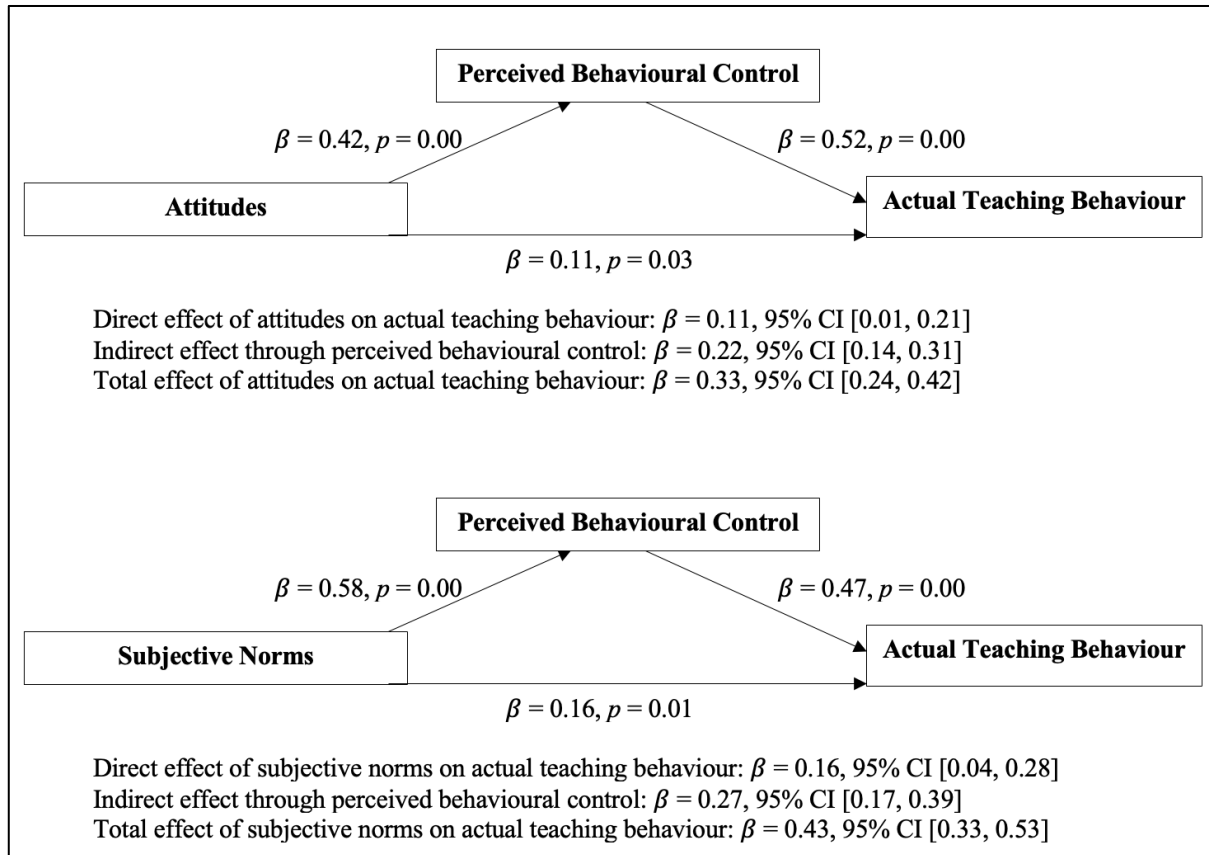
Note. Mediator: teacher intentions to implement inclusive practices through the lens of the UDL framework and teachers' efficacy in implementing inclusive practices through the lens of the UDL framework.

In terms of Research Question 4.2 (b), PROCESS macro was implemented to examine the extent to which the perceived behavioural control mediated the impact of attitudes and subjective norms on actual teaching behaviour. As shown in Figure 4.32, perceived behavioural control was statistically significant in mediating the relationship between attitudes and actual

teaching behaviour ($\beta = 0.22$, 95% CI [0.14, 0.31]), as well as subjective norms and actual teaching behaviour ($\beta = 0.27$, 95% CI [0.17, 0.39]).

Figure 4.32

Mediation Analysis for Research Question 4.2 (b)



Note. Mediator: teachers' efficacy in implementing inclusive practices through the lens of the UDL framework.

Teachers who had positive attitudes towards inclusive education or inclusive practices and had high levels of self-efficacy to implement inclusive practices through the lens of the UDL framework displayed 0.22 units higher consistency between their actual teacher behaviour and the UDL framework than those who had negative attitudes and low self-efficacy. Also, subjective norms influenced actual teaching behaviour indirectly through perceived behavioural control. Teachers who perceived sufficient support and presented high self-efficacy to implement inclusive practices through the lens of the UDL framework reported 0.27 units higher consistency between their actual teacher behaviour and the UDL framework than those who perceived insufficient support and had low self-efficacy.

Since CIs were above zero, the direct effects of attitudes ($\beta = 0.11$, 95% CI [0.01, 0.21]) and subjective norms ($\beta = 0.16$, 95% CI [0.04, 0.28]) were confirmed as statistically significant. Attitudes directly affected actual teaching behaviour by 0.11 units and subjective norms directly affected actual teaching behaviour by 0.16 units, which supported the findings of Research Question 4.1.

Section Summary. To address Research Question 3, the results of the multiple regression implied that teacher intentions to implement inclusive practices through the lens of the UDL framework and teacher's efficacy in implementing inclusive practices through the lens of the UDL framework predicted their actual teaching behaviour directly. Teacher intentions to implement inclusive practices through the lens of the UDL framework was the strongest predictor of teachers' actual teaching behaviour. For Research Question 4.1, attitudes, subjective norms and perceived behavioural control indirectly influenced actual teaching behaviour through intentions in a small but statistically significant manner. In Research Question 4.2, attitudes and subjective norms had statistically significant indirect impacts on actual teaching behaviour when having both intentions and perceived behavioural control as mediators. Also, the indirect effects of attitudes and subjective norms on actual teaching behaviour remained when perceived behavioural control was considered as a mediator.

4.4. Interpretation of Phase 2 Results

In the current study, semi-structured online interviews were conducted in Phase 2 to follow up the quantitative findings from Phase 1 and to explore how teachers interpreted their attitudes, perceived support, self-efficacy and intentions within the Theory of Planned Behaviour. This qualitative phase enabled deeper clarification of the survey patterns and provided contextual insights necessary to address the study's aims of understanding teachers' intentions to implement inclusive practices through the lens of the UDL framework. Fourteen interview questions were developed based on the Theory of Planned Behaviour (see Appendix A). The purpose of the interviews was to investigate Chinese secondary school teachers' overall intentions to implement inclusive practices through the lens of the UDL framework. Further insights about teachers' intentions, subjective norms, perceived behavioural control, intentions and their actual teaching behaviour were anticipated from the interviews. This section describes the thematic analysis results of the eight interviews. The demographic information of the eight participants, thematic analysis results, generated codes and themes are reviewed and discussed in the current section.

4.4.1. Description of Phase 2 Participants

After completing the Phase 1 survey, 56 secondary school teachers volunteered to be interviewed for Phase 2. However, only eight participants replied to the researcher's follow-up invitation emails. Thus, a total of eight secondary school teachers participated in the interviews. Since Terry et al. (2017) recommended between six and 15 interviews in a Masters or Professional Doctorate project, the sample size of the current study Phase 2 was appropriate for the following thematic analysis. In addition, during the coding process, the recurrence of similar themes across participants indicated that data saturation, defined as the stage where additional data no longer yield new codes or themes, had been achieved for the purposes of the thematic analysis (Saunders et al., 2017). A summary of demographics for each teacher in Phase 2 is shown in Table 4.24.

Table 4.24

A Summary of Phase 2 Demographics

Participant	Gender	Subject Area	Years of Teaching Experience	Year Level of Teaching
T1	Female	Chinese	8 years	Year 11
T2	Female	Chinese	5 years	Year 11
T3	Male	Mathematics	4 months	Year 8
T4	Female	Mathematics	2 years	Year 7
T5	Male	Mathematics	3.5 years	Year 9
T6	Female	English	4 years	Year 11
T7	Female	Chinese	3 years	Year 7
T8	Male	Geography	3 months	Year 10

Notes. Teacher: generally denoted as T.

In terms of gender, the number of female interviewees ($n = 5$, 60%), was slightly greater than the number of male interviewees ($n = 3$, 40%). Teachers who taught Chinese ($n = 3$, 37.5%) and Mathematics ($n = 3$, 37.5%) were evenly spread in Phase 2. The other two teachers taught in the social science area. Regarding the length of teaching, the majority of teachers in Phase 2 were in their first five years of teaching ($n = 7$, 87.5%), with two beginning teachers having only three to four months of teaching experience. Only one teacher had eight years of teaching

experience (12.5%). The year levels they taught were diversely distributed from Year 7 to Year 11. In Phase 2, participants were given the opportunity to review their interview transcripts, and all took up this offer. All eight teachers confirmed the accuracy of their transcripts and no additional amendments or clarifications were requested.

4.4.2. Description of Thematic Analysis Results

Qualitative data collected from the interviews in Phase 2 were analysed using thematic analysis following six steps from Braun and Clarke (2006) as described in Section 3.9.3 of the methodology chapter. According to the step-by-step guidelines, the initial step was establishing familiarity with the data. The researcher thoroughly engaged with the data by listening to audio recordings and reading and rereading the interview transcripts. This step enabled the researcher to notice the possibilities and connections between data, participants and existing literature, adding depth to the later coding process and facilitating smoother progression through subsequent stages of thematic analysis (Braun et al., 2019).

The second step, generating initial codes, guided a systematic and detailed engagement with the data (Braun et al., 2019). After each interview, the researcher transcribed the audio recordings in Chinese, and then data coding was conducted on the Chinese transcripts. To develop codes, the researcher read each interview transcript, took notes on the interview extracts, highlighted similarities and patterns across the data (Terry et al., 2017). Although the recurrence of some codes across interviews is reported in the following sections, these counts were not based on word-for-word lexical matching. Instead, interview extracts were first interpretively coded based on their semantic meaning, and similar meanings expressed in different ways were grouped under the same code. The frequency information therefore reflects the recurrence of coded meanings across participants rather than simple keyword repetition.

Since the current study adopted a deductive thematic analysis, code generation was guided by the constructs of the Theory of Planned Behaviour (i.e., attitudes, subjective norms, perceived behavioural control and intentions). In this stage, a total of 634 codes were drawn across the eight interview transcripts. Prior to analysing the generated codes, a negotiated agreement approach was applied to allow the researcher and an expert in the field of inclusive education to code the interview transcripts independently and discuss their different coding results together. A high level of intercoder agreement was achieved through independent coding followed by negotiated consensus, ensuring stability and credibility in the coding process. After the coding process was completed in Phase 2, the interview transcripts were

translated into English by a bilingual NAATI certified translator and then back-translated into Chinese by the researcher to ensure semantic accuracy for reporting.

Several recurrent codes across the interviews included ‘equality’ ($n = 11, 1.74\%$), ‘colleagues provide teaching suggestions’ ($n = 11, 1.74\%$), ‘parents of students collaborate with teachers in their work’ ($n = 8, 1.27\%$), ‘learn more about the UDL framework_Yes’ ($n = 8, 1.27\%$), ‘asking questions’ ($n = 8, 1.27\%$), ‘heard of the UDL framework_No’ ($n = 8, 1.27\%$), ‘Differentiated Instruction’ ($n = 7, 1.11\%$) and ‘implement the UDL framework’ ($n = 7, 1.11\%$). For example, the code ‘equality’ was generated from the quote “*treat every student equally*” (T4). The quote “*regardless of what kind of a person he is and what his learning situation is, he is treated according to the role of a student*” (T5) also indicated education equality in defining inclusive education, and thus it was named ‘equality’ as well. More coding examples are shown in Appendix S.

The third step was searching for themes. The researcher examined the generated codes and fitted the codes together into the predetermined themes (i.e., attitudes, subjective norms, perceived behavioural control and intentions) in the current study (Maguire & Delahunt, 2017). Although the themes were identified a priori, the researcher could also search for new themes from the data (Fereday & Muir-Cochrane, 2006). For instance, codes describing teachers’ specific inclusive practices, and barriers impeding the inclusive practices and the corresponding personal solutions were grouped into a new theme called ‘inclusive pedagogies’. An additional theme called ‘miscellaneous’ was also created to house the codes that seem too vague or not relevant to other codes. Overall, there were 77 codes clarified in the theme ‘attitudes’, 147 codes in the theme ‘subjective norms’, 61 codes in the theme ‘perceived behavioural control’, 52 codes in the theme ‘intentions’, 273 codes in the theme ‘inclusive pedagogies’, as well as 24 codes in the theme ‘miscellaneous’. Table 4.25 presents all the identified themes and examples of codes associated with the corresponding themes in Phase 2 of the current study.

Table 4.25*Themes and Examples of Codes – Phase 2 Interviews*

Themes	Examples of Codes
attitudes	‘accepting diverse students’, ‘teachers lack awareness of inclusive education’, ‘willing to include students with mild physical disabilities in regular classrooms’
subjective norms	‘colleagues provide teaching suggestions’, ‘parents of students collaborate with teachers in their work’, ‘principal inspects class situation’
perceived behavioural control	‘highly confident’, ‘good but not particularly professional’, ‘an intermediate level’
intentions	‘willing to teach students with psychological disabilities’, ‘implement the UDL framework_Yes’, ‘learn more about the UDL framework_Yes’
inclusive pedagogies	‘highlighting key words/phrases’, ‘group discussion’, ‘the flipped classroom’
miscellaneous	‘taught students with disabilities before _Yes’, ‘understanding the theoretical level of the UDL framework’, ‘learn more about the UDL framework’

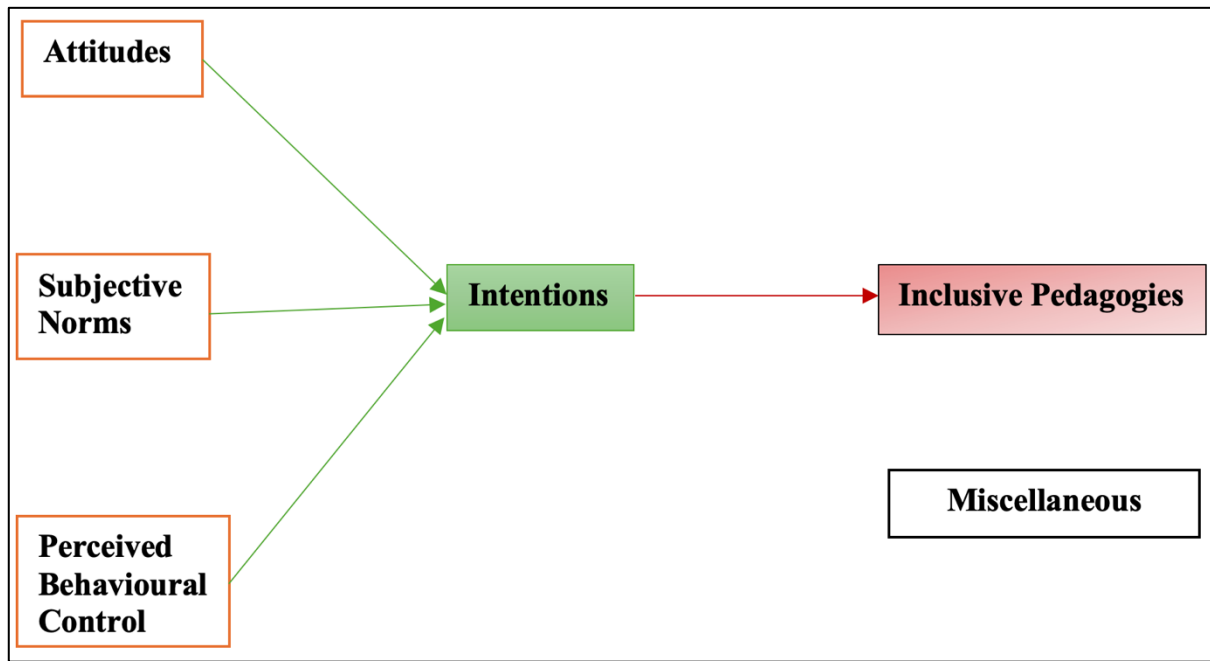
Notes. The initial themes were constructed before the step of defining and naming them.

In the fourth step, reviewing themes, the researcher checked the six themes (i.e., attitudes, subjective norms, perceived behavioural control, intentions, inclusive pedagogies and miscellaneous) and ensured each theme captured the meaning of the coded data segments (Terry et al., 2017). The themes are distinctive since the majority of the codes could only be distributed into one theme in the current study (Terry et al., 2017). As shown in Figure 4.33, a thematic map was developed based on the Theory of Planned Behaviour to visually demonstrate the relationships of themes (Vaismoradi et al., 2013). The thematic map also helps

with producing coherent but distinctive themes (Braun & Clarke, 2006; Vaismoradi et al., 2013).

Figure 4.33

Thematic Map



Note. The thematic map was designed based on the Theory of Planned Behaviour.

The next step was defining and naming themes. To develop the cohesion, clarity, precision and quality of the thematic analysis, theme names and theme definitions delineating each theme's meaning and core ideas were clarified by the researcher (Riger & Sigurvinsdottir, 2016; Terry et al., 2017). This particular step recognises depth and detail for each theme to stand alone as a key concept in the following sections (Terry et al., 2017). Table 4.26 summarises the theme names and definitions in Phase 2 of the current study.

Table 4.26*Summary of Theme Names and Definitions*

Theme Names	Theme Definitions
attitudes	teachers' overall positive or negative evaluations of engaging in inclusive education or inclusive practices
subjective norms	teachers' perceived support from significant others (e.g., principals, colleagues, and parents of students with or without disabilities) for encouraging them to implement inclusive practices through the lens of the UDL framework
perceived behavioural control	teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework
intentions	teachers' willingness to implement inclusive practices through the lens of the UDL framework
inclusive pedagogies	the UDL framework aligned teachers' actual teaching behaviour
miscellaneous	codes that seem too vague or not relevant to other codes

Note. The definitions corresponded to the definitions of core components within the Theory of Planned Behaviour in the current study.

The final step of thematic analysis was producing the report. The final report includes data extracts that distinctly demonstrate the themes, relating the analysis to existing literature (Neuendorf, 2018; Riger & Sigurvinsdottir, 2016). In Phase 2 of the current study, the report of the six major themes (i.e., attitudes, subjective norms, perceived behavioural control, intentions, inclusive pedagogies and miscellaneous) are outlined in the following sections, 4.4.3 to 4.4.8.

4.4.3. Theme 1: Attitudes

The theme named attitudes grouped codes that reflected teachers' overall positive or negative evaluations of engaging in inclusive education or inclusive practices. Teacher attitudes towards inclusive education and their attitudes towards inclusive practices through the lens of the UDL framework are presented in the following paragraphs.

Attitudes towards Inclusive Education. Participants' understandings of inclusive education varied in depth and emphasis. Several teachers had encountered the term through social media or previous postgraduate entrance exams. The majority of teachers understood inclusive education as allowing students with disabilities, along with students without disabilities, to receive education in regular classrooms. However, T6 offered a broader view, commenting that inclusive education was "*not only allowing them (i.e., students with and without disabilities) to sit in the same classrooms or learn the same content, but also involving them from the teachers' heart and teaching methods...*". This contrast suggests that, while most teachers understood inclusive education primarily as physical placement, some teachers began to associate it with teachers' acceptance and pedagogical response. For teachers, truly accepting students with disabilities in regular classrooms, together with applying appropriate teaching measures, was far more meaningful than merely situating these students physically in regular classrooms (Terzi, 2014; Wu & Priestman, 2018).

The participants expressed somewhat positive attitudes towards inclusive education, frequently invoking the idea of 'treating every student equally' as an ethical commitment to fairness and justice (Terzi, 2014). In Phase 2, four teachers explicitly used the term 'equality', emphasising the need to "*treat every student equally*" (T4) and to "*respect individual differences*" (T5) in order to avoid discrimination and promote educational fairness. However, although teachers drew on the language of 'equality', inclusive education is grounded more firmly in the principle of 'equity', which focuses on ensuring that students receive appropriate support they need to achieve meaningful participation wherever they are in their learning journey (CRPD, 2016). This suggests that teachers' conceptualisations of inclusive education aligned more with a moral commitment to equal treatment than with an equity-oriented understanding of addressing learner variability. Their accounts appeared to frame inclusive education primarily as a matter of fairness and teacher goodwill, rather than as a pedagogical and rights-based responsibility requiring proactive adaptation.

T4 emphasised that teachers should be able to "*accommodate diverse students*" and be "*meeting the normal learning needs of all students with and without disabilities*". T2 pointed

out that involving students with disabilities in regular classrooms would be *“helpful for the growth and rehabilitation of students with disabilities in situations where all students and their parents have high levels of tolerance”*, it would also be *“beneficial for students without disabilities to learn love and acceptance”*. Although T4 and T2 viewed inclusive education positively, their language positioned inclusive education in terms of helping students with disabilities to ‘grow’, ‘rehabilitate’ and be ‘accepted’ by others. This framing reflects a charity-based perspective (Liyanage, 2017), in which inclusive education is understood as benevolent support for students with disabilities rather than as recognition of their equal right to participate fully and meaningfully in regular education. Their accounts therefore suggest that inclusive education was often imagined as helping students with disabilities fit into the existing classroom, rather than transforming the classroom in ways that recognised their entitlement to equitable participation.

The participants also reported some concerns towards inclusive education. T4 perceived inclusive education as a *“big challenge for the frontline teachers”* since *“students with disabilities and their parents might be rather sensitive and extreme to any possible conflicts that may arise in school, bringing too much burden on teachers’ work”*. Also, *“there are many collective activities (e.g., school sports meeting) that students with disabilities may not be able to attend or requires the school to hire more specialist teachers to cooperate with them”* (T1). T8 stated that *“simply including students with disabilities in regular classrooms may exacerbate their psychological problems...”*. In this case, three teachers had recommended students with disabilities to attend specialised schools to seek additional support. These concerns indicate that teachers’ reservations were shaped not only by personal attitudes, but also by their perceptions of workload, risk, school capacity, and the practical feasibility of inclusive education.

In the current study, two teachers believed that all students with and without disabilities should be educated in regular classrooms, while there were two teachers with opposite perspectives. The remaining four teachers recognised that involving students with disabilities in regular classrooms or not should be considered on a case-by-case basis. T2 said, *“it was difficult to come up with a yes or no answer”*. These teachers’ understanding of inclusive education was shaped by their perceptions of the severity of students’ disabilities rather than by a rights-based or pedagogical perspective. For example, T6 commented that *“a student (i.e., a student with mild physical disability) in our school was able to attend lessons normally...he can complete some writing exercises or listening tasks during lessons...he can definitely interact with other students without disabilities in the classroom”*. However, T6 also added that

“there was a student (i.e., a student with severe physical disability) who was unable to leave the wheelchair. In this case, our school only has four storeys without elevators installed, and thus this student cannot come to school this semester”. This suggests that teachers often considered inclusive education as acceptable when students could fit into the current school learning environment. In this context, the more severe the impact of a student’s disability, the less positive the teacher’s attitude towards inclusive education tends to be (Völlinger & Supanc, 2020).

Attitudes towards Inclusive Practices through the Lens of the UDL framework. All eight participants had never heard of the UDL framework previously. At the end of the Phase 2 interview, all the participants were asked to express their new beliefs about the UDL framework. Most of the teachers realised the UDL framework was aligned with the goals of developing inclusive educational contexts. T6 mentioned that the UDL framework was relevant to teachers’ instructional methods and lesson planning while one interviewee viewed differentiated instruction as the UDL framework. T2 illustrated that *“teachers should prepare in advance and provide different preset plans for students at different ability stages, so that they can improve based on their learning levels”*.

These responses suggest that teachers found UDL intuitively compatible with some of their existing concerns about lesson preparation and learner diversity. At the same time, their accounts also indicate that the UDL framework was initially understood through differentiated instruction, rather than as a broader framework for proactively identifying and reducing barriers to learning (Meyer et al., 2024). This indicates generally positive teacher attitudes towards the UDL framework, but also a limited early understanding of its conceptual meaning.

4.4.4. Theme 2: Subjective Norms

The second theme, subjective norms, indicated teachers’ perceptions of the support they received from significant others (e.g., principals, colleagues, and parents of students with or without disabilities) encouraging them to implement inclusive practices. Different supports from school policies or procedures, as well as significant others (i.e., principals, colleagues, and parents of students with or without disabilities) and the effectiveness of supports have been demonstrated under this theme.

Perceived Support from School Policies or Procedures. When asked about the support teachers perceived from school policies or procedures to meet the needs of students with

disabilities, financial support was the most frequently mentioned form of assistance. T1 pointed out the financial support and explained:

All tuition and miscellaneous fees are waived, which actually reduces his (i.e., a student with disabilities) burden a lot. In addition, the school provides work (i.e., logistics work) to his parents. It can solve many of the expenses incurred in taking care of him in the future. The school sometimes even organises some fundraising activities, including donations from the school administrators, teachers and students, to address his financial issues.

T8 also added that the financial support provided a stipend, “*not only for students with disabilities, but also for students from poor families*”. Although such practices reflected a charity-based perspective, in which support for students with disabilities was understood primarily as providing relief or assistance rather than acknowledging their equal rights to meaningful educational participation, teachers still interpreted these efforts positively. For teachers, the provision of financial assistance signalled that the school acknowledged the additional needs of vulnerable learners and was willing to allocate resources to address them. In this sense, financial support was interpreted not only as practical help for students, but also as an indication that the school recognised the importance of inclusive education.

In addition to the financial support, teachers perceived the facilities provided by their schools as supportive in meeting the needs of students with disabilities. For example, both T1 and T2 stated that the schools provided accessible elevators and wheelchairs for students with physical disabilities. T1 added that “*the school provided him (i.e., a student with physical disabilities) with a dedicated single room accommodation on the first floor*”. Also, T3 mentioned that “*providing customised tables and chairs for students with disabilities are quite reasonable...such as adding a backrest to the back of chairs and increasing the height of tables and chairs slightly*”. The accessible elevators and wheelchairs, adjustable tables and chairs, as well as the provided dedicated accommodation were significant for students with disabilities to establish a sense of security, self-esteem and belonging in schools. More broadly, such visible investments in both financial assistance and physical facilities appeared to function symbolically for teachers, signalling that the schools were willing to allocate resources to support vulnerable learners and thereby reinforcing teachers' perceptions that inclusive education were institutionally encouraged.

Teachers widely perceived the support provided by their schools as an important facilitator of inclusive practices, strengthening their subjective norms by reinforcing the sense

that the school encouraged the inclusion of students with disabilities. For many teachers, the presence of practical school support signalled that inclusive education was not only a policy expectation but also something the school was willing to actively resource. As T2 explained, the school supports “*provide convenience for students with disabilities in their daily life and enable them to better integrate into the group*”. This comment suggests that the teacher viewed such school support not merely as physical assistance but as a means of enabling students with disabilities to participate more fully in the social life of the classroom. T3 further emphasised that the adjustable tables and chairs allowed students with disabilities to be educated in regular classrooms, which “*makes students with disabilities feel that the school treats them as normal people and does not discriminate against them*”. The provision of facilities was interpreted by the teacher as conveying respect and recognition for students with disabilities within regular classrooms. T1 similarly noted that “*the school supports are quite comprehensive in meeting the needs of students with disabilities, taking care of each person’s aspects*”, adding that “*all of these supports are provided behind the scenes by schools, without putting too much psychological pressure on the students with disabilities*”. These responses indicate that teachers associated school support not only with practical accessibility, but also with a more considerate approach that attempted to maintain students’ dignity.

However, when discussing the other school-level supports that teachers perceived, one interviewee mentioned that schools usually did not conduct a thorough investigation before enrolment, relying on teachers to determine students’ current disability-related conditions and learning needs during lessons. From the teacher’s perspective, this situation placed much of the responsibility for identifying students’ needs on individual teachers after students had already entered the classroom. In this sense, the absence of a school-led process to identify student needs constituted a structural barrier, as it limited opportunities for proactive planning and early support. T6 stressed that a comprehensive investigation prior to enrolment was essential “*at least to let schools and teachers know their students’ past medical history and current physical or psychological situation*”. This comment indicates that the teacher viewed systematic information-sharing before enrolment as an important institutional responsibility, which could help them better anticipate students’ needs and organise more appropriate classroom support.

Perceived Support from Significant Others. Regarding the perceived support from significant others to address barriers in setting learning goals, almost all the interviewees claimed that colleagues provided great help to them. For example, teachers’ colleagues were

reported to supply teaching suggestions and relevant resources. T6 commented, “*experienced teachers would know what we should focus on for a lesson and where exactly our learning goals should be covered*”. T8 added that “*my mentor (i.e., an experienced colleague) comes to listen to my classes every week and requests to review my lesson plans. He identifies problems in lesson plans and actual teaching practices, such as telling me where my learning goals need to be changed*”. These accounts suggest that teachers viewed experienced colleagues as an important source of pedagogical guidance, helping them refine learning goals and adjust their teaching more effectively.

Teachers also perceived their colleagues as playing a significant role in providing support to address barriers impeding students’ classroom participation. In many cases, teachers explained that colleagues shared similar teaching challenges and therefore became natural partners for discussion and problem-solving. As T1 stated, “*since colleagues have similar teaching difficulties, we would discuss the barriers encountered (to improve students’ classroom participation) during lessons and propose individual solutions*”. In this context, T4 commented:

My colleagues suggested making some adjustments to the language to increase classroom participation, for example, students can be given the message that this is a very difficult problem and it is up to one of you to tackle it. This can stimulate students’ learning interests through guiding language.

T3 and T8 also confirmed that colleagues not only developed useful teaching suggestions, but also provided positive feedback on certain classroom activities of teachers. For instance, T3 said “*he (i.e., a colleague) greatly appreciated my group activity during a lesson, which gave me more confidence to engage with all students with and without disabilities*”. Through such recognition from peers, teachers seemed to interpret their teaching practices as professionally validated, which encouraged them to continue developing inclusive education.

To address barriers in assessing students’ learning, several teachers mentioned that colleagues still provided the most practical teaching suggestions compared to parents or principals. Colleagues may come up with specific methods to assess students’ learning, for example, “*spending five to ten minutes to develop a quiz for students to complete before each lesson*” (T8). Since some students tend to cheat on homework or exams, T1 pointed out that “*colleagues communicate the ways students cheat and how to make up for this issue..., which would be effective to prevent such student cheating*”. These discussions suggest that peer

exchanges enabled teachers to share practical knowledge accumulated through classroom experience.

In addition to teachers' colleagues, all eight interviewees perceived that parents of students collaborated with teachers, especially in addressing barriers impeding students' classroom participation. Teachers often identified and reported students' learning situations during lessons to their parents. T4 stated that "*some parents of students are willing to collaborate with me in disciplining and educating their children at home when I found their children repeatedly broke the classroom disciplines and disturbed the learning of other students*". This type of collaboration was interpreted by teachers as extending classroom management into the home environment, thereby helping to address challenging behaviour that might otherwise persist during lessons. Parents also actively shared information with teachers. For example, T7 indicated that "*parents may share obstacles their children encountered at school and learning situations at home*". Through such communication, teachers gained a more comprehensive understanding of students' learning experiences across different contexts.

In terms of assessing students' learning, several teachers reported that parents of children were actually the most helpful to monitor students' learning progress, in comparison to colleagues or principals. Teachers explained that parents could observe students' study habits, homework completion and emotional responses to learning at home, which provided information that was not always visible in the classroom. Teacher-parent collaboration could optimise students' learning and monitoring, which allowed students to improve their academic performance.

Compared to principals and parents of students with or without disabilities, the support of colleagues for teachers to implement inclusive practices was emphasised since "*colleagues can be contacted at any time in teachers' office*" (T2 and T5), "*only colleagues are experts in teaching*" (T1 and T8) and "*colleagues interact with students with similar learning situations at a same school*" (T1 and T3). While colleagues were often regarded as the most immediate professional support, several teachers also emphasised the importance of parents in increasing students' classroom participation and assessing students' learning. Parents' support was effective due to the "*deep emotional connections between parents and their children*" (T1). "*Parents are the ones who care the most about their children's learning... so that they would actively collaborate with teachers' work*" (T1).

Interestingly, principals' support was rarely mentioned by the eight interviewees to address barriers in setting learning goals, increasing students' classroom participation and assessing students' learning. Several interviewees reported that they did not recognise any support provided by principals. Particularly in assessing students' learning; only T8 provided the following statement:

School principals play a primarily supervisory role. They would patrol the classroom during lessons and they would witness students' behaviour outside the classes. Under the supervision of school principals, I would also take care of those students with disruptive behaviour during lessons.

These accounts suggest that teachers mainly encountered principals through supervisory activities rather than through direct pedagogical guidance. As a result, school leadership appeared to be interpreted by teachers more as a form of oversight related to student behaviour and school order, rather than as a source of instructional support.

Teachers were also interviewed on the impact of significant others' (i.e., principals, colleagues, and parents of students with or without disabilities) support for teachers to eliminate barriers in setting learning goals, increasing students' classroom participation and assessing students' learning. T7 reported that "*there was no impact on my determination of eliminating barriers...their (i.e., significant others) support definitely still helps quite a bit*". This was confirmed by the majority of other interviewees, indicating that teachers have accessed a variety range of supports to conduct everyday teaching practices. However, this support tended to focus on helping teachers deliver routine instruction rather than guiding them to adopt inclusive pedagogical frameworks to meet the needs of all students with and without disabilities.

4.4.5. Theme 3: Perceived Behavioural Control

The third theme of perceived behavioural control refers to teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework. In Phase 2 of the current research, teachers were asked to comment on their professional capacities to design a variety of classroom activities, present learning materials in different formats and assess students' learning in different ways, corresponding to the three UDL principles of engagement, representation, action and expression, respectively.

Self-Efficacy in Providing Multiple Means of Engagement. To measure teachers' self-efficacy in providing multiple means of engagement, a recurring responses among participants

was that they felt ‘highly confident’. This suggested that teachers were highly confident in their professional capacities to design various classroom activity. T8 said “*I guess I have strong professional skills to emphasise students’ learning interests in designing classroom activities...for example, guiding them to listen more attentively to my instructions through some interesting cases and stories*”. T6 also mentioned some examples of self-designed classroom activities, such as “*100-word English competition*” and “*group presentations*”, which were “*appreciated by colleagues*”. However, only T7 expressed limited confidence in this area, noting difficulties in designing engaging classroom activities and the need to learn from other colleagues to further develop creative lesson ideas. These accounts suggest that teachers’ confidence in engagement was largely associated with making lessons lively, interesting, and motivating. Yet this confidence did not necessarily indicate an ability to systematically design engagement in ways that anticipated learner variability and reduced learning barriers for diverse students with and without disabilities.

Self-Efficacy in Providing Multiple Means of Representation. In terms of providing multiple means of representation, most teachers described themselves as ‘proficient’, indicating the interviewees had high levels of confidence in presenting learning materials in different formats. Although two teachers stated that “*there is still room for improvement in this area*” (T5 and T7), five other teachers reported that they were ‘proficient’, ‘quite good’, or ‘better than others’ in using a range of formats to represent learning information. For example, T4 noted that “*I am relatively proficient in using common learning software such as PowerPoint and GeoGebra (i.e., an interactive maths learning software)*”. Different ways of presenting learning content were demonstrated, however, none of the teachers mentioned whether they were able to actively combine various instructional formats to teach a single learning content in practice. These accounts indicate that representation was generally understood as using different media in teaching, rather than as offering multiple pathways to the same learning content so that diverse learners could access learning information in ways that suited them best.

Self-Efficacy in Providing Multiple Means of Action and Expression. For the third UDL principle of providing multiple means of action and expression, most teachers reported that they were ‘confident’ in assessing students’ learning in different ways, although one teacher said, “*I think I still have room for improvement*” (T4). T6 reflected on previous students’ assessments and commented, “*I will try to assess them (i.e., students) in different ways in the*

future, rather than be limited to completing their writing assignments, allowing them to demonstrate their abilities in more ways". T5 suggested differentiated student assessments and stated, *"I can provide students with different math questions based on their weaknesses"*. However, instead of providing students with flexible assessment options to choose from, the teacher assigned specific assessments to particular students. Teachers' confidence in assessment flexibility often appeared to be framed in terms of teacher-controlled adjustments, rather than in terms of offering students meaningful choices in action and expression.

Regarding the above interview questions, T2 presented high levels of self-efficacy and commented:

I do not believe there is a lack of professional capacity involved in this issue. Instead, it is simply about making lessons easier for students to engage with and helping teachers feel more comfortable in class by investing time in developing detailed lesson plans.

This quote emphasises the importance of lesson planning, regardless of the level of the teachers' confidence in teaching, and suggests that careful preparation helps structure lessons in ways that support students' understanding and achievement of the intended learning outcomes.

Also, support appeared to influence the teachers' perceived behavioural control. T2 said: *My high confidence level in this regard comes from the support my school and colleagues provided...my colleagues and I enjoy designing classroom activities, presenting learning materials and assessing students' learning from multiple directions. This makes us feel a sense of achievement.*

It seemed the teacher was confident in designing classroom activities, presenting learning materials and assessing students' learning, and was supported by her school and colleagues. The availability of collegial and school support seemed to strengthen the teacher's confidence in responding to diverse student needs.

Self-Efficacy in Meeting Diverse Student Needs. When asked about the teachers' professional capacities to meet the diverse needs of students in their classrooms, many respondents simply perceived that they were capable of meeting diverse student needs, although there were no specific examples provided by these teachers. These responses indicate that teachers' confidence in meeting diverse student needs was often easier to assert at an abstract level than to demonstrate through concrete inclusive practices. However, T7 expressed *"a lack of professional knowledge to satisfy every student's learning requirements"* and the

teacher “*can only target most students in lessons*”. T6 also reported their professional capacities of meeting diverse student needs “*may not be very good*” due to “*the lack of lesson planning*” or the fact that “*the school and I do not attach much importance to some lessons*”. These comments suggest that teachers’ perceptions of their professional capacity to meet diverse student needs were not uniform. While some teachers expressed general confidence in their ability to support diverse learners, others explicitly reported limitations in their knowledge or preparation.

Self-Efficacy in Collaborating with Parents of Students with Disabilities. There were six interviewees who reported that they had taught students with disabilities in their classrooms before, however, the majority of the interviewees pointed out a lack of professional capacities to collaborate with parents to educate students with disabilities. Teachers often explained this perceived limitation in relation to insufficient professional development training and limited experience in communicating with families about learning needs of students with disabilities. T2 stated:

I have not been trained in working with parents of students with disabilities. I think this is not something that can be done with just patience and love, it is necessary to have enough understanding of the children’s situation and customise it (i.e., the collaboration with parents of students with disabilities) on a one-on-one basis.

T1, T4, T5 and T7 also reported their “*lack of professional knowledge*” and “*lack of experience*” in collaborating with parents of students with disabilities.

Despite these concerns, several teachers positively commented on their professional capacities in working with parents of students with disabilities. T8 explained that communication with parents allowed teachers to provide feedback and guidance about students’ learning and development:

I provided timely feedback and advice when parents communicate with me after lessons. For example, the parents of a student with an intellectual disability sought professional medical guidance after our conversation, and later decided to start their child (i.e., the student with intellectual disability) on medication.

T3 similarly mentioned that he contacted parents of students with disabilities regularly and always told the parents “*to treat their child as normal people and encourage them in different ways so that they will not develop feelings of inferiority in their hearts*”. T6 also suggested the parents of students with disabilities contacted teachers at any time if their

children had problems. These accounts indicate that teachers who had more frequent communication with parents tended to express greater confidence in their ability to support students collaboratively with their families.

Self-Efficacy in Addressing Students’ Disruptive Behaviour. To evaluate the professional capacities of teachers to address students’ disruptive behaviour (e.g., talking, laughing, crying) in their classrooms, most teachers reported that they could handle students’ disruptive behaviour properly during the lessons. For example, T6 said, *“I am able to stop such behaviour in a relatively timely manner and to keep the students under control”*. However, none of the teachers described specific, planned strategies for preventing disruptive behaviour, nor did they refer to behaviour supports that were typically embedded in their lesson planning (Little, 2023). This suggests that behaviour management was largely reactive, and at times reflected an authoritarian rather than approach which was proactive or intentionally planned prior to the lessons. In addition, T8 commented that he *“cannot make a stern expression when encountering such problems...so students with disruptive behaviour may feel that I am joking or I am not angry at all...my ability to address students’ disruptive behaviour is quite poor in this sense”*. Overall, teachers’ confidence in this area appeared to centre on maintaining behavioural control in the moment rather than on creating a supportive, inclusive learning environment that might reduce students’ disruptive behaviour proactively.

4.4.6. Theme 4: Intentions

The next theme, intentions, refers to teachers’ willingness to implement inclusive practices through the lens of the UDL framework. Under this particular theme, teachers’ willingness to include students with disabilities in their regular classrooms, implement inclusive practices through the lens of the UDL framework in their future lessons, and learn more knowledge and skills about the UDL framework are discussed and reported in this section.

Intentions to Include Students with Disabilities in Regular Classrooms. Teachers expressed differing intentions regarding the inclusion of students with disabilities in regular classrooms, There were three teachers who firmly agreed to be inclusive of students with disabilities in their classrooms. For example, T3 commented, *“I hope I can raise them (i.e., students with disabilities) to be a good person...regardless of others perspectives, in my eyes, they (i.e., students with disabilities) are all normal students”*. This statement suggests that the

teacher framed inclusive education as a matter of recognising the equal value of students with disabilities within the regular classrooms. T5 confirmed T3's view and commented:

we should not discriminate against them (i.e., students with disabilities) or exclude them...we should provide them with equal opportunities to learn knowledge and participate in classroom activities...I will also cultivate other students without disabilities to be inclusive of others by including students with disabilities in my classrooms.

In this account, inclusive education was not only seen as benefiting students with disabilities but also as shaping the attitudes of other students without disabilities. T6 also reflected on her previous teaching experience of educating a student with physical disability and stated, *"I am willing to be involved in a classroom with diverse students, even if it may present challenges"*. This response indicates that the teacher interpreted inclusive education as a responsibility, even when she recognised that teaching diverse students might require additional efforts.

Other teachers were also willing to include students with disabilities in their classrooms, but they raised some concerns. As stated earlier in Section 4.4.3, some teachers suggested deciding whether to educate students with disabilities in regular classrooms is based on the severity of their disability. In this interview question, instead of including students with disabilities in their classrooms, T1 and T4 recommended students with severe intellectual disabilities attend special schools as *"they will create an extra burden on my teaching"* and *"they may not be able to control their behaviour and emotions during lessons"* (T1).

In addition, some teachers referred to broader social factors that might influence the feasibility of inclusive education. For instance, T2 pointed out that the difficulty of including students with disabilities in classrooms might be the beliefs of other parents of students without disability since *"not all parents can accept their children learning with students with disabilities in practice"*. T7 also claimed that *"students with disabilities still need to interact with students without disabilities...however, students with disabilities are expected to have less disruptive behaviour if they enter my classrooms"*. These comments indicate that teachers' intentions to include students with disabilities were sometimes shaped by expectations about classroom order and the reactions of other relevant stakeholders (e.g., students without disabilities and their parents).

There was only one teacher who refused to include students with disabilities in classrooms. T8 said he was easily touched by the tragic experiences of students, but incapable of action. In this sense, T8 suggested, *"students with disabilities should attend special schools"*.

Taken together, these responses suggest that teachers' willingness to include students with disabilities in their regular classrooms varied from strong support to conditional acceptance and, in one case, rejection.

Intentions to Implement Inclusive Practices through the Lens of the UDL Framework. Although none of the eight interviewees had heard of the UDL framework before, all of them were willing to implement inclusive practices through the lens of the UDL framework in their future lessons. For example, T4 commented that "*catering for as many different students as possible and giving learning opportunities to students with disabilities are the requirements to fulfill my role as a teacher*". T8 added that "*the UDL framework seemed to provide learning information in diverse formats, stimulating students' learning interests*". It is worth noting that the interview question about teachers' willingness to implement the UDL framework in their future lessons appeared as the third-to-last item in the Phase 2 interview. Given that the preceding questions had already provided them with a brief understanding of the UDL framework, and that the researcher had provided a brief explanation of its definition and three core principles of engagement, representation, action and expression, prior to this interview question, teachers had formed a general grasp of the framework by the time they responded to this item.

T1 and T2 reported that teachers might be unconsciously implementing inclusive practices through the lens of the UDL framework in practice, although teachers did not have the specific theory of the framework in mind. In this case, all the respondents were willing to learn more knowledge and skills about the UDL framework. T2 and T4 recognised having theoretical knowledge and direct instruction could support them in implementing inclusive practices through the lens of the UDL framework in the future, "*rather than only having a vague concept in mind*" (T4).

Teachers described several motivations for wanting to learn more about the UDL framework, although the nature and clarity of these reasons varied across interviewees. For instance, these reasons include "*obtaining individual professional development*" (T7 and T8), "*seeking career promotion*" (T5), "*ensuring teaching practices receive recognition from parents of students, colleagues and principals*" (T3), as well as "*developing better teaching strategies to cater to diverse students*" (T8). These comments express that teachers' interest in learning about the UDL framework was shaped both by professional aspirations and by a desire to improve their ability to respond to learner variability.

4.4.7. Theme 5: Inclusive Pedagogies

A new theme called inclusive pedagogies was generated to describe the UDL framework aligned teachers' actual teaching behaviour. Regarding this theme, teachers were prepared to answer the questions about how to set learning goals, design classroom activities, assess students' learning and vary instructional materials, which were critical elements of the UDL framework. The existing barriers and personal solutions to remove barriers in setting learning goals, designing classroom activities and assessing students' learning are also illustrated and reported in this section (Meier & Rossi, 2020).

Setting Learning Goals. A recurring pattern in teachers' descriptions of setting learning goals was 'according to course standards'. The revised Compulsory Education Curriculum Plan and Curriculum Standards 2022 can be identified as the basic national standards and requirements of compulsory education in China (Ministry of Education, 2022). The revised curriculum and standards define the nature, learning goals, and curriculum structure of each course, and propose detailed instruction and assessment suggestions, supporting the quality and balanced development of compulsory education (Ministry of Education, 2022). In Phase 2 of the current study, T1 stated that "*the curriculum standard implies what kind of talents the country should cultivate*". A total of five teachers claimed that they have to set learning goals in accordance with the curriculum standards, a rigid approach that stands in contrast to the flexibility encouraged by the UDL framework. Unlike a standards-driven approach that requires all students to reach the same goal in the same way, the UDL framework maintains common learning goals but promotes flexible pathways for achieving them, ensuring accessibility for diverse students with and without disabilities (Meyer et al., 2024).

Another frequently recognised code in setting learning goals was 'Differentiated Instruction'. Instead of setting flexible learning goals, some teachers tended to assign different learning goals to diverse students. T4 commented:

There are three levels of learning goals, one is the most fundamental knowledge and concepts...in the context of Mathematics, the second level (of learning goals) relates to mathematics thoughts, for example, the thoughts of numeric and picture combination...the third level (of learning goals) often delve into mathematics literacy (e.g., logical reasoning and data analysis)...the additional second and the third level of learning goals are designed for the majority of students without disabilities, while students with disabilities are expected to grasp the basic knowledge and concepts only.

T3 and T6 also pointed out that they usually set layered learning goals for students at different ability levels. T2 added that key learning information and difficult learning information often simultaneously existed in each lesson, in which “*the difficult learning points are not the requirements for all students*”.

In the current study, differentiated instruction was not conceptualised in the broader sense described in the literature, where teachers deliberately modify learning content, processes, products or learning environments to accommodate students’ diverse readiness levels, interests and learning profiles (Loreman, 2017). Instead, teachers in the study tended to define differentiated instruction in a narrow perspective, for example, assigning different difficulty levels of learning goals to different groups of students, particularly by lowering expectations for students with disabilities. This interpretation reflects a deficit-based perspective, where learning difficulty is addressed through simplified tasks rather than through multiple pathways designed to support all learners’ engagement with the same curriculum.

When asked about the barriers in setting learning goals, both T2, T5 and T7 reported that the mismatch between reality and ideals, indicating “*some of the learning goals might be detached from the actual teaching practice*” (T7) and “*the real teaching practice does not follow your preconceived situations of what is going to happen*” (T2). Teachers explained that the intended learning goals formulated during lesson preparation did not always align with what actually occurred during lessons. T5 explained that the reason why some teachers cannot set practical and specific learning goals might be due to “*teachers’ lack of in-depth understanding of subject knowledge*”. To overcome this barrier, for example, T5 decided to strengthen his learning of subject matter by engaging in additional study after school hours. Also, T2 suggested that “*collective lesson preparation would be a choice to discuss colleagues’ ideas and generate their own teaching inspiration*”. These accounts indicate that teachers attempted to manage the gap between planned goals and classroom realities through both individual professional learning and collaboration with colleagues.

Another common barrier in setting learning goals was teachers’ limited understanding of their students’ learning needs and current achievement levels. T8 explained, “*As a new teacher, I am not sure if the students can accomplish the learning goals since I still need time to grasp the students’ learning situation*”. T3, T6 and T7 also reported that they were unable to make an accurate judgement on students’ ability levels when writing learning objectives. In this case, T3 proposed to “*realise students’ learning progress through asking questions before each lesson*”. This indicates that teachers’ ability to formulate appropriate learning goals depended heavily on how well they knew their students.

Designing Classroom Activities. In terms of designing classroom activities, the most commonly mentioned code was ‘cooperative group learning’. The code aligned with the UDL Checkpoint 8.3 “Foster collaboration and community”, under the UDL principle of providing multiple means of engagement, as it encouraged and supported opportunities for peer interactions and supports (CAST, 2018). For example, all eight interviewees indicated that they preferred designing collaborative activities such as group discussions and group presentations. In particular, T8 mentioned a group activity referred to as flipped classroom, which meant that:

students in learning groups should initially find learning information to create a PowerPoint presentation, and then the group leader(s) becomes the teacher to present it in front of the whole class...the teacher and other students listen to the group presentations and make comments.

In this case, students were able to choose who would present in front of the whole class, although they could not change the verbal presentation format.

T1 commented that “*all of my classes have learning groups that involve students at different ability levels...students can inspire each other and come up with a lot of new learning perspectives during group discussions*”. T3 said, “*I often prepare some discussion-based classroom activities in lesson planning...and distribute dozens of different discussion questions in learning groups to ensure every student can participate in group discussions*”. The teacher assigned discussion questions based on their academic performance, rather than providing different discussion questions for students to choose from.

Another extensively invoked code in designing classroom activities was ‘providing scaffolds to guide information processing’. This reflected a specific element of the UDL Checkpoint 3.3 “Guide information processing and visualisation” under the principle of providing multiple means of representation, particularly the practice of introducing graduated scaffolds that support information-processing strategies (CAST, 2018). Teachers designed classroom activities that provided students with explicit prompts in steps. T1 believed that:

it is necessary to design some challenging classroom activities and provide students with some learning scaffolds, for example, by asking students to prepare lessons before class, read some articles in class, and then carry out a cooperative group learning to discuss some questions raised in reading.

The step-by-step prompts verbally guided student learning before and during a lesson.

To promote students’ interest in participating in classroom activities, the majority of teachers provided students with some small gifts or bonus points. T3 prepared some small gifts

such as “*milk tea, chocolate, notebook or pen*” to attract students to participate in classroom activities. T6 said, “*I designed different competitions, including 100-word English competitions, speech competitions and reading competitions...students would be awarded bonus points if they participated in these competitions*”. Moreover, T4 and T8 suggested to provide positive oral feedback, for example, “*praising students for doing well after they answer questions*” (T8). This aligned with the UDL Checkpoint 8.4 “Increase mastery-oriented feedback” under the principle of providing multiple means of engagement, as it emphasises providing feedback that supports students’ effort and improvement (CAST, 2018).

There were five interviewees (i.e., T4, T5, T6, T7, T8) who mentioned that the existence of students with disruptive behaviour in classes could be identified as the most obvious barrier impeding students’ classroom participation. T6 commented, “*these students (i.e., students with disruptive behaviour) may disturb other students, making the whole class sometimes become drowsy*”. T4 suggested “*choosing the fastest approach to calm him (i.e., the student with disruptive behaviour) down and then bringing the attention of other students back to the content being taught*”. T1, T4 and T8 further reported that students not willing to express themselves verbally were recognised as another barrier impeding their classroom participation, “*regardless of whether students have learning abilities to participate in classes*” (T4). This also implies that classroom participation was frequently understood in terms of oral response, overlooking alternative forms of engagement (e.g., writing, movement, digital interaction) encouraged in the UDL framework.

The other reported potential barriers impeding students’ classroom participation were “*students’ lack of in-depth understanding of subject knowledge*” (T1, T2 and T8) or “*students’ lack of interest in learning*” (T1 and T7). To enhance students’ understanding of subject knowledge, teachers recommended “*designing some quizzes to strengthen their learning foundation*” (T1) or “*asking questions to guide students to find out the blind spots of their knowledge*” (T2). To stimulate students’ learning interests, T1 and T7 suggested that teachers should involve more learning information in visual or audio formats, instead of merely using text material to attract students.

Based upon the interview responses, almost all the teachers emphasised the responsibilities of students when considering barriers impeding students’ classroom participation, rather than seeking potential barriers in their own teaching practices. This is inconsistent with the UDL framework’s emphasis on identifying and removing instructional and environmental barriers (Meier & Rossi, 2020). Only T4 mentioned that “*teachers may provide explicit instruction in explaining some difficult questions, instead of providing students*

with opportunities to participate in classes...since they may repeatedly make trial and error to waste lesson time and affect teaching progress". In this case, T4 reported that *"teachers should consciously cultivate capable students as speakers"*, but the teacher did not point out specific measures from a teacher's perspective to address the barrier impeding students' classroom participation.

Assessing Students' Learning. To assess students' learning, the majority of teachers reported that they often asked questions during lessons, distributing homework (e.g., writing tasks, reading tasks or answering questions) after lessons and designing regular exams. In particular, T2 provided students with *"an evaluation scale before they completed a writing task"*. The evaluation scale guided students' self-reflection on their writing quality and completeness, which enhanced students' capacity for monitoring progress. T2 added that *"peer evaluation would be conducted around the scale after students engage in self-reflection"*. This assessment process aligned with the intentions of the UDL framework, particularly the UDL Checkpoint 6.4 "Enhance capacity for monitoring progress" under the principle of providing multiple means of action and expression, because it encouraged students to monitor, reflect on, and evaluate their own learning (CAST, 2018). Following the UDL framework, the assessment process encouraged and supported opportunities for peer interaction and supports during lessons. Then, based upon the evaluation scale, T2 reported that *"the teacher would add to the learning points that the students did not mention, or that they did not mention correctly"*. Another teacher (i.e., T2) also mentioned that she had developed *"evaluation scales in a project-based learning task for students to conduct self-assessment, peer assessment and teacher assessment"*.

Despite providing students with a simple score or grade, it is necessary to develop consistent and informative feedback. This emphasis also aligns with UDL Checkpoint 8.5 "Increase mastery-oriented feedback" under the principle of providing multiple means of engagement, which highlights the importance of offering timely, specific and constructive feedback to guide students' learning progress (CAST, 2018). For example, instead of providing comparative or competitive feedback in an English reading task, T6 commented:

I am not going to grade the students since they are quite trapped by the grades...I am going to tell the students what are their problems and where they need to improve...or I will tell the students they are reading really well, and then they need to work on their breaks, intonation or pronunciation.

After a mathematics exercise, T5 said:

I will ask students to develop and submit their error books (i.e., a notebook used for recording and correcting mistakes). I will review their error books to check if they did the questions correctly and write down the detailed, individualised feedback in their error books.

To consider barriers in assessing students' learning, all the interview respondents still paid attention to students' responsibilities, rather than addressing issues in teaching. For example, T5, T6, T7 and T8 reported that students not submitting their work on time as the biggest barrier in assessing students' learning. T6 mentioned that "*the teacher would communicate with the students who do not complete their work and then contact their parents for help*". However, no specific actions of teacher-parent collaboration were mentioned during the interview, nor were further attempts to enhance student engagement or motivation described.

Varying Instructional Materials. During the interviews, all eight teachers reported they used textbooks in their lessons. To consider present learning materials in different formats, all the teachers provided examples such as videos, PowerPoints, images, worksheets, whiteboards or blackboards. To be specific, T4 reported that "*I may use some physical objects to teach geometric shapes and three-dimensional shapes next week*". T7 suggested to "*insert some background music during reading tasks*". Also, T8 noted that "*I look for different teaching materials such as texts, images or videos to add to my teaching practice*". The various instructional materials were considered to "*enrich classroom atmosphere and enhance students' knowledge understanding*" (T5). However, although the teachers described presenting learning materials in different formats, they did not indicate that these formats were being offered simultaneously, reflecting a misunderstanding of the UDL principle of providing multiple means of representation, which requires offering varied pathways for accessing information at the same time and allowing students to choose the format that suits them best (Meyer et al., 2024).

4.4.8. Theme 6: Miscellaneous

At the end of the interviews, teachers were asked to consider how to use the information obtained from this interview to plan their next lessons. T2, T4 and T5 reported that they wanted to go through the theoretical aspects of the UDL framework, including the specific definitions, implementing cases and strategies. T4 suggested they would "*search the relevant literature to check if the teacher can obtain some teaching guidance*". T6 said, "*I might design an*

assignment now and have the students to choose and complete it in different ways”, which reflects the UDL principle of action and expression by allowing students to choose how they demonstrate their learning. Also, T7 appreciated the interview and noted that *“inclusive education allowed teachers to pay more attention to students with disabilities and encouraging those students to be educated in regular classrooms”*.

4.5. Interpretation of Phase 3 Results

In Phase 3 of the current study, semi-structured non-participant observations and post-observation unstructured face-to-face interviews were conducted in Beijing. The UDL-OMT rating scale developed by Basham et al. (2020) and a set of unstructured post-observation interview questions were utilised to identify and reflect on the UDL framework aligned Chinese secondary school teachers’ actual teaching behaviour. In this section, the description of two participants in Phase 3 and the corresponding school or classroom contexts, descriptive analysis results of 10 classroom observations (i.e., five observations per teacher), as well as the thematic analysis results of the two post-observation interviews are presented below.

4.5.1. Description of Phase 3 Participants & School/Classroom Contexts

After finishing Phase 2 interviews, two secondary school teachers who completed the first two phases replied to the researcher’s follow-up invitation emails and agreed to participate in Phase 3 observations and post-observation interviews of the current research. Both participants were female Chinese-language teachers working at the Year 11 level. The only difference was that T1 had more teaching experience than T2 ($n = 8$ and $n = 5$).

Prior to conducting observations, a preliminary school visit was conducted. This allowed the researcher and the teacher participants not only clarification of the research procedure and ethical considerations, but it also generated some background information about each teacher. Both T1 and T2 were postgraduate students from a key university in China. In this case, both T1 and T2 stated that their secondary schools were highly ranked with adequate qualified teachers in recent years. They mentioned that the Chinese learning level of the class they taught was excellent, however, in particular, T1 pointed out that the overall academic performance of the class she taught was relatively weak. T1 said there were 45 students in the class she taught, while T2 said there were 39 students in the class she taught. However, these two regular classrooms did not teach students who identified with disability in lessons.

4.5.2. Description of Descriptive Analysis Results: Classroom Observations

The descriptive analysis results were generated based upon the scores from the UDL-OMT rating scale, supporting the answering of Research Question 6 and Research Question 7 in Section 4.6 of the results chapter. The mean scores, standard deviations and overall mean score of the videos and audios in Phase 3 are presented in Table 4.27. As shown in Table 4.27, both the mean scores for each section and the overall mean score for the completed sections ($M = 0.87$, $SD = 0.22$) of the UDL-OMT rating scale presented a Pre-Emergent level of the UDL framework implementation (Basham et al., 2020). This indicated that the teaching behaviours observed did not align the UDL framework, however, the environment was primed for the UDL framework implementation (Basham et al., 2020). During the classroom observations of the current study, although some features of the class and teaching behaviours were aligned with the UDL framework, they were not applied consistently across lessons, and traditional teaching pedagogy continued to dominate the observed lessons.

Table 4.27

UDL-OMT Subsection Mean Scores and Standard Deviations, and Overall Mean Score

Sections	Mean Scores	Standard Deviations
A1. Introducing and framing new material	0.81	0.29
B1. Content representation and delivery	0.94	0.38
C1. Expression of understanding	0.93	0.30
D1. Activity and student engagement	0.78	0.30
Overall Mean Score	0.87	0.22

Note. UDL-OMT = Universal Design for Learning Observation Measurement Tool

Introducing and Framing New Materials. The overall Introducing and Framing New Material subsection mean score was 0.81, suggesting a pre-emergent level of UDL implementation. Upon reviewing each item in Table 4.28, the range of mean scores was 0.3 to 1.2, indicating that there was No or Low Occurrence or Pre-Emergent levels of the UDL framework implementation across the 10 observations. The lowest mean score was generated in Item A1.7 ($M = 0.30$, $SD = 0.48$), which means that the teachers often did not identify potential misunderstandings/misconceptions in learning, or they verbally pointed out misunderstandings/misconceptions a few times. Since the maximum score of Item A1.7 was 1, there was No Evidence or Incomplete Evidence of implementation regarding this item.

The highest mean score was recorded for Item A1.3, with a maximum score of 3 across the 10 observations ($M = 1.20$, $SD = 0.92$). This suggested that the teachers activated or supplied background knowledge using different strategies or tools. In a class learning an ancient poem, for example, T1 initially played a video and asked the students to read the background information on the PowerPoint. Meanwhile, T1 provided oral and written explanations of the background information using a whiteboard. Although learners relied on teachers' instruction, different tools such as PowerPoint and whiteboards were utilised at the same time to support the supply of background knowledge.

Introducing learning goals was a significant step in the subsection Introducing and Framing New Material. The low mean score of Item A1.1 ($M = 0.40$, $SD = 0.52$) implied that T1 and T2 often presented learning goals in a single oral or written format at the beginning of each lesson, without detailed explanations of the learning goals and how to achieve them. For example, T1 provided students with a learning goal of understanding the difference between Eastern and Western civilisations and the important role of poetry education in life through comparing and reading 'The Crowd' and 'Medea'. The learning goal was only presented briefly on a PowerPoint slide, without further clarification about what aspects of the comparison students should focus on or how their understanding would be demonstrated. This lack of clarity limited students' opportunities for choice in demonstrating learning, which contrasts with the flexibility promoted in the UDL framework.

Table 4.28*UDL-OMT Individual Items Across Introducing and Framing New Material*

Items	Number of Responses	Mean Scores	Standard Deviations
A1.1. Establishes student understanding of learning or activity goals	10	0.40	0.52
A1.2. Establishes student understanding for how to be successful in the learning or activity	10	0.90	0.57
A1.3. Activates or supplies background knowledge	10	1.20	0.92
A1.4. Highlights what is important for students to learn and/or do	10	0.80	0.63
A1.5. Supports understanding of big ideas and/or critical concepts	10	1.10	0.74
A1.6. Uses questions that support understanding or inquiry	10	1.00	0.00
A1.7. Identifies potential misunderstandings/misconceptions.	10	0.30	0.48

Note. Number of responses is out of 10 potential responses.

Content Representation and Delivery. The overall mean score of the subsection Content Representation and Delivery was 0.94, which, although relatively higher than other subsection mean scores, still corresponded to a pre-emergent level of UDL implementation. As shown in Table 4.29, the findings from the Content Representation and Delivery expressed an intermediate level of mean scores, except Item B1.1, Item B1.3 and Item B1.4. Both Item B1.1, and Item B1.4, which all scored 0 among all the observations. This suggested that the teachers displayed learning information in an inflexible format, for example, the speed or timing of videos provided by T1 and T2 were not adjusted during lessons. Also, T1 and T2 did not promote student understanding across different languages. For Item B1.3 ($M = 0.50$, $SD = 0.71$), the maximum score was 2, while the minimum score was 0 among the observed lessons. This demonstrated that the teachers sometimes offered alternatives for auditory information. For example, T1 provided an audio recording with subtitles for all students to learn a poem. The subtitles accompanied by the teachers' oral explanations became alternatives for that audio recording.

There were three items (i.e., Item B1.2, Item B1.5 and Item B1.6) which achieved an Emergent level of the UDL framework implementation, indicating that elements of the UDL framework were observed in an inconsistent manner across the three items. The relatively high mean score of Item B1.2 ($M = 1.60$, $SD = 0.84$) illustrated that the teachers offered alternatives for visual information in general. For example, both T1 and T2 provided verbal descriptions for all the images provided on PowerPoint slides. The highest mean score of Item B1.5 ($M = 2.10$, $SD = 0.74$) showed that the teachers often supported multiple levels of content understanding (e.g., novice, intermediate, or expert) to meet the learning needs of diverse students. Following the UDL framework, T2 utilised a concept map in a lesson to summarise an article in chronological order. In terms of Item B1.6 ($M = 1.70$, $SD = 0.68$), the teachers generally supported the understanding of relationships across concepts. This was evident as T1 and T2 consistently highlighted key learning information in texts or graphics, helping students recognise important connections and structure their comprehension during each observed lesson.

Table 4.29*UDL-OMT Individual Items Across Content Representation and Delivery*

Items	Number of Responses	Mean Scores	Standard Deviations
B1.1. Presentation of information allows for customisation/flexibility	10	0.00	0.00
B1.2. Instruction allows alternatives for visual display of information	10	1.60	0.84
B1.3. Instruction allows alternatives for auditory information	10	0.50	0.71
B1.4. Supports options for multiple languages	10	0.00	0.00
B1.5. Supports multiple levels of content understanding (e.g., novice, intermediate, or expert)	10	2.10	0.74
B1.6. Supports understanding of relationships across disciplines, settings, or concepts	10	1.70	0.68
B1.7. Clarifies content-specific vocabulary, symbols, and/or jargon	9	1.00	0.87
B1.8. Clarifies content-based syntax and/or structure	9	1.00	0.87
B1.9. Highlights options for self-directed clarification of vocabulary and symbols.	8	0.75	0.71

Note. Number of responses is out of 10 potential responses.

Expression of Understanding. The overall mean score of the subsection Expression of Understanding was 0.93, which still implied a pre-emergent level of UDL implementation. As shown in Table 4.30, findings from the subsection Expression of Understanding demonstrated a relatively low level of mean scores in Item C1.2 and Item C1.6. Across the 10 observations, only one lesson scored 2 in Item C1.2 ($M = 0.20$, $SD = 0.63$), indicating the particular UDL framework element occurred during the single lesson taken by T1. T1 asked the students to draw a mindmap on a worksheet or projector, providing an alternative for physically interacting with materials by hand or keyboard to express their understanding. For Item C1.6 ($M = 0.50$, $SD = 0.71$), a total of nine out of 10 lessons scored 0 or 1, showing there was no evidence in

the environment to facilitate management of information and resources. For example, T1 and T2 reminded the students to take notes during several lessons, however, no checklists or guides were provided for students to facilitate their note-taking process. In this case, the environment did not really facilitate the management of information and resources to achieve the desired learning outcomes.

The mean scores of most items (i.e., Item C1.1, Item C1.3, Item C1.5 and Item C1.7) in the subsection Expression of Understanding was between 0.6 and 1.5, stating that there were Pre-Emergent levels of the UDL framework implementation regarding these items. There were four lessons by T2 where they coded two in both Item C1.1 ($M = 1.40$, $SD = 0.70$) and Item C1.3 ($M = 1.30$, $SD = 0.68$). In particular, T2 was proficient in providing differentiated feedback customised to individual students, providing graduated levels of support for students' practice and academic performance.

More than half of the observed lessons scored 1 in Item C1.5 ($M = 0.60$, $SD = 0.52$). A reason for the scores in Item C1.5 was because T1 or T2 embedded verbal prompts to “*stop and think*” or “*show and explain your work*” before and after some classroom activities. In terms of Item C1.7 ($M = 0.80$, $SD = 0.63$), T1 and T2 asked questions to guide students' self-monitoring of progress in most observed lessons, and thus the scores were 1 or 2 in this item. In addition, it should be noted that the maximum mean score in the subsection Expression of Understanding was achieved by Item C1.4 ($M = 1.70$, $SD = 0.68$), implying that there was an Emergent level of the UDL framework implementation in intentionally providing supports for students' problem-solving and critical-thinking abilities. Similarly in Item B1.6, half of the observed lessons scored 2 in Item C1.4 since T1 and T2 highlighted critical learning concepts in texts or graphics across all the lessons and sometimes utilised graphic organisers to emphasise these critical learning concepts. However, these representations were primarily delivered in a uniform format rather than differentiated for diverse student needs, suggesting that students with more complex learning profiles may not have received tailored pathways to access or process the learning concepts.

Table 4.30*UDL-OMT Individual Items Across Expression of Understanding*

Items	Number of Responses	Mean Scores	Standard Deviations
C1.1. Allows options for learners to express understandings in a variety of ways	10	1.40	0.70
C1.2. Provides access to a variety of tools and/or technologies for students to express their understanding	10	0.20	0.63
C1.3. Builds competencies in use of multiple options for expressing their understanding	10	1.30	0.68
C1.4. Intentionally provides supports for students' problem-solving and critical-thinking abilities	10	1.70	0.68
C1.5. Provides options that guide students to plan, develop strategies, and/or goal-setting that promotes expression of understanding	10	0.60	0.52
C1.6. The environment facilitates management of information and resources to achieve desired learning outcomes	10	0.50	0.71
C1.7. Facilitates student self-monitoring of progress.	10	0.80	0.63

Note. Number of responses is out of 10 potential responses.

Activity and Student Engagement. Similarly, the overall mean score of Activity and Student Engagement was 0.78, which also reflected a Pre-Emergent level of UDL implementation. As shown in Table 4.31, the majority of items (i.e., Item D1.2, Item D1.3, Item D1.4, Item D1.5, Item D1.8 and Item D1.9) had a mean score in the range of 0.6 to 1.5, meaning that there were Pre-Emergent levels of UDL implementation when taking these particular items into account. Specifically, Item D1.9 ($M = 1.50$, $SD = 0.71$) achieved the highest mean score and had four lessons scored 2 or 3. Amongst the observed lessons, T1 and T2 often provided frequent, timely and informative feedback for students. During a reading task, for example, T2 appreciated a student's efforts and particularly pointed out the student's accurate emotional grasp while reading a certain part of the text. Item D1.2 ($M = 1.20$, $SD = 0.42$) reached the second highest mean score and all the observed lessons scored 1 or 2

corresponding to this item. T1 and T2 designed various tasks (e.g., role-play reading task and group discussion) that allow for active classroom participation of all students in each observed lesson.

It should be noted that Item D1.1 ($M = 0.40$, $SD = 0.70$) and Item D1.6 ($M = 0.40$, $SD = 0.70$) achieved the same low mean score, suggesting that the aspects of the UDL framework represented in D1.1 and D1.6, which relate to promoting learner choice, self-determination and multiple levels of challenge, were not evident in these observations. During some lessons, T1 and T2 provided students with some autonomy in learning contents. For example, T2 allowed students to choose the roles in a role-play reading task, in which the students could select a certain part of the reading texts. In a group reading task, T1 required each study group to choose one poem from four, and invited students to read the selected poetry in front of the whole class, which varied the degrees of freedom for acceptable student performance. Moreover, Item D1.7 ($M = 0.00$, $SD = 0.00$) obtained the lowest 0 mean score across the subsection Activity and Student Engagement. Reflecting on the 10 observed lessons, for instance, neither T1 nor T2 provided students with materials or strategies to support self-monitoring of their academic behaviour, such as tracking task completion or reflecting on engagement levels.

Table 4.31*UDL-OMT Individual Items Across Activity and Student Engagement*

Items	Number of Responses	Mean Scores	Standard Deviations
D1.1. Promotes learner choice and self-determination while engaging with the content	10	0.40	0.70
D1.2. Provides a variety of activities relevant to all learners	10	1.20	0.42
D1.3. Promotes sustained effort and focus	10	0.80	0.42
D1.4. Encourages learners' use of strategic planning to complete instructional tasks	10	0.70	0.68
D1.5. Encourages or give choice for collaboration and communication among learners	10	0.90	0.32
D1.6. Supports multiple levels of challenge	10	0.40	0.70
D1.7. Provides for self-reflection and self-assessment	10	0.00	0.00
D1.8. Provides formative progress monitoring and content checks	10	1.10	0.74
D1.9. Provides closure that reiterates big ideas and instructional purposes.	10	1.50	0.71

Note. Number of responses is out of 10 potential responses.

4.5.3. Description of Thematic Analysis Results: Post-Observation Interviews

Similarly in Phase 2 of the current study, qualitative data collected from the two Phase 3 post-observation interviews were analysed utilising thematic analysis. The only difference in the thematic analysis steps was that in Phase 3, themes were decided based upon the collected data, rather than setting predetermined themes according to the Theory of Planned Behaviour. A high level of intercoder agreement was confirmed by two researchers in the field of inclusive education as well. A total of 61 codes and three themes were produced in the inductive thematic analysis process. Specifically, there were 21 codes in the theme 'alignment with the UDL framework elements', 17 codes in the theme 'traditional teaching pedagogy', and 23 codes in the theme 'miscellaneous'. It should be noted that the most frequently appearing codes were 'providing student choices' ($n = 6, 9.84\%$), 'designing various classroom activities' ($n = 3,$

4.92%), ‘cooperative learning’ (n = 3, 4.92%) and ‘Differentiated Instruction’ (n = 3, 4.92%). Details of the coding examples and the corresponding quotes are shown in Appendix T. Table 4.32 elaborates all the themes and the corresponding examples of codes in Phase 3.

Table 4.32

Themes and Examples of Codes – Phase 3 Post-Observation Interviews

Themes	Example of Codes
alignment with the UDL framework elements	‘providing informative feedback’, ‘designing various classroom activities’, ‘providing student choices’
traditional teaching pedagogy	‘Differentiated Instruction’, ‘predetermined study groups’, ‘fixed study groups’
miscellaneous	‘implementing the UDL framework_Yes’, ‘spending too much energy and time on lesson preparation’, ‘students have weak learning foundations’

Notes. The themes were not predetermined in Phase 3.

Theme 1: Alignment with the UDL Framework Elements. This theme categorised the codes that described actual teaching behaviour which aligned with the UDL framework. Although T1 and T2 designed lessons that followed some of the UDL framework elements, they did not intentionally implement the UDL framework guidelines or checkpoints in lessons since they had not heard of the UDL framework before. The most frequently identified code in this theme was ‘providing student with choices’. For example, T2 said that “*students could choose the ‘dramatic conflicts’ to interpret in a lesson learning a modern drama based on their understanding of the entire text*”. In this case, students were given an opportunity to choose the learning content from the ‘dramatic conflicts’ presented in the textbook through which they could demonstrate their understanding. This example aligned with the UDL Checkpoint 5.3 “Build fluencies with graduated levels of support for practice and performance” under the principle of providing multiple means of action and expression, as the choice of dramatic

conflicts offered varied levels of complexity for students to express their learning (CAST, 2018).

Another commonly mentioned code in the theme *alignment with the UDL framework elements* was ‘designing various classroom activities’ and ‘cooperative learning’. T1 commented, for instance, “*in a reading activity, students read together, read along the audio, and then read by themselves with textbook annotations*”. “*Diverse classroom activities can stimulate students’ learning interests*” (T1), aligning with the UDL principle of providing multiple means of engagement, particularly the UDL Checkpoint 7.2 “Optimise relevance, value, and authenticity”, as varied activity formats increased the meaningfulness and appeal of the learning task (CAST, 2018). In particular, cooperative learning also aligned with the UDL principle of providing multiple means of engagement, specifically the UDL Checkpoint 8.3 “Foster collaboration and community”, as it encouraged opportunities for peer interactions and mutual support in lessons (CAST, 2018). T2 stated that “*my class often involves group discussion to allow students to inspire each other in the process of communication between groups*”. This is consistent with findings by Qu and Cross (2024), who noted that group work contributed to a supportive learning environment and promoted a sense of collective responsibility among learners. In the current study, however, although cooperative classroom activities existed, these were organised and initiated by the teacher rather than chosen by students. As a result, students did not have flexible choices in deciding what type of classroom activities they wanted to participate in.

Theme 2: Traditional Teaching Pedagogy. In contrast to the theme *alignment with the UDL framework elements*, the theme *traditional teaching pedagogy* was generated to group codes that described teachers’ traditional teaching behaviour such as the one-size-fits-all teaching approach. Traditional teaching pedagogy referred to a “teacher-centered method, teaching and learning activities are mainly determined and directed by teachers” (Behmanesh et al., 2020, p. 600). Consistent with traditional teaching participating teachers described practices that prioritised whole-class instruction and limited flexibility in addressing diverse learning needs of all students with and without disabilities.

The most commonly reported code within the traditional teaching pedagogy theme was ‘Differentiated Instruction’. However, their conceptualisation of differentiated instruction was narrow and aligned more closely with traditional teaching pedagogy than with inclusive, student-centred approaches. As T2 explained, “*the setting of questions should be based on the academic levels of different students...for example, it would be enough for a student with*

disabilities to understand the basics of a lesson". In this case, differentiated instruction was interpreted as assigning easier content to students with disabilities rather than providing multiple pathways for all students to engage with the same curriculum accompanied by a range of scaffolding methods. This approach lowered expectations for students with disabilities and reflected a deficit-based understanding of their learning potential, contradicting the UDL framework which emphasises maintaining high expectations and designing flexible supports for all students. A framework that presumes competence for all learners.

When asked how they grouped students in cooperative learning activities, T1 pointed out that the study groups were fixed and predetermined based on students' academic performance, meaning that each study group consisted of both "*students with good academic performance and students who need to improve their academic performance*". This suggests an intention to mix abilities for peer support, yet this grouping was still teacher-directed rather than based on student choice. Although T2 said the study groups in her lessons were constantly changing, the construction of study groups were still based on students' 'academic performance'. T2 added that "*the Chinese learning proficiency in a study group should be coordinated and matched with each other, which especially helps the students to process learning tasks after classes*". This fixed and performance-based grouping approach, which gave students no autonomy in choosing their study groups, resembled a more traditional teacher-directed pedagogy rather than a flexible, student-centred model of cooperative learning.

Theme 3: Miscellaneous. At the end of the post-observation interviews, both T1 and T2 perceived that they had implemented the UDL framework in their previous lessons, although they had not heard of the UDL framework before the research. However, T2 mentioned that:

the UDL framework implementation would be effective for students who are willing to express their perspectives during lessons, however, the UDL framework implementation might be ineffective for the class involving many students with disabilities who are not willing to express themselves.

This view also suggests that teachers tended to equate classroom participation with verbal response, which led to the perception that students who participated less orally, particularly those with disabilities, were less engaged. The interpretation overlooks other ways students may participate, such as written contributions, movement-based responses, and digital interaction, as encouraged in the UDL framework.

Due to the lack of understanding of the UDL framework, T1 and T2 noted many obstacles in implementing the UDL framework, for example, "*students do not know how to make choices*"

(T1), “*students cannot think independently*” (T2), as well as “*students have weak learning foundations*” (T2). Instead of reflecting on their own instructional practices, both teachers tended to attribute the difficulties of implementing UDL to perceived student-related limitations (e.g., weak learning foundations, limited independence in thinking or making choices). This focus on student limitations rather than pedagogy suggests that the teachers positioned the challenges as learner deficits rather than recognising them as “dilemmas for teaching”, where learning difficulties signal the need for instructional adjustment rather than a lack within the student (Florian, 2021, p. 99). Framing the issue in this way shifts responsibility away from instructional design, which may hinder deeper engagement with the UDL framework.

4.6. Transition Section

Chapter 4 has presented the quantitative and qualitative results across the three research phases of the study. Phase 1 established the demographic profile of the survey respondents and revealed preliminary patterns and statistical relationships among teachers’ attitudes, subjective norms, perceived behavioural control, and intentions. Phase 2 provided in-depth qualitative insights into teachers’ beliefs and classroom realities through a thematic analysis of semi-structured interviews. Phase 3 further contextualised these findings by examining teachers’ actual classroom practices and post-observation reflections, highlighting both alignments with and divergences from the UDL framework. Taken together, the results from all three research phases generated an insight into teachers’ intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

Building on these results, the next chapter will integrate the quantitative and qualitative findings to address the research questions more holistically. Chapter 5 will interpret the findings through the lens of the Theory of Planned Behaviour and situate them in the broader literature on inclusive education and UDL implementation. It will also discuss the implications of the study, acknowledge its limitations, and propose recommendations for future research.

Chapter 5

Discussion

5.1. Introduction

In the previous results chapter, inferences about the results from the questionnaires in Phase 1, interviews in Phase 2, observations and post-observation interviews in Phase 3 were drawn according to the research questions. The integrated findings from both phases will be discussed in this chapter. The discussion will relate the findings of the study to the Theory of Planned Behaviour and previous research. The chapter concludes with a consideration of the limitations and implications of the study and recommendations for future research.

5.2. Interpretation of Integrated Results

In this research project, each research phase contributed differently to addressing the seven research questions and to the overall interpretation of teachers' intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour. Research Questions 1 to 4.2 were answered solely through the Phase 1 quantitative findings. Research Question 5, Research Question 6 and Research Question 7 required integrating results across multiple research phases. This section explains and summarises the three intergration stages in addressing these questions.

To clarify how each data source contributed to answering the seven research questions, Table 5.1 provides an overview of the three research phases and the subsequent integration stages. As shown in Table 5.1, the integrated results were developed in three different stages: 1) After Phase 2, Phase 1 descriptive analysis of the first four 7-point Likert scales (i.e., the modified TAIS, the modified PSSIE, the self-designed TEIUF and the self-designed TIIUF), which measured the level of attitudes, subjective norms, perceived behavioural control and intentions, was integrated with Phase 2 thematic analysis results of interviews to address Research Question 5 on overall teacher intentions to implement inclusive practices through the lens of the UDL framework; 2) After Phase 3, the findings on overall teacher intentions (i.e., Research Question 5), the descriptive analysis of the actual teaching behaviour scale (i.e., the self-designed TATB) in Phase 1, and the thematic analysis results of interview data on inclusive pedagogies in Phase 2 were integrated with the Phase 3 descriptive analysis of classroom observations and the thematic analysis of post-observation interviews to address Research Question 6 concerning actual teaching behaviour; 3) At the final stage of the study, the results across the three research phases for Research Question 5 and Research Question 6 were

integrated to address Research Question 7, which explored the consistency between intentions and behaviour.

Table 5.1

An Overview of Research Phases, Methods, Integration Stages and Contributions to the Research Questions

Research Phase	Method(s)	Contribution to Research Question (s)
Phase 1	Structured online questionnaires – descriptive analysis & inferential analysis	<p>Research Question 1 – Predictors of intentions</p> <p>Research Question 2 – Moderation by demographic variables</p> <p>Research Question 3 – Direct prediction of actual teaching behaviour</p> <p>Research Question 4.1 & Research Question 4.2 – Indirect prediction of actual teaching behaviour</p> <p>Research Question 5 – Quantitative measure of overall intentions</p> <p>Research Question 6 – Quantitative measure of self-reported actual teaching behaviour</p>
Phase 2	Semi-structured online interviews – thematic analysis	<p>Research Question 5 – Qualitative insights into overall intentions</p> <p>Research Question 6 – Qualitative measure of self-reported actual teaching behaviour</p>
Phase 3	Semi-structured non-participant observations – descriptive analysis & Post-observation unstructured face-to-face interviews – thematic analysis	<p>Research Question 6 – Observed and self-reported actual teaching behaviour</p>

Integration Stage 1: Phase 1 & Phase 2	Research Question 5 – Overall teacher intentions to implement inclusive practices through the lens of the UDL framework
Integration Stage 2: Phase 1 & Phase 2 & Phase 3	Research Question 6 – Actual teaching behaviour
Integration Stage 3: Research Question 5 (overall intentions) & Research Question 6 (actual teaching behaviour) across all research phases	Research Question 7 – Consistency between teachers’ actual teaching behaviour and their overall intentions

Notes. Colour is used for clarity: green text denotes contributions to Research Questions 1 to 4.2, blue text denotes contributions to Research Question 5, purple text denotes contributions to Research Question 6, and red text denotes contributions to Research Question 7.

5.2.1. Phase 1 & Phase 2 Integrated Results: Addressing Research Question 5

Predictors of Intentions – Reviewing Research Question 1. According to the Theory of Planned Behaviour (Ajzen, 2020), intentions are determined by attitudes, subjective norms and perceived behavioural control. Following Research Question 1 in the current study, Pearson product-moment correlation coefficients and hierarchical regression were conducted in Phase 1 to establish which of the core components within the Theory of Planned Behaviour significantly predicted Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework. The results showed that there were positive correlations between intentions and the three core components, although only the subjective norms and perceived behavioural control in the Theory of Planned Behaviour were statistically significant predictors of intentions. The finding was consistent with a study by Emmers et al. (2023), who reported that subjective norms and perceived behavioural control were antecedents of intentions, but attitudes were not. In contrast, Bodhi et al. (2022) recognised a positive and significant relationship between teacher attitudes and their intentions to incorporate inclusive education, the relationships between teacher concerns and intentions, between teachers’ self-efficacy and intentions were denied in path analysis.

The current study Phase 1 finding is slightly different from the results of Urton et al. (2023) who conducted a quantitative survey using all three constructs (i.e., attitudes, subjective norms and perceived behavioural control) of the Theory of Planned Behaviour to predict intentions of 585 primary school teachers towards implement inclusive practices in Germany.

They applied multilevel multivariate regression models and found that teacher attitudes, teacher efficacy and perceived school support positively and significantly predicted teacher intentions to implement inclusive practices (Urton et al., 2023). Other quantitative studies by Malak et al. (2018) and Opoku et al. (2020) found that only attitudes and perceived behavioural control combined to significantly predict intentions. There was no relationship between subjective norms and intentions (Malak et al., 2018; Opoku et al., 2020).

The mixed pattern across previous studies suggest that the predictive strength of attitudes, subjective norms and perceived behavioural control may vary across different educational contexts, teacher populations and conceptualisations of inclusive education or inclusive practices. In the present study, the stronger role of subjective norms and perceived behavioural control within the Chinese secondary school context suggests that teachers' intentions to implement inclusive practices may be shaped more strongly by perceived supports and self-efficacy than by attitudes alone.

Regardless of the answer to Research Question 1, in order to examine the *overall intentions* of Chinese secondary school teachers to implement inclusive practices through the lens of the UDL framework in Research Question 5, attitudes, subjective norms and perceived behavioural control were considered respectively, as theorised in the Theory of Planned Behaviour. The descriptive analysis results in Phase 1 and the thematic analysis results in Phase 2 were integrated in the following sections.

Intentions. Based on Phase 1's descriptive analysis results reported using the self-designed TIIUF, the 209 secondary school teachers who completed the questionnaire in China had generally positive intentions to implement inclusive practices as conceptualised through the lens of the UDL framework in regular classrooms. All of the overall and individual mean scores of the intention scale were around 5 or higher on the 7-point Likert scales, suggesting that Chinese secondary teachers had generally positive intentions to implement inclusive practices through the lens of the UDL framework. The Phase 2 interview findings provided additional qualitative insights into these survey results. Among the eight interview participants, none had heard of the UDL framework prior to participating in the study. However, after being briefly introduced to the framework during the interview process, they expressed strong enthusiasm for integrating it into their future lessons and were eager to acquire more knowledge and skills related to the UDL framework implementation. At the end of the interviews, many teachers decided to explore literature related to the UDL framework, and one teacher even

started to brainstorm hypothetically how they could design an assignment to provide “*flexible choices*” tailored to meet diverse student needs (T6).

The positive teacher intentions regarding the UDL framework implementation align with previous literature. Scott (2018) used focus groups, observations, and interviews to explore the attitudes and beliefs of nine special education teachers, located in the southeast part of the United States, concerning challenges with implementing the UDL framework to satisfy the needs of students with and without disabilities. These special education teachers expressed a passion for implementing the UDL framework as they recognised it as a means of offering students with disabilities access to the general curriculum (Scott, 2018). In another exploratory study by Evmenova (2018), a total of 70 in-service general and special education teachers learned about the UDL framework implementation in an online course and completed an end-of-the-year survey. Evmenova (2018) affirmed the value of implementing the UDL framework for all students, indicating that all the participants identified the UDL framework as a way to support diverse student learning, and prepared for the UDL framework implementation and refinement in their future lessons. The alignment with previous studies may indicate that teachers are generally receptive to the idea of such inclusive pedagogical frameworks when they are presented as beneficial for diverse learners.

However, the qualitative data in Phase 2 interviews also revealed some tensions underlying teachers’ reported intentions. While the Phase 1 quantitative findings suggested generally positive intentions to implement inclusive practices through the lens of the UDL framework, the Phase 2 interviews indicated that teachers held more ambivalent views. Despite the positive teacher intentions expressed in Phase 2 interviews, there were some concerns presented in interpreting their intentions towards including students with disabilities in their classrooms. Most interviewees responded that they were willing to include students with disabilities in their regular classrooms. Some teachers reported difficulties in allowing students with severe disabilities in regular classrooms, increased workload for teachers, and unacceptable attitudes towards students with disabilities from parents of students without disabilities, who suggested that students with disabilities should be educated in special schools.

The Phase 2 results are in line with previous qualitative research by L. Wang et al. (2015) and quantitative research by Chow (2023). While most participating teachers in the study by L. Wang et al. (2015) reported strong intentions to educate students at-risk of being excluded or marginalised (e.g., students with disabilities) in their classes, one teacher felt that special

schools were more appropriate for them as they perceived they had a lack of knowledge and skills to provide inclusive practices.

Another study by Chow (2023) stated that 1,110 in-service primary and secondary teachers' overall intentions to implement inclusive practices were moderate in Hong Kong, and that these intentions positively correlated with teacher attitudes, perceived support needs in expert guidance and teacher self-efficacy. Although teachers were somewhat likely to implement inclusive practices for students with disabilities, a substantial proportion reported hesitation due to perceived lack of training, insufficient support and concerns about whether they had adequate capacity to meet diverse learning needs. Approximately one-third of the teachers had either not yet decided or were unwilling to implement practices that were inclusive of all learners (Chow, 2023). These similarities suggest that teachers' intentions to include students with disabilities in regular classrooms are closely associated with their perceived professional competence and the level of support available to them. The findings of the present study further indicate that even when teachers express generally positive intentions, uncertainties about professional knowledge and available support may still lead to hesitation in translating these intentions into actual teaching practices.

Attitudes. Teachers presented positive attitudes towards inclusive education or inclusive practices, which was supported by the high levels of overall and individual mean scores of the modified TAIS in Phase 1 descriptive analysis results. The results align with many previous studies on positive teacher attitudes in the field of inclusive education (e.g., Emmers et al., 2023; Kupers et al., 2024; Uusimaki et al., 2020). For instance, Costello and Boyle (2013) applied the original TAIS to assess 193 pre-service secondary teacher attitudes towards inclusive education in Australia. They found that these teachers were positive in their attitudes towards inclusive education (Costello & Boyle, 2013). Adopting the Theory of Planned Behaviour, Emmers et al. (2023) conducted a quantitative study evaluating teacher attitudes regarding persons with disabilities by involving 77 pre-service teachers and special educators in completing the Attitude Towards Disabled Persons O-Version Scale (ATDP-O) designed by Yuker and Block (1986). The attitudes were above the centre of the ATDP-O, indicating weak to moderately positive attitudes towards persons with disabilities (Emmers et al., 2023). The consistency between the present findings and previous studies may reflect the increasing emphasis placed on inclusive education within teacher education programmes and educational policy contexts.

However, compared with the generally positive Phase 1 quantitative results, Phase 2 qualitative results also revealed a more nuanced perspective. While teachers generally viewed inclusive education as promoting respect for and accommodation of diverse student needs, they raised some concerns regarding the education of students with disabilities in regular classrooms. During Phase 2 interviews, a common perspective was that decisions about inclusive education should depend on the severity of a student's disability. This viewpoint was supported by the findings of Völlinger and Supanc (2020), who found that the more severe the impact of a student's disability, the less positive the teacher's attitude towards inclusive education will be. Binmahfooz (2019) interviewed seven pre-service special teachers in Saudi Arabia and reported that teachers were concerned about teaching students with disabilities in regular classrooms and considered the severity of the disabilities would impede teachers from addressing their needs. The alignment between these findings and the present study suggests that teachers may perceive that the learning of students with disabilities requires specialised knowledge, intensive support or significant instructional adjustments. When teachers feel that they do not possess the necessary knowledge, resources or support to address diverse needs of students with disabilities effectively, their confidence in implementing inclusive practices may decrease, which may consequently contribute to less positive attitudes towards inclusive education.

The result regarding the influence of disability severity on teacher attitudes was inconsistent with the model of full inclusion, which indicates that the result diverges from the global trend of involving all students with disabilities within regular classrooms throughout the entire school day, regardless of the severity or type of their disability (UNESCO, 2020). In this context, teachers perceived the challenges encountered by students with disabilities as inherent to the students themselves. They expressed uncertainty about their own capacity to implement inclusive practices that would create a supportive learning environment within regular classrooms.

Beyond these severity-based teacher attitudes towards inclusive education, the Phase 2 interviews also identified evidence of a charity-based perspective of inclusive education. Several teachers characterised inclusive education as a means to help students with disabilities grow, rehabilitate, or become better accepted by their peers, and also as an opportunity for students without disabilities to develop tolerance or empathy. Although these attitudes towards students with disabilities appear positive, they reflect a benevolent framing of inclusive education. Such a perspective positions students with disabilities as beneficiaries of goodwill rather than as individuals with an equal right to participate fully and meaningfully in inclusive

learning environments (CRPD, 2016). This aligns with Liyanage's (2017) critique that the charity-based perspective risks shifting responsibility onto students with disabilities to adapt to existing classroom practices, rather than emphasising the obligation of the education system to remove barriers and ensure equitable participation.

In addition to these charity-based understandings, the Phase 2 findings also indicated an equality-based interpretation of inclusive education. Most teachers perceived inclusive education primarily as placing students with and without disabilities in the same regular classrooms, and many emphasised the importance of treating all students "equally" (T4). This view reflects an orientation towards educational 'equality', that is, placing students together and treating them the same, rather than with 'equity', which requires providing appropriate supports to ensure meaningful participation (CRPD, 2016). This equality-based interpretation of inclusive education contributed to divergent views on the extent to which students with disabilities should be involved in inclusive settings. Such ambiguity aligns with the broader Chinese policy context, in which the LRC program primarily emphasises the physical placement of students with disabilities in regular schools rather than guaranteeing individualised support or full participation. The LRC program differs from Western notions of full inclusion, which prioritise both placement and comprehensive pedagogical support (Fu et al., 2019).

One interviewee in the present study also emphasised that inclusive education should move beyond mere physical presence, requiring teachers to genuinely accept and understand students with disabilities and develop tailored inclusive practices that cater to diverse student needs. This view echoes critiques of the LRC program, which point out that its emphasis on physical placement of students with disabilities has not been accompanied by sufficient pedagogical support or teacher preparation to ensure students' meaningful academic and social participation (Qu, 2022a). Galaterou and Antoniou (2017) also suggested that students with disabilities should be given opportunities to become actively involved in regular classroom activities.

Taken together, Phase 2 interviews suggested that teachers held generally positive attitudes towards inclusive education, often emphasising respect for diversity, fairness and student development, which was consistent with the positive attitudinal patterns identified in the Phase 1 descriptive analysis. However, these positive attitudes were accompanied by several misconceptions and conditional interpretations that limited their understanding of full inclusion. These understandings were often grounded in views that centred primarily on the placement of students with disabilities in regular classrooms, rather than on pedagogical

approaches required to ensure meaningful participation. This stands in contrast to the orientation required for implementing inclusive practices through the lens of the UDL framework, which shifts the focus from placement alone to proactive instructional design that anticipates and responds to learner variability (Craig et al., 2022a; Rao & Meo, 2016).

Regarding teacher attitudes towards implementing inclusive practices through the lens of the UDL framework, Phase 1 quantitative results suggested generally positive attitudes among teachers. However, Phase 2 interviews revealed some inconsistencies between teachers expressed attitudes and their understanding of the UDL framework. While most teachers began to identify the UDL framework as a viable pathway for developing inclusive education despite not being familiar with it beforehand, some teachers appeared to conflate differentiated instruction with UDL when expressing their attitudes towards implementing inclusive practices. This indicates that although teachers expressed positive attitudes towards inclusive practices, their conceptual understanding of the UDL framework remained limited. Findings from prior research reflected similar patterns. Ma (2024) reported that primary teachers in New Zealand generally perceived UDL positively as a useful framework, yet their attitudes were constrained by limited knowledge of the framework and uncertainty about how it could be enacted in everyday lessons. Teachers expressed willingness to apply the UDL framework but also indicated that a lack of concrete classroom examples and insufficient preparation reduced their confidence in applying it (Ma, 2024). Dacus-Hare (2023) found that teachers often endorsed the value of UDL conceptually, but their attitudes towards implementing it were closely tied to their perceived barriers, including lack of training, limited institutional support, and concerns about time and workload. These studies suggested that while teachers tend to hold favourable attitudes towards UDL-informed inclusive practices, such attitudes are heavily shaped by their familiarity with the framework and their sense of preparedness to use it effectively. In this regard, the Phase 2 findings of the present study aligned with prior Phase 1 descriptive analysis results, showing generally positive orientations towards UDL but accompanied by limited conceptual clarity and insufficient prior exposure.

Subjective Norms. Phase 1 descriptive analysis results showed that teachers generally perceived a high level of support from principals, colleagues and parents of students with and without disabilities in implementing inclusive practices through the lens of the UDL framework. Consistent with the principles of the UDL framework, the overall and individual mean scores across the modified PSSIE revealed that teachers felt supported in providing alternative ways

of representing learning concepts, providing students with a variety of ways to demonstrate their learning and maximising engagement of students in different classroom activities.

The positive results in Phase 1 regarding subjective norms were confirmed by other quantitative studies, although the definitions of subjective norms varied (e.g., Hellmich et al., 2019; Kupers et al., 2024; MacFarlane & Woolfson, 2013). For example, Hellmich et al. (2019) defined subjective norms as teachers' perceptions of significant others' expectations concerning the organisation of inclusive education, which were operationalised by teachers' perceptions of their school support or school principals' support. The descriptive results by Hellmich et al. (2019) indicated that teachers perceived the expectations of their school management to be well above average. Another study by MacFarlane and Woolfson (2013) measured teachers' views about how their school principal would react to their inclusive behaviours and reported high levels of subjective norms as well. The consistency between these findings and the present study reflects the increasing institutional emphasis on inclusive education within school systems.

However, Phase 2 thematic analysis results yielded some contradictory results compared to Phase 1 positive results. Phase 2 interview results painted a different picture regarding the nature of received supports. Teachers commonly referred to tuition waivers, stipends, fundraising activities and logistical help offered to students with disabilities, interpreting these initiatives as signs that the school cared about learners. While teachers viewed such practices positively, this orientation reflected a charity-based perspective of support, emphasising relief and benevolence rather than the right of students with disabilities to meaningful participation (Liyanage, 2017). Teachers also described accessible elevators, wheelchairs, adjustable furniture and dedicated accommodation as important facilitators of inclusive education, reinforcing their perception that the school encouraged the participation of students with disabilities and strengthening their subjective norms. However, these forms of support were primarily structural or material, with little reference to pedagogical or instructional support aligned with inclusive teaching practices.

Despite these perceptions, the Phase 2 interviews also highlighted a notable gap in school-level support. One teacher reported that schools rarely conducted systematic assessments of students' disability-related needs prior to enrolment, leaving teachers responsible for identifying conditions and learning requirements during lessons without institutional guidance. The absence of a formal school-led process to determine student needs constituted a structural barrier, limiting teachers' ability to plan proactively for inclusive practice (Qu, 2022b). This suggests that, alongside charitable and material forms of support,

teachers also perceived significant institutional shortcomings that constrained their capacity to implement inclusive practices effectively.

In addition to perceived school support, teachers in Phase 2 reported their perceived support from colleagues, parents and schools in areas such as providing teaching suggestions, sharing instructional resources, addressing classroom participation issues and monitoring students' learning progress. Teachers acknowledged that these supports were helpful for setting learning goals, increasing classroom participation and assessing student learning. However, despite their practical value, these forms of support primarily assisted teachers in maintaining existing day-to-day teaching practices. They did not substantially guide teachers towards adopting inclusive pedagogical approaches, such as those represented by the UDL framework, that require proactively addressing learner variability and designing instruction to support all students with and without disabilities (Rao, 2021). As highlighted by Meier et al. (2020), such support often reinforces traditional, one-size-fits-all pedagogies, thereby offering limited contribution to the development of genuinely inclusive practices.

The Salamanca Declaration highlighted the importance of supporting teachers to ensure the inclusion of students with disabilities in regular classrooms (UNESCO, 2005). Teachers require appropriate support in the areas of professional learning and guidance, teaching resources and materials, curricula and assessments to implement inclusive practices (Chow, 2023; Chow & Sharma, 2022). Teachers' willingness to engage in inclusive education increases when appropriate resources and support are available (Chow & Sharma, 2022).

Despite the limitations in the nature of these supports, both Phase 1 and Phase 2 results showed that colleagues' supports were particularly highly valued by teachers. In Phase 1, three items (i.e., Items 5, 6 and 7) measuring teachers' perceptions of colleagues' support received high ratings. In Phase 2, thematic analysis results showed that the close proximity, shared experience and ongoing interaction with colleagues fostered a collaborative atmosphere where teachers could readily exchange teaching strategies and seek guidance. This emphasis on colleagues differs from previous literature, where subjective norms typically reflect expectations from authority figures such as school principals (e.g., Hellmich et al., 2019; Kuyini & Desai, 2007; MacFarlane & Woolfson, 2013). In the present study, however, principals were rarely described as providing instructional or inclusion-related support.

It is essential for relevant education stakeholders to collaborate more closely in creating an inclusive learning environment (Kefallinou et al., 2020). This includes fostering strong partnerships between principals, colleagues and families to ensure that teachers receive the resources and training needed to effectively adopt inclusive practices. Ongoing dialogue and

shared responsibility among these stakeholders are key to building a sustainable culture of inclusive education that empowers teachers and benefits all students with and without disabilities.

In summary, the findings across both Phase 1 and Phase 2 suggested that teachers generally perceived strong subjective norms in support of inclusive practices; however, the nature and implications of these perceived supports differed. Phase 1 indicated high levels of support from significant others. Yet, Phase 2 provided a more nuanced understanding, showing that much of the support teachers experienced was practical, material or charity-oriented rather than pedagogical, and therefore insufficient for guiding teachers towards inclusive pedagogical frameworks such as the UDL framework. While colleagues emerged as the most influential and valued source of ongoing support due to their accessibility and shared teaching contexts, school-level support remained limited by the absence of systematic needs-assessment procedures and a lack of guidance on inclusive practices.

Perceived Behavioural Control. The quantitative results in Phase 1 indicated high overall and individual mean scores of the self-designed TEIUF, reflecting a high level of teachers' confidence in implementing inclusive practices through the lens of the UDL framework. Phase 2 qualitative results supported the perceived behavioural control findings in Phase 1 by indicating that most interviewees reported being highly confident or proficient in designing various classroom activities, presenting learning materials in different formats and assessing students' learning in different ways.

The high level of self-reported perceived behavioural control was confirmed in previous quantitative studies (e.g., Scanlon et al., 2022; Wilson et al., 2016; Z. Yan & Sin, 2014). Scanlon et al. (2022) measured perceived behavioural control through 922 kindergarten teachers' self-efficacy in implementing inclusive practices in Bulgaria. Similarly, Wilson et al. (2016) examined perceived behavioural control using teachers' inclusive self-efficacy and controllability, while Z. Yan and Sin (2014) inferred perceived behavioural control from teachers' views on the adequacy of professional training for the principal, teacher, teaching assistant, school administrative staff, and professional team members (e.g. social worker and counsellor) involved in inclusive practices. When teachers believe that they possess sufficient pedagogical knowledge, instructional flexibility and access to professional support, they may feel more capable of adapting teaching practices to accommodate diverse learning needs.

However, it should be noted that the high level of self-reported perceived behavioural control identified in Phase 1 quantitative findings was not fully reflected in teachers' conceptual understanding of inclusive practices expressed in Phase 2 interviews. While Phase 2 responses also suggested that teachers felt confident in implementing inclusive practices through the lens of the UDL framework, the interview data indicated that their teaching approaches reflected a narrow conceptualisation of differentiated instruction. These practices were more consistent with traditional teaching pedagogy than with an inclusive, student-centred design. The teaching practices adopted by teachers lacked flexibility in providing students with choices for classroom activities, content representation and assessments. Differentiated instruction is characterised by teachers tailoring teaching strategies to accommodate the learning needs of individual students based on their readiness, skill level, learning pace or preferences (Heacox, 2017; Tomlinson, 2014). For instance, one interviewee assigned different assessments to students based on their weaknesses rather than allowing them to choose how to demonstrate their learning. This means that the teacher decided on the learning paths for the students, thus customising learning based on their perceived abilities. It limits students' autonomy and choices in learning, which is a core tenet of the UDL framework (Ralabate, 2016).

The UDL framework was developed to address learner variability by providing multiple means of engagement, representation, action and expression, allowing students to choose how they access information, engage with learning activities and demonstrate their understanding (Capp, 2020). It seeks to remove learning barriers by focusing on flexible approaches, making the learning process more personalised and self-directed (CAST, 2018). According to Phase 2 interviews, there was no evidence that students were allowed to make such choices. For example, interviewees stated that they would try to assess students in different ways in the future rather than being limited to writing assignments, but did not mention providing students with the freedom to decide on assessment formats, or design formats. This reflects a departure from the UDL framework, as the teacher retained control over the assessment options and did not provide students with opportunities to make independent choices about how they wanted to demonstrate their learning. Despite teachers expressing confidence in adapting such instruction, their perceived behavioural control was rooted in a narrow, deficit-based form of differentiated instruction rather than in UDL-aligned, learner-driven practice.

Despite this general confidence, considerable variation was evident in teachers' perceived capacities to meet diverse student needs. Several interviewees stated they were capable of supporting diverse learners, yet their responses were largely general and lacked

concrete instructional examples. This is consistent with Westwood (2018), who noted that teachers often assume their existing instructional skills are adequate for addressing learner diversity, despite lacking the specialised knowledge required to implement inclusive practices effectively. Other teachers in the current study Phase 2 interviews explicitly acknowledged limitations in their professional knowledge, attributing these constraints to insufficient lesson planning, limited training or a lack of attention to certain lessons within their schools. M. Chu et al. (2020) emphasised that inadequate professional preparation remains a significant barrier to teachers' confidence in meeting diverse student needs.

A further concern related to collaboration with parents of students with disabilities. Although the majority of interviewees had prior experience teaching students with disabilities, most reported limited preparation for engaging with their parents in a meaningful and informed manner, noting gaps in knowledge about students' conditions and a lack of experience in tailoring home-school communication to individual needs. This reflects previous findings that teachers often feel underprepared for consistent collaboration with families of students with disabilities due to limited training and insufficient guidance on communication strategies (Accardo et al., 2020; Zagona et al., 2017). A smaller number of teachers reported greater confidence, describing regular communication with parents and examples of successful collaboration that contributed to students' academic or behavioural progress, consistent with research demonstrating that effective teacher-parent partnerships can enhance student outcomes when communication is sustained and timely (Bakir & Elmali, 2025; Situmeang & Suparno, 2025).

Teachers' accounts of addressing disruptive behaviour also revealed important limitations in perceived behavioural control. In Phase 2 interviews, while most reported being able to manage disruptive behaviour effectively during lessons, the strategies described were largely reactive, implemented in response to issues as they arose. None of the teachers referred to proactive, planned behavioural supports embedded within lesson design (Little, 2023). This reliance on reactive management indicates that behaviour support was not conceptualised as part of instructional planning.

Overall, the findings across both Phase 1 and Phase 2 indicated that teachers reported a high level of perceived behavioural control in implementing inclusive practices, yet this confidence was not informed by the principles of the UDL framework. Phase 1 quantitative results suggested a high level of self-efficacy and Phase 2 interviews initially reinforced this perception. However, closer examination of Phase 2 results revealed that teachers' confidence was predominantly grounded in traditional, teacher-directed approaches and a narrow, deficit-

based perspective of differentiated instruction, rather than in flexible, learner-driven design that supports student choice and autonomy. It did not illustrate how teachers were being responsive to the strengths and needs of learners. In addition, teachers' perceived behavioural control varied considerably, with many expressing only general confidence in supporting the full diversity of learners and others acknowledging limited professional preparation, insufficient training and gaps in lesson planning. Teachers also reported uncertainty regarding collaboration with parents of students with disabilities and relied largely on reactive approaches to managing classroom behaviour, rather than proactively embedding behavioural supports into lesson design. Collectively, these findings suggest that while teachers felt confident in their day-to-day instructional capacities, their perceived behavioural control did not extend to the specialised skills required to implement inclusive, UDL-aligned pedagogies that proactively address learner variability inclusive of students with disabilities.

Overall Teacher Intentions in Research Question 5. The integrated findings from Phase 1 and Phase 2 indicate that Chinese secondary school teachers held generally positive intentions to implement inclusive practices through the lens of the UDL framework. Phase 1 quantitative results showed high intention ratings on the modified TAIS, the modified PSSIE, the self-designed TEIUF and the self-designed TIIUF, suggesting a strong willingness to adopt inclusive practices through the lens of the UDL framework. Phase 2 interview data supported this pattern, for example, teachers expressed enthusiasm for learning about the UDL framework and interest in applying its principles in future lessons. However, these positive intentions were shaped by several constraints identified in the integrated analysis of attitudes, subjective norms and perceived behavioural control. Teachers' understandings of inclusive education were often influenced by severity of disability, charity-based or equality-oriented perspectives; perceived support was primarily material or practical rather than pedagogical; and their confidence in implementing inclusive practices was grounded in traditional, teacher-directed approaches rather than UDL-consistent instructional design. Therefore, although the overall teacher intentions were broadly positive, they were not yet accompanied by the conceptual clarity, pedagogical preparation or institutional support required for sustained implementation of UDL-aligned inclusive practices.

5.2.2. Integrated Results of Three Phases: Addressing Research Questions 6 & 7

Predictors of Actual Teaching Behaviour: Reviewing Research Question 3 & 4.1 & 4.2. Within the Theory of Planned Behaviour, intentions together with perceived behavioural

control can predict actual behaviour (Ajzen, 1991). In Phase 1 of the current study, multiple regression was conducted to address Research Question 3, and it was reported that both intentions and perceived behavioural control were positive and statistically significant predictors of actual teaching behaviour, with intentions identified as the strongest predictor. The direct predictive path was consistent with the studies by L. Yang et al. (2024) and Z. Yan and Sin (2014) who reported that strong teacher intentions and perceived behavioural control could predict inclusive practices. L. Yang et al. (2024) conducted a cross-sectional survey with 498 primary school teachers in Hong Kong, and they found that teachers' intentions to implement inclusive education and teachers' perceived control to influence inclusive education outcomes can predict teachers' actual behaviour. The consistency between these findings and the current study illustrates that teachers who express stronger intentions to implement inclusive practices are more likely to translate these intentions into real classroom actions, particularly when they believe that they possess the necessary knowledge, resources and instructional flexibility to do so.

Despite that, the indirect predictive paths were confirmed in Research Question 4.1 and Research Question 4.2 of the current study. Based upon Phase 1 results, the significant effect of attitudes, subjective norms and perceived behavioural control on actual teaching behaviour through intentions, as well as the significant effect of attitudes and subjective norms on actual teaching behaviour through both intentions and perceived behavioural control were evidenced in mediation analysis. While researchers investigated the indirect predictive paths (e.g., Emmers et al., 2023; Hellmich et al., 2019; L. Yang et al., 2024; MacFarlane & Woolfson, 2013; Wilson et al., 2022; Z. Yan & Sin, 2014), only L. Yang et al. (2024) and Z. Yan and Sin (2014) reported that attitudes, subjective norms and perceived behavioural control had an indirect effect on behaviour, mediated via intentions. Wilson et al. (2022) also claimed in a mediation analysis that teachers' explicit attitudes predicted their reported inclusive behaviour, but this relationship was found to be partially mediated by perceived behavioural control rather than intentions.

Actual Teaching Behaviour. Since the direct and indirect predictive paths were evidenced in Phase 1 of the current study, the overall teacher intentions in Research Question 5, together with the descriptive analysis results of the actual teaching behaviour scale (i.e., the self-designed TATB) in Phase 1, the thematic analysis results of interview data on inclusive pedagogies in Phase 2, as well as the results of classroom observations and post-observation interviews in Phase 3, were considered to demonstrate actual teaching behaviour in Research

Question 6. In Phase 1, descriptive analysis results suggested that teachers demonstrated proactive engagement in behaviours aligned with the UDL principles, which is indicated by the high overall and individual mean scores of the self-designed TATB. This is consistent with the generally positive outcome of overall teacher intentions in Research Question 5, which in turn reflects the generally positive actual teaching behaviour.

The positive results of actual teaching behaviour within the Theory of Planned Behaviour were congruent with the perspectives of several researchers, who contended that teachers proactively engaged in inclusive practices (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Wilson et al., 2016). For instance, Z. Yan and Sin (2014) examined primary and secondary school teachers' behaviour towards inclusive education through a self-designed Behaviour Scale of five items and concluded a high level of practice in inclusive education. Hellmich et al. (2019) measured the self-reported everyday practices of primary school teachers in heterogeneous classrooms based on a five-item scale as well and reported that their everyday practices in heterogeneous classrooms were highly pronounced. The alignment between these prior studies and the current findings also demonstrates the growing emphasis on inclusive education within contemporary educational systems, where teachers are increasingly expected to accommodate diverse students within regular classrooms.

In reviewing the thematic analysis results of interview data on inclusive pedagogies in Phase 2, teachers demonstrated several practices that aligned with certain elements of the UDL framework when setting learning goals, designing classroom activities, assessing student learning and varying instructional materials. For example, teachers described providing scaffolds to support information processing, which corresponds to UDL Checkpoint 3.3 "Guide information processing and visualisation", and offering positive oral feedback to reinforce students' effort and improvement, which corresponds to UDL Checkpoint 8.4 "Increase mastery-oriented feedback" (CAST, 2018). These practices suggest an emerging awareness of pedagogical strategies that resonate with particular UDL checkpoints.

However, the Phase 2 qualitative data also revealed that some of the teaching practices described by teachers were not fully aligned with the UDL framework, despite the generally positive perceptions of inclusive practices reported in Phase 1 quantitative findings. For example, in setting learning goals, teachers tended either to strictly follow the national curriculum standards or to adopt a deficit-based interpretation of differentiated instruction, assigning simplified goals to students with disabilities instead of creating multiple pathways for all learners to achieve flexible learning goals. These tendencies should be understood within

the broader Chinese educational context, where national curriculum standards function as a centralised and authoritative guide for lesson planning, leaving limited scope for teachers to flexibly reinterpret learning objectives (Y. Wang, 2021). Moreover, the long-standing emphasis on academic performance and examination-driven accountability reinforces a stratified view of learner ability, making teachers more likely to lower expectations for students with disabilities rather than redesign their instructions to support diverse pathways towards the same learning goals (M. Deng & Zhu, 2016; Wu & Priestman, 2018).

Similar inconsistencies were evident in various instructional materials. Although teachers reported using diverse formats such as videos, PowerPoints, images, worksheets and physical objects, these materials were typically introduced sequentially rather than offered simultaneously as parallel pathways for accessing information. This teacher-directed selection of formats was not consistent with the choice-based UDL framework principle of providing multiple means of representation, which emphasises giving learners concurrent options aligned with their individual needs (Meyer et al., 2024).

In addition, teachers frequently attributed barriers to student-related factors, such as disruptive behaviour or lack of motivation, while seldom identifying barriers embedded in their own instructional design. This stands in contrast to the UDL framework's emphasis on locating and removing instructional and environmental barriers to support learner variability (Meier & Rossi, 2020). Taken together, the thematic analysis results of interview data on inclusive pedagogies suggested that despite an initial awareness of inclusive practices through the lens of the UDL framework, teachers' enactment remained primarily teacher-centred, constrained by curriculum requirements, narrow interpretations of differentiation and limited recognition of their own role in shaping learning barriers.

Phase 3 classroom observations and post-observation interview findings further revealed inconsistencies between teachers' reported actual teaching behaviour in earlier research phases, indicating limited depth in the UDL framework implementation, with traditional teaching pedagogy remaining predominant. To quantify the level of UDL alignment in Phase 3, the overall mean score of the classroom observations indicated a Pre-Emergent level of the UDL framework implementation, signifying that while certain UDL elements were present, a comprehensive application of the UDL framework was not evident (Basham et al., 2020). However, some teaching practices aligned with certain UDL elements. For example, teachers offered alternatives for visual information and promoted cooperative group learning during the observed lessons. These appeared to be incidental rather than a deliberate application of the UDL framework, and were not sufficiently flexible or comprehensive. The results were similar

to a study by Uusimaki et al. (2020), who designed a quantitative scale for 99 Swedish final year early childhood pre-service teachers to measure their use of inclusive practices. Although Uusimaki et al. (2020) reported that participating teachers rated themselves as using inclusive practices relatively frequently using the Inclusive Practices Scale developed by their research team, they also noted that there remained considerable room for growth before these teachers could be considered expert implementers of inclusive practices.

After the classroom observations, the post-observation interviews in Phase 3 provided further insights into teachers' actual teaching behaviour, revealing inconsistencies and limited depth in their implementation of the UDL framework. Although several teachers explained their previous practices in the post-observation interviews, such as offering varied levels of complexity for students to demonstrate their understanding and to promote cooperative learning, which appeared to align with relevant UDL checkpoints. The interview data nevertheless indicated that traditional teaching pedagogy remained the dominant approach. Teachers frequently described one-size-fits-all, teacher-centred methods with limited flexibility in addressing learner variability. The approach most commonly mentioned was a deficit-based perspective of differentiated instruction that aligned more closely with traditional pedagogy than with inclusive, student-centred practice. For examples, teachers tended to equate differentiated instruction with assigning simpler tasks to students with disabilities rather than providing multiple pathways for all learners to engage with the same curriculum (Loreman, 2017). Such interpretations lowered expectations for students with disabilities and reflected a deficit-based understanding of their learning potential, which contradicts the UDL framework's emphasis on maintaining high expectations and designing flexible supports for diverse learners (Meyer et al., 2024).

Actual Teaching Behaviour in Research Question 6. The integrated findings across all three phases showed that although teachers reported high levels of actual teaching behaviour aligned with inclusive practices, their enactment as seen through the UDL framework remained limited in depth, intentionality and consistency. Phase 1 descriptive analysis results suggested strong self-reported engagement in UDL-aligned teaching behaviour, which corresponded with teachers' overall positive intentions specified in Research Question 5. However, Phase 2 interview data revealed that actual teaching behaviour reflected merely partial alignment to the UDL framework. While teachers reported that they incorporated elements such as scaffolding, cooperative group learning and mastery-oriented feedback, these practices were typically implemented in teacher-directed ways and shaped by rigid curriculum requirements, narrow

and deficit-based interpretations of differentiated instruction, and limited recognition of instructional barriers.

Similarly, Phase 3 classroom observations confirmed that UDL implementation remained at a Pre-Emergent level, with only incidental use of some UDL framework elements and traditional pedagogy dominating everyday practices. Results from post-observation interviews further reinforced that teachers rarely designed lessons with learner variability in mind, instead relying on one-size-fits-all approaches and lowering expectations for students with disabilities. Overall, the triangulated results across the three research phases indicated that while teachers demonstrated some UDL-aligned inclusive practices, their actual teaching behaviour did not yet reflect a comprehensive or intentional application of the UDL framework.

Intention-Behaviour Gap in Research Question 7. The integration of findings across the three research phases enabled the study to answer Research Questions 5 and 6, and to further address Research Question 7. Although Chinese secondary school teachers expressed the overall positive intentions to implement inclusive practices through the lens of the UDL framework, the integrated findings across the three research phases revealed a clear gap between teacher intentions (i.e., Research Question 5) and their actual teaching behaviour (i.e., Research Question 6). Despite expressing enthusiasm and willingness to adopt UDL, traditional teaching pedagogy continued to dominate classrooms. Previous studies using self-reported questionnaires reported positive and consistent descriptive analysis results between teacher intentions and their reported inclusive behaviours (e.g., Hellmich et al., 2019; MacFarlane & Woolfson, 2013; Wilson et al., 2016; Z. Yan & Sin, 2014), and none of these studies identified any inconsistency between teacher intentions and behaviour. In contrast, the current study, by incorporating classroom observations, revealed a clear gap between teacher intentions and their actual teaching behaviour.

Several factors may explain the intention-behaviour gap in the current study. For example, teachers showed limited knowledge and skills related to UDL implementation. Although many teachers believed that strategies such as cooperative group learning and positive feedback constituted UDL-informed teaching, these practices reflected only surface-level elements of the framework and lacked the flexibility, consistency and learner autonomy that characterise authentic and effective UDL implementation (Capp, 2020). Also, teachers often conflated UDL with narrow interpretations of differentiated instruction, equating inclusivity with assigning simpler tasks to students with disabilities rather than creating multiple pathways for all learners to access the same high-expectation goals (Loreman, 2017). This limited understanding led

teachers to overestimate the extent to which their existing practices aligned with UDL principles, creating a perceived alignment between intention and practice that was not substantiated by classroom observations.

There are systemic contextual factors embedded in the Chinese educational environment which contribute substantially to the intention-behaviour gap. The exam-oriented, curriculum-standard-driven system reinforces traditional teaching pedagogy and limits the space for pedagogical experimentation (Wu & Priestman, 2018; Y. Wang, 2021). Teachers remained closely bound to prescribed curriculum standards and pacing requirements, making it difficult to incorporate flexible, student-centred UDL practices even when they expressed strong interest in doing so. As also noted by H. Zhang and Zhao (2019), the development of the UDL framework in China remains in its early stages, with low levels of teacher awareness and limited institutional support, resulting in constrained opportunities for meaningful implementation.

While teachers displayed genuine willingness to adopt inclusive practices through the lens of the UDL framework, their classroom practices remained largely at a pre-emergent stage. The finding highlighted that fostering positive intentions alone is insufficient. Bridging the intention-behaviour gap requires explicit guidance, hands-on training, practical tools, and sustained institutional support to enable teachers to transform willingness into meaningful, systematic and effective inclusive practices (Opoku et al., 2021).

5.3. Influences of Demographic Variables

5.3.1. Reviewing Research Question 2

Regarding Research Question 2, four selected demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) were added to the hierarchical regression model to explore to what extent demographic variables moderated the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and the intentions of Chinese secondary school teachers to implement inclusive practices through the lens of the UDL framework. The results of Research Question 2 suggested that the selected demographic variables are small and not statistically significant predictors of intentions, after controlling for attitudes, subjective norms and perceived behavioural control. Although the relationships between the selected demographic variables and intentions were not statistically significant, the pattern in the current study indicated that older male teachers with more teaching experience and more participation

in professional development training on inclusive education were more willing to implement inclusive practices through the lens of the UDL framework than their other colleagues.

The non-significant finding was extended to the effect of age on the prediction of intentions, indicating that age has a limited and non-significant impact on teacher intentions, although older teachers might be more willing to implement inclusive practices through the lens of the UDL framework. The non-significant result in the current study concurs with several studies explaining the effect of age on the prediction of teacher intentions (e.g., Malak et al., 2018; Sahli Lozano et al., 2021; Uusimaki et al., 2020). Malak et al. (2018) employed hierarchical regression to examine predictors of teacher intentions to develop inclusive education, with a particular focus on teaching students who exhibit “inappropriate” behaviour (p. 495). Adopting the hierarchical regression similar to the current study, the predictability of the three constructs (i.e., attitudes, subjective norms and perceived behavioural control) within the Theory of Planned Behaviour was measured in Step 1, demographic variables including age were added to the equation in Step 2. Malak et al. (2018) found that age was not a significant predictor of intentions. The consistency between this finding and the present study suggests that teacher intentions may be shaped more strongly by psychological factors such as beliefs, perceived support and perceived capability than by their age.

Regarding the length of teaching experience, teachers with more teaching experience in regular classrooms were more willing to implement inclusive practices through the lens of the UDL framework, however, this result was also statistically non-significant in predicting intentions. The findings of the current study align with the results of some studies that added the length of teaching experience as a background variable in applying the Theory of Planned Behaviour (Kupers et al., 2024; Opoku et al., 2020; Wilson et al., 2016). Kupers et al. (2024) examined to what extent the work experience of 180 Dutch teachers was related to their intentions to implement differentiated instruction in regular secondary education. They concluded that years of teaching experience did not show a significant relationship with intentions in univariate regression analyses (Kupers et al., 2024). However, Ahmmed et al. (2014), Malak et al. (2018) and MacFarlane and Woolfson (2013) reported that the length of teaching experience was a significant predictor of teacher intentions. In particular, Ahmmed et al. (2014) employed a survey package including questionnaires, explanatory statements and pre-paid return envelopes and stated that more teaching experience positively contributed to teachers’ interests in including students with disabilities in regular primary schools in

Bangladesh, but the finding was not consistent with Malak et al. (2018) and MacFarlane and Woolfson (2013).

The inconsistency across these studies suggests that the length of teaching experience alone may not directly determine teachers' intentions to implement inclusive practices. Instead, the influence of teaching experience may depend on contextual factors such as the availability of professional development training and institutional support. The present study indicates that while the length of teaching experience may contribute to teachers' familiarity with classroom practices, it does not necessarily translate into stronger intentions to implement inclusive practices.

In terms of gender, the quantitative results of the current study indicated that male teachers were more willing to implement inclusive practices through the lens of the UDL framework than female teachers. However, the effect of gender on intentions was not statistically significant. This non-significant pattern in the present dataset aligns with findings from a number of studies that conducted regression analysis identifying gender as a non-significant predictor of teacher intentions in applying the Theory of Planned Behaviour in the field of inclusive education (e.g., Malak et al., 2018; Martin & Kudláček, 2010; Uusimaki et al., 2020). For example, Martin and Kudláček (2010) conducted a survey to investigate the predictors of intentions in 230 pre-service teachers in Australia towards inclusion of students with physical disabilities into regular physical education classes. The multiple regression analysis results of Martin and Kudláček (2010) pointed out that gender provided a slight effect on the prediction of intentions. However, the predictive effect was not statically significant, and the authors noted that the small number of male participants in their sample made it difficult to conduct a reliable comparison between male and female pre-service teachers (Martin & Kudláček, 2010). In contrast to both the current study and these non-significant results, Sahli Lozano et al. (2021) explored the predictors of 221 Swiss and 140 Australian in-service secondary school teacher intentions to teach in inclusive classrooms. Sahli Lozano et al. (2021) reported that gender was found to be a significant predictor of intentions for both samples, suggesting that female participants on average presented stronger intentions to teach in inclusive classrooms when compared to their male counterparts. These inconsistent findings across different studies also demonstrate that gender alone may not be a stable determinant of teacher intentions to implement inclusive practices.

Professional development training on inclusive education was assessed as another demographic variable in explaining the prediction of teacher intentions to implement inclusive

practices through the lens of the UDL framework. In the current study, although greater participation in professional development training was associated with higher intentions, training could not be identified as a significant demographic variable in explaining the prediction of intentions. The non-significant finding is consistent with the viewpoints of several researchers (e.g., Aielloa & Sharma, 2018; Kupers et al., 2024; Song et al., 2019). Aielloa and Sharma (2018) surveyed the possible impact of a teacher education course for future Learning Support Teachers (LSTs) on the prediction of their intentions to implement inclusive practices. The data were collected before and after the teacher training course in Italy (Aielloa & Sharma, 2018). They found there has been a rising trend for LSTs intentions to implement inclusive practices at the end of the training, however, the multiple regression analysis and paired T-Tests showed that the relationship between training and intentions was not significant (Aielloa & Sharma, 2018). In contrast to both the current study and this broader pattern, Gilor and Kata (2019) and S. Pederson et al. (2014) presented a different perspective regarding the effect of training on pre-service teacher intentions. Specifically, Gilor and Kata (2019) explained the impact of different teacher-training programs (i.e., mainstream programs and special education programs) on the willingness of 580 pre-service teachers to engage in inclusive teaching. The results signified that the teacher-training program had a small but significant contribution to explaining variance in willingness to engage in inclusive practices (Gilor & Kata, 2019). Gilor and Kata (2019) claimed that pre-service teachers involved in special education training program were expected to be more willing to teach inclusive classes than pre-service teachers in other training programs.

The mixed findings across studies suggest that the influence of professional development training on teacher intentions may depend on the nature and focus of the training rather than simply the amount of training received. Professional development training that specifically addresses inclusive practices and provides opportunities for practical application may have a stronger impact on teacher intentions than more general forms of training. The present findings also indicate that while professional development training may contribute to increasing teachers' awareness and interest in inclusive education, it does not necessarily translate into stronger intentions unless the training effectively strengthens teachers' perceived competence and readiness to implement inclusive practices in their regular classrooms.

5.4. Links to the Theoretical Framework

The Theory of Planned Behaviour, introduced by Ajzen (1991), offers a theoretical basis for predicting and explaining individuals' actual behaviour. According to the theory, individuals' intentions are postulated to be shaped by their attitudes, subjective norms and perceived behavioural control (Ajzen, 2020). These intentions, along with perceived behavioural control, play a crucial role in predicting individuals' actual behaviour (Ajzen, 2020). The variables within the Theory of Planned Behaviour, in turn, may be influenced by individuals' demographic variables, such as age, length of teaching experience, gender and professional development training on inclusive education (Ajzen et al., 2018). Adopting the Theory of Planned Behaviour, the current study placed the focus on Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in regular classrooms. All components of the Theory of Planned Behaviour, including attitudes, subjective norms, perceived behavioural control, intentions, and behaviour, were examined, providing a comprehensive understanding of the relationships among these components.

Within the context of the theory, attitudes were defined as teachers' overall positive or negative evaluations of engaging in inclusive education or inclusive practices, subjective norms referred to teachers' perceptions of the support they received from significant others (i.e., principals, colleagues and parents of students with and without disabilities) that encouraged them to implement inclusive practices through the lens of the UDL framework, and perceived behavioural control was operationalised as teachers' self-efficacy in implementing inclusive practices through the lens of the UDL framework. Phase 1 descriptive analysis results indicated generally positive attitudes, strong perceived support and high levels of perceived behavioural control, which were reflected in the overall positive teacher intentions to implement inclusive practices through the lens of the UDL framework. Phase 2 interviews broadly confirmed this pattern of positive orientations, but also revealed conceptual ambiguities, such as severity-based, charity-based and equality-based understandings of inclusive education, which complicated the interpretation of these positive scores. While these quantitative results showed strong support for the Theory of Planned Behaviour, the qualitative data provided essential nuance.

Although attitudes did not seem to predict teacher intentions in Phase 1 hierarchical regression results, positive teacher attitudes towards inclusive education or inclusive practices were identified as a key area for improving teachers' willingness to uphold inclusive education and engage with inclusive practices (Tiwari et al., 2015). Despite the generally positive teacher

attitudes towards inclusive education or inclusive practices presented in both Phase 1 and Phase 2 of the current study, Phase 2 interviews highlighted that these positive attitudes towards inclusive education were often conditional on the perceived severity of students' disabilities and shaped by charity-based or equality-oriented perspectives, indicating that attitudes were not yet fully aligned with rights-based, UDL-informed understandings of inclusive education.

Subjective norms played a significant role in applying the Theory of Planned Behaviour in the current study. Phase 1 findings indicated that teachers perceived strong support from principals, colleagues and parents in implementing inclusive practices through the lens of the UDL framework, and subjective norms significantly predicted intentions. However, Phase 2 interview findings indicated that some school-level support such as tuition waivers, stipends, fundraising, logistical help or basic accessibility facilities reflected a material or charity-based perspective that positioned support as compassionate aid, rather than a rights-based perspective that suggested equitable and meaningful participation in education (Liyanage, 2017). Teachers also reported extensive day-to-day assistance from colleagues and some involvement from parents in writing lesson plans, adjusting instructional language, managing student behaviour and monitoring learning progress. However, much of the support teachers described mainly centred on helping them sustain existing routine instructional responsibilities and ensure that students without disabilities were not academically 'held back', rather than guiding teachers towards UDL-aligned program design. Although teachers appreciated these forms of support, the subjective norms surrounding them encouraged continuity in traditional teaching pedagogy more than a shift towards inclusive, learner-centred pedagogy.

Compared to attitudes and subjective norms, perceived behavioural control was the strongest predictor of teacher intentions to implement inclusive practices through the lens of the UDL framework in Phase 1 results of the current study. It is crucial for teachers to be confident in their own knowledge, skills, and abilities in implementing inclusive practices (Yada & Savolainen, 2017). A key characteristic of a strong sense of self-efficacy is the ability to persist in performing a task despite encountering obstacles and challenges (Bandura, 1986). Teachers with a strong sense of self-efficacy in implementing inclusive practices tend to take responsibility for their students' performance and remain committed to fostering an inclusive learning environment, even when confronted with barriers (Gilor & Katz, 2019). In the current research project, teachers reported high level of perceived behavioural control in Phase 1, and Phase 2 interviews initially appeared to confirm this, with teachers describing proficiency in presenting content in different formats, designing classroom activities and assessing students in varied ways. However, closer examination of the qualitative data revealed that this teacher

confidence was largely grounded in traditional, teacher-directed approaches and a narrow, deficit-based interpretation of differentiated instruction rather than in UDL-aligned, learner-driven design. Teachers rarely reported providing students with choices over learning pathways, assessment formats or representations, and tended to attribute barriers to student-related factors rather than to instructional or environmental constraints,

After controlling for the three core constructs (i.e., attitudes, subjective norms and perceived behavioural control) within the Theory of Planned Behaviour, the study also examined the influence of four selected demographic variables (i.e., age, length of teaching experience, gender, and professional development training on inclusive education) on the prediction of teacher intentions to implement inclusive practices through the lens of the UDL framework. However, none of the demographic variables were found to predict intentions in a statistically significant manner. This suggested that psychological constructs (i.e., attitudes, subjective norms and perceived behavioural control) rather than demographic variables were more central to explaining variation in teacher intentions in this sample.

The prediction of behaviour in the current study was fully aligned with the predictive paths outlined in the Theory of Planned Behaviour (Ajzen, 1991). In Phase 1, teacher intentions and perceived behavioural control were found to directly and significantly predict their actual teaching behaviour. Teachers' attitudes, subjective norms, and perceived behavioural control indirectly and significantly predicted their actual teaching behaviour through their intentions. Moreover, teachers' attitudes and subjective norms indirectly and significantly predicted their actual teaching behaviour, with both their intentions and perceived behavioural control acting as mediators. The indirect and significant prediction of teachers' attitudes and subjective norms on their actual teaching behaviour persisted through perceived behavioural control alone.

However, once thematic analysis of inclusive pedagogies from Phase 2, classroom observations and post-observation interviews from Phase 3 were considered, a more complex picture emerged. While the quantitative results in Phase 1 indicated strong intentions and high perceived behavioural control that translated into self-reported behaviour, the qualitative and observational findings from Phases 2 and 3 presented a more nuanced picture. Phase 2 interview findings revealed that teachers' actual teaching behaviour were only partially aligned with certain UDL checkpoints. For instance, scaffolding and cooperative group learning appeared in lessons, yet learning goals were set rigidly according to curriculum standards, and instructional materials were offered sequentially rather than simultaneously. These teacher-directed approaches were echoed in Phase 3 classroom observations, indicating that UDL-aligned strategies occurred incidentally rather than intentionally. In Phase 3, the overall UDL

implementation was rated at a Pre-Emergent level, and traditional teaching pedagogy remained the dominant approach in regular classrooms.

These findings indicate that teachers' actual teaching behaviour did not fully reflect their stated intentions to implement inclusive practices through the lens of the UDL framework. This intention-behaviour gap does not contradict the Theory of Planned Behaviour, but rather underscores its emphasis that behaviour is shaped not only by intentions and perceived behavioural control but also by the actual availability of knowledge, skills, resources and favourable conditions (Ajzen, 2020). In the current study, limited knowledge of UDL, narrow interpretations of differentiation, exam-oriented systemic pressures and a lack of pedagogical support for inclusive practices all constrained the translation of intentions into UDL-aligned actual teaching behaviour, as further analysed in Section 5.2.2 of the Discussion chapter.

The findings of the current research project effectively addressed the research questions. Given the findings, it can be concluded that the application of the Theory of Planned Behaviour as a theoretical framework for the investigation of Chinese secondary school teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour was appropriate.

5.5. Application of the UDL Framework

In Phase 3 of the current study, teachers were found to implement some elements of the UDL framework at the Pre-Emergent level, while traditional teaching pedagogy continued to predominate. Teachers' generally positive intentions to implement inclusive practices through the lens of the UDL framework expressed in the first two research phases were not fully reflected in their actual teaching behaviour. The two teachers observed in Phase 3 had not previously heard of the UDL framework, and in combination with limited pedagogical support and systemic constraints, they lacked the professional knowledge and skills necessary to apply the UDL framework in a comprehensive manner.

In the current study, it was appropriate to use the UDL framework as a lens to understand teacher intentions to implement inclusive practices and their actual teaching behaviour. The pursuit of inclusive practices is an ongoing endeavour for classroom teachers. Hitchcock et al. (2016) argued that most educational settings design curricula aimed at a core or normative group of students, often ignoring the needs of students with disabilities or other diverse student needs. According to the CRPD General Comment No. 4 (CRPD, 2016), the UDL framework suggests an adaptable learning environment in which learner variability is accepted, embraced

and celebrated. UDL researchers argue that there are no “average” or “typical” learners, and that learner variability is the “norm” (Rao, 2021, p. 2).

The UDL framework offers teachers the opportunity to prioritise inclusive education in the classroom by providing scaffolds, supports, and flexibility in lesson planning and curriculum development (Capp, 2020). At its core, the UDL framework is based on the idea that there is no single “best” method of learning, and that all students benefit from having a variety of alternatives to access, comprehend, and present what they have learned (Jardinez & Natividad, 2024, p. 62). The central theoretical premise of UDL is that educational experiences should be designed to be inclusive from the outset, catering to all potential students with and without disabilities (Sewell et al., 2022). In this sense, the UDL framework becomes a philosophy of inclusive education that emphasises the learner, autonomy, and the celebration of diversity.

Over the past two decades, there has been an increasing interest in the UDL framework across education systems worldwide with supporting evidence around its effectiveness in creating inclusive learning environments (Al-Azawei et al., 2016; Capp, 2017). Prior studies suggested that UDL as an inclusive pedagogical framework is believed to have benefits for both students and teachers (e.g., Abrahamson et al., 2018; Al Hazmi & Ahmad, 2018; Carrington et al., 2020; Scott et al., 2015). The majority of studies demonstrated that improvements in students’ academic performance were associated with the application of the UDL framework (e.g., Coyne et al., 2012; Hall et al., 2015; Kennedy et al., 2014). Also, increased student engagement, satisfaction and self-efficacy were shown in implementing the UDL framework (e.g., He, 2014; King-Sears et al., 2015; Marino et al., 2014). Kumar and Wideman (2014) supported that core UDL principles of engagement, representation, action and expression can promote learning flexibility, eliminate learning stress, and develop the social presence of students.

Several studies reported that UDL implementation strengthens the capacity of teachers to satisfy the diversity of student needs in regular classrooms (e.g., Benton-Borghi & Chang, 2012; Courey et al., 2012; McGhie-Richmond & Sung, 2013). The UDL framework assisted teachers in adapting their instruction to fit all students, practising their teaching experiences in different ways, and transforming their teaching styles for diverse students. J. Katz (2013, 2015) pointed out that implementing a Three Block Model of the UDL framework could improve their teaching practices and self-efficacy related to inclusive education, reduce their workload, and improve their job satisfaction. Kumar and Wideman (2014) also suggested that a UDL-based course design could facilitate teacher engagement and reduce their workload due to the

UDL framework focusing on practising a learner-centred method, rather than relying merely on the traditional teacher-centred approach.

It is important to acknowledge key critiques of the UDL framework when discussing its application. The UDL framework is often viewed as an umbrella of key concepts that teachers can apply in creative ways (Sewell et al., 2022). Teachers' confusion is compounded by the various terms used interchangeably, such as Universal Design for Education (UDE), Universal Design for Instruction (UDI), and Universal Instruction Design (UID; Persson et al., 2015). To address this, clearly defined terminology is necessary to support a shared conceptual understanding of the UDL framework in instruction (Persson et al., 2015). This clarification supports usability while recognising learner variability as the norm, rather than positioning UDL as a fixed, standardised model (Rao, 2021). Such clarification would improve understanding, usability and measurability for teachers, as many are unaware that they are already implementing some elements of the UDL framework, often due to confusion with terminology (King-Sears, 2020).

Inadequate pre-service and in-service teacher training lead to a lack of knowledge and skills necessary for the UDL framework implementation, which emerges as another obstacle to the development of the UDL framework (Scott, 2018). While the concept of inclusive education has been increasingly promoted within Chinese education policy, such promotion has often remained at a conceptual level rather than being translated into concrete inclusive pedagogical frameworks. Consistent with this gap, the UDL framework is not currently taught in a systematic or widespread manner within teacher training programs in China. Although some higher education institutions have begun introducing UDL concepts, many pre-service and in-service teachers still receive little to no formal preparation in how the UDL framework can be applied in regular classrooms (H. Zhang & Zhao, 2019; Jia & Xin, 2017). As a result, teachers often lack the knowledge and skills required to implement the UDL framework in China. Teachers with insufficient or incomplete knowledge and skills in implementing the UDL framework may provide vaguely defined learning goals, utilise conventional instructional methods, and apply inflexible assessment options in actual teaching practices (Meo, 2008). As such, incorporating comprehensive instruction on the UDL framework into teacher training courses could be a valuable approach to enhancing teachers' experiences to implement the complexities of the framework (Sewell et al., 2022).

5.6. Strengths and Limitations of the Study & Recommendations for Future research

5.6.1. Strengths of the Study

Before outlining the limitations, it is important to acknowledge several strengths that enhance the contribution of the current study. A key strength of the current study lies in the explanatory sequential mixed methods research design, which enabled the integration of quantitative, qualitative and observational data across three research phases. This design strengthened the depth and reliability of findings by allowing the study to provide a comprehensive understanding of teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour (Creswell & Creswell, 2023). The integration of findings across three research phases further revealed a clear intention-behaviour gap that would not have been easily captured through questionnaires or interviews alone.

The study also examined all predictive pathways specified within the Theory of Planned Behaviour, including direct, indirect and moderated effects. This offered a holistic application of the theory in the field of inclusive education, going beyond the partial applications reported in previous studies, many of which did not include an examination of actual teaching behaviour related to implementing inclusive practices (e.g., Ahmmed et al., 2014; Sharma & Jacobs, 2016; Song et al., 2019). Also, the study conceptualised inclusive practices through the lens of the UDL framework when applying the Theory of Planned Behaviour. Linking the theory constructs to a clearly defined inclusive pedagogical framework contributes new insights to both the Theory of Planned Behaviour research and the emerging global literature on UDL implementation in the field of inclusive education.

In addition, the study addressed a major gap in the international literature by applying the Theory of Planned Behaviour within a developing country context where empirical research remains limited (e.g., L. Wang et al., 2015; Z. Yan & Sin, 2014, 2015). The current study extended the cross-cultural relevance of the Theory of Planned Behaviour by situating the investigation in China. It also expands understanding of how inclusive practices are interpreted and enacted through the lens of the UDL framework in the Chinese educational context, thereby contributing to a broader international understanding of UDL implementation.

Another important strength lies in the current study's focus on secondary school teachers, who have been underrepresented in the field of inclusive education. Prior studies have frequently examined primary school contexts (e.g., Kurniawati et al., 2012; Varcoe & Boyle, 2014; Vaz et al., 2015), leaving a gap in understanding inclusive practices within secondary schools. By recruiting secondary school teachers as participants, the current study contributes

valuable insights that address this gap and deepen the field's understanding of inclusive practices across schooling levels.

5.6.2. Limitations of the Study & Recommendations for Future Research

Limitations of a study refer to potential weaknesses that are typically beyond the researcher's control, and these limitations may influence the research design, results, and eventually, the conclusions (Theofanidis & Fountouki, 2018). Identifying and acknowledging the limitations of the current study is a crucial step in drawing inferences. Through clearly reporting the limitations, the researcher can enhance the rigour of the study and provide recommendations for future research (Theofanidis & Fountouki, 2018).

In terms of the generalisability of the research findings, there are limitations regarding the selection of the samples, the sample sizes and the sampling methods across the three research phases. The current research exclusively involved regular classroom teachers who worked in secondary schools and was conducted entirely within large metropolitan areas of China (e.g., Shanghai, Nanjing, Beijing). Against this background, the collected data offered insights that may be useful to Chinese teachers in other secondary schools, suggesting a certain degree of transferability to similar contexts. It would be of interest for future studies to explore whether the research findings can be replicated in different school types as well as in other regions or countries.

The sample size of 209 secondary school teachers in Phase 1 was sufficient for running the regression analysis (Pallant, 2016). The sample size of eight interviewees in Phase 2 was adequate for performing the thematic analysis (Terry et al., 2017). Also, the two observations and post-observation interviews in Phase 3 allowed the researcher to incorporate actual teaching behaviour as a variable in the regression model within the Theory of Planned Behaviour. However, the small sample sizes across the three research phases may limit the credibility and generalisability of the research findings. Accordingly, a larger sample size is suggested in future studies.

Another limitation relates to the classroom observation conducted in Phase 3. The observations were carried out solely by the researcher, and no external observer was involved in the observation process. As a result, the interpretation of teachers' actual teaching practices may have been influenced by the researcher's subjective judgement. The involvement of an independent observer or multiple observers could have strengthened the credibility and

reliability of the observation data. Future research is encouraged to involve external observers to enhance the rigour of classroom observation.

Due to the limited research time and difficulties recruiting participants, the snowball sampling method was adopted in Phase 1, while the convenience sampling method was applied in Phase 2 and Phase 3. The samples were drawn using non-probability sampling methods. In Phase 1, the snowball sampling method may have generated a biased sample since respondents with extensive social connections were able to provide the researcher with a higher proportion of participants who shared similar characteristics to the initial respondent (Etikan et al., 2016b). For example, the unbalanced age distribution of participants may have led to skewed and non-significant results when exploring the influence of age on the prediction of teacher intentions in the hierarchical regression analysis. In Phase 2 and Phase 3, the convenience sampling method introduced bias into the samples due to the high potential for self-selection (Etikan et al., 2016a). Findings across the three research phases could be further validated in future studies using different probability sampling methods such as a simple random sampling method, stratified sampling method or cluster sampling method (Jager et al., 2017).

Further, the selected demographic variables (i.e., age, length of teaching experience, gender and professional development training on inclusive education) in the current study moderated the relationship between the predictor variables (i.e., attitudes, subjective norms and perceived behavioural control) and intentions in a small and not statistically significant manner. Thus, a further suggestion when adopting possible probability sampling methods would be to investigate the influence of other demographic variables, such as the highest degree earned, type of educational sector, or prior contact with individuals with disabilities, on the prediction of teacher intentions to implement inclusive practices through the lens of the UDL framework. This would provide a broader perspective, moving beyond the focus on age, length of teaching experience, gender, and professional development training on inclusive education in the current study.

There were also limitations related to the instruments applied in the current study. Particularly in Phase 1, the measurement of perceived behavioural control, intentions and actual teaching behaviour relied on self-designed scales (i.e., TEIUF, TIIUF and TATB). Although these self-designed scales demonstrated strong reliability and were well-suited to the study context, they could not be empirically tested in preliminary studies. In addition, while the self-designed instruments were reviewed by the research supervisor during the development process, formal face validation by a panel of experts within the Chinese educational context was not conducted. As a result, there are concerns regarding the internal validity of the self-

designed scales used in this investigation. Future studies should further verify the internal validity of the self-designed scales through pilot testing and validation across broader samples and by involving multiple experts familiar with inclusive practices in China.

Beyond issues related to instrument development, additional limitations arose from the translation of the instruments. The questionnaire in Phase 1, interview guide in Phase 2, observation guide and post-observation interview guide in Phase 3 were translated from English to Chinese. The translation of the instruments may have introduced risks of misinterpretations due to cultural and contextual differences (Scanlon et al., 2022; Uusimaki et al., 2020). Future studies should apply more rigorous translation procedures to further confirm the validity of the instruments across languages and contexts.

In addition, the current study adopted the UDL Guidelines version 2.2 (CAST, 2018) as a reference to examine teacher intentions to implement inclusive practices and their actual teaching behaviour, as this was the most current version available at the time the study commenced. Since then, the release of the UDL Guidelines version 3.0 has introduced several refinements, including a reorganisation of the guidelines, updated terminology, and a stronger emphasis on learner agency and instructional flexibility (CAST, 2024). The use of version 2.2 may have limited the extent to which these updated emphases were reflected in the interpretation of teachers' intentions and observed teaching practices. Future studies are encouraged to adopt the UDL Guidelines version 3.0 to more fully capture these refinements when examining teacher intentions to implement inclusive practices and their actual teaching behaviour.

Given that the teachers in Phase 3 of the current study were operating at a pre-emergent level of UDL implementation, interpreting their actual teaching behaviour solely through the UDL framework may have limited the extent to which inclusive practices were recognised. While their actual teaching behaviour were not fully aligned with the UDL framework, they may nevertheless be understood as inclusive when examined through alternative inclusive pedagogical frameworks, such as differentiated instruction or the Inclusive Pedagogical Approach in Action (IPPA) (Florian & Spratt, 2013; Tomlinson, 1999). Future research could adopt multiple inclusive pedagogical frameworks to provide a more nuanced and comprehensive understanding of teacher intentions to implement inclusive practices and their actual teaching behaviour.

Another important methodological limitation of the current study was its cross-sectional design, which provided a limited understanding of cause-and-effect relationships among

variables and the development of these variables over time (Bodhi et al., 2022; Mentel et al., 2024). While the study did not employ a longitudinal design, it still provides valuable insights into teachers' perspectives at specific time points and offers a glimpse into potential changes across the three research phases. To better capture long-term trends, a key direction for subsequent research would be to collect longitudinal data on the development and changes in teacher attitudes, subjective norms, perceived behavioural control, intentions and actual teaching behaviour within the Theory of Planned Behaviour.

Further limitations of the current study were related to the theoretical constraints of the Theory of Planned Behaviour. Although the Theory of Planned Behaviour is a central theory for explaining and predicting human behaviour, its limited predictive power has been a significant criticism (Urton et al., 2023). Sniehotta et al. (2014) argued that the variability in intentions and observed behaviour can only be partially explained by the predictors within the Theory of Planned Behaviour. For instance, prior research suggested that factors such as habit strength, motivational measures (e.g., self-determination, anticipated regret and identity) and self-regulatory measures like planning, can predict human behaviour beyond the Theory of Planned Behaviour constructs (Carraro & Gaudreau, 2013; Conner & Armitage, 1998; Gardner et al., 2011). In the current study, the limited predictive validity of the Theory of Planned Behaviour may explain why teachers expressed their overall positive intentions to implement inclusive practices through the lens of the UDL framework but did not fully follow through with these intentions. However, it is important to note that the aim of the current study was not to test the Theory of Planned Behaviour itself, but rather to use it as a theoretical framework to investigate teacher intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour.

5.7. Implications of the Study

In the current study, teachers' self-efficacy was identified as the strongest statistically significant predictor of their intentions to implement inclusive practices through the lens of the UDL framework. In this sense, high levels of perceived behavioural control should be anticipated to improve teacher intentions to implement inclusive practices through the lens of the UDL framework. Numerous studies have drawn links between pre-service or in-service teacher training and teachers' self-efficacy regarding inclusive education (e.g., Ahsan et al., 2012; Makopoulou et al., 2021; Parsons, 2014). Both pre-service initial teacher education and in-service professional development training on inclusive education have been shown to

increase teachers' self-efficacy (Wray et al., 2022). Strengthening teachers' professional knowledge and practical competence may play a critical role in narrowing the gap between teachers' positive intentions towards inclusive practices and their actual teaching practices.

Based on the demographic results from Phase 1 of the current study, more than half of the teachers reported having completed a pre-service teacher training degree and having undertaken a unit of study in special and inclusive education. However, it is unclear whether the initial teacher education provided them with sufficient experience to develop the practical knowledge and skills needed to manage inclusive classrooms and support diverse students, both with and without disabilities. To enhance these knowledge and skills, pre-service practicum placements in inclusive learning environments could offer valuable opportunities for pre-service teachers to work with diverse student populations and gain early exposure to possible inclusive practices (Goddard & Evans, 2018). Teacher accreditation, therefore, should bridge the theory-to-practice gap by ensuring that teachers possess both a comprehensive understanding of and practical experience in inclusive learning environments.

Although in-service professional development training on inclusive education was not a statistically significant predictor of teacher intentions to implement inclusive practices through the lens of the UDL framework, teachers in Phase 2 of the current study expressed a strong willingness to acquire more knowledge and skills related to the UDL framework. More than half of the teachers in Phase 1 reported participating in professional learning workshops or seminars on special and inclusive education. However, based on the findings from the subsequent research phases, the discrepancy between teacher intentions and their actual teaching behaviour indicated that teachers still lacked a clear understanding of the UDL framework and inclusive education. Designing tailored professional development programs is imperative to enhancing teachers' knowledge, skills, and confidence in creating inclusive learning environments, while also addressing their concerns about inclusive education (Florian, 2021).

Beyond teacher training, school leaders can facilitate inclusive education by fostering collaborative professional cultures, encouraging dialogue among teachers, and providing opportunities for joint lesson planning and reflection on inclusive practices. Supportive school leadership and collaborative environments may help teachers translate their positive intentions into more consistent inclusive practices within their classrooms (Holmqvist & Lelling, 2021).

For long-term inclusionary reforms to succeed, it is crucial that the Chinese government and policymakers back schools through educational reforms and dedicated resources. The

government could accelerate efforts to raise awareness about the implementation of inclusive practices, prioritise professional development training for in-service teachers, and allocate resources specifically aimed at supporting students with disabilities. Policymakers could also play a key role in developing and enforcing legislations or policies that promote inclusive education, ensuring that schools are equipped with an environment appropriate for implementing inclusive practices.

Within the Chinese secondary education context, systemic pressures such as examination-oriented curricula, large class sizes, and heavy teacher workloads may constrain teachers' ability to implement inclusive practices (Wu & Priestman, 2018). Addressing these structural challenges requires policy frameworks that provide schools with adequate resources, clearer institutional guidance, and supportive environments that enable teachers to enact inclusive practices more effectively. Professional development training on inclusive education can only be effective if it is part of a broader educational discourse that values inclusive education and provides teachers with the necessary support to develop inclusive practices in their classrooms (Forlin et al., 2014; Heyer, 2021).

5.8. Conclusion Section

This mixed-methods study provided an extensive examination of Chinese secondary school teachers' intentions to implement inclusive practices through the lens of the UDL framework and their actual teaching behaviour in regular classrooms. Although teachers demonstrated generally positive intentions towards adopting the UDL framework, interviews and classroom observations in the current study revealed that actual practices remained strongly rooted in traditional pedagogy, with UDL-aligned teaching elements applied inconsistently and at a pre-emergent level. The intention-behaviour gap identified in this study highlights that teachers' willingness alone is insufficient to produce meaningful pedagogical change. The findings indicate that teachers' willingness to implement inclusive practices should be supported by adequate professional knowledge, practical teaching strategies and structural support within schools. Without these enabling conditions, teachers may struggle to translate their positive intentions into sustained inclusive practices that effectively address the diverse needs of students.

Overall, the study underscores the need for sustained professional development, stronger institutional guidance and more comprehensive support systems to enable teachers to translate positive intentions into fully realised inclusive practices that meet the diverse needs

of all learners. Addressing the intention-behaviour gap requires coordinated efforts across multiple levels of the education system, including improved teacher preparation, ongoing professional learning opportunities, supportive school leadership and policy frameworks that prioritise inclusive education (Heyer, 2021; Holmqvist & Lelinge, 2021; Wray et al., 2022). In the Chinese secondary education context, such efforts may also involve aligning inclusive education policies with classroom realities, reducing structural barriers that constrain teachers' practice, and ensuring that schools are equipped with the resources and support necessary to implement inclusive practices.

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Appendices

Appendix A – Instruments

Teacher Survey



Research Study: *Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour*

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Section 1: Demographics

Gender: Male Female
Prefer Not to Say Non-binary / third gender

Age: 18-24 25-34 35-44 45-54 55+

Years of Teaching Experience: ≤5 years 6-10 years
11-15 years 16+ years

Subject area(s) you currently teach: Chinese/English Mathematics
Physics Chemistry
History Politics

Other (please specify): _____

Types of educational sector: Public school Private school

Highest degree earned: High School Certificate
Bachelor Degree Masters Coursework Degree
Masters Degree by Research Doctoral Degree

Have you completed a pre-service teacher training degree?
Yes No

Did you complete a unit of study in special and inclusive education in your pre-service teacher training?
Yes No

Have you participated in professional learning workshops/seminars about special and inclusive education as part of your ongoing professional learning?
Yes No

Have you been in contact with people/persons with disabilities (e.g., friends, family member, community group)?
Yes No

Have you heard of the UDL framework?
Yes No

How confident are you with implementing the UDL framework?



(At the End of the Survey) Are you willing to participate in the study's Phase 2 and Phase 3?
Yes No

If yes, please provide your contact detail (email or phone number):

Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour

2022-09-14

Section 2: Attitudes

Please circle the degree to which you agree with the statement.

1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neutral, 5=Somewhat Agree, 6=Agree, 7=Strongly Agree

PLEASE NOTE:

- *Students with special educational needs will be considered as students with disabilities in this questionnaire.*
- *These statements relating to 'all students' in your class includes students with disabilities.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1. I feel unconcerned when students with disabilities are enrolled in regular schools	1	2	3	4	5	6	7
2. I feel comfortable involving students with disabilities in regular classroom activities	1	2	3	4	5	6	7
3. I do not feel overwhelmed developing curriculum to meet the learning needs of all students	1	2	3	4	5	6	7
4. I believe that quality inclusive education focuses on removing barriers to access and participation in learning for all students	1	2	3	4	5	6	7
5. I believe that educating students with disabilities in regular classrooms promotes greater appreciation of student differences	1	2	3	4	5	6	7
6. I believe that educating students with disabilities in regular classrooms enriches the learning opportunities of students without disabilities	1	2	3	4	5	6	7
7. I believe that the learning of students with disabilities can be addressed by mainstream classroom teachers	1	2	3	4	5	6	7
8. I believe that teachers with professional knowledge of inclusive practices are able to enhance the learning of all students	1	2	3	4	5	6	7
9. I believe that collaboration between the parent/carer and teacher is the key to promoting learning of students with disabilities.	1	2	3	4	5	6	7

Section 3: Subjective norms

Please circle the degree to which you agree with the statement.

1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neutral, 5=Somewhat Agree, 6=Agree, 7=Strongly Agree

PLEASE NOTE:

- *Students with special educational needs will be considered as students with disabilities in this questionnaire.*
- *These statements relating to 'all students' in your class includes students with disabilities.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1. I receive necessary support from the principal to provide alternative ways of representing learning concepts	1	2	3	4	5	6	7
2. I receive necessary support from the principal to provide students with a variety of ways to demonstrate their learning	1	2	3	4	5	6	7
3. I receive necessary support from the principal to maximise engagement of students in different classroom activities	1	2	3	4	5	6	7
4. I am supported to access regular in-service training in teaching all students in classroom including students with disabilities	1	2	3	4	5	6	7
5. I receive support from colleagues to provide alternative ways of representing learning concepts	1	2	3	4	5	6	7
6. I receive support from colleagues to provide students with a variety of ways to demonstrate their learning	1	2	3	4	5	6	7
7. I receive support from colleagues to maximise engagement of students in different classroom activities	1	2	3	4	5	6	7
8. I receive necessary support from the family of students with disabilities when teaching their children	1	2	3	4	5	6	7
9. I receive necessary support from the family of students without disabilities when teaching their children	1	2	3	4	5	6	7
10. I receive necessary resources from the school to teach students with disabilities when needed (e.g., Braille for blind students).	1	2	3	4	5	6	7

Section 4: Perceived Behavioural Control

Please circle the degree to which you agree with the statement.

1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neutral, 5=Somewhat Agree, 6=Agree, 7=Strongly Agree

PLEASE NOTE:

- *Students with special educational needs will be considered as students with disabilities in this questionnaire.*
- *These statements relating to 'all students' in your class includes students with disabilities.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1. I am confident to provide learning information in different formats (e.g., video, audio, written text) for all students in learning	1	2	3	4	5	6	7
2. I am confident to embed visual, non-linguistic supports to clarify terminology knowledge for all students	1	2	3	4	5	6	7
3. I am confident to provide a variety of scaffolds for all students to connect new information with their prior knowledge	1	2	3	4	5	6	7
4. I am confident in using different forms of assessment for all students	1	2	3	4	5	6	7
5. I am confident to provide differentiated feedback that can be customised to individual students	1	2	3	4	5	6	7
6. I am confident to provide guides for students to break long-term learning goals into reachable short-term learning goals	1	2	3	4	5	6	7
7. I am confident to provide all students choice in level of autonomy during their learning	1	2	3	4	5	6	7
8. I am confident to vary the degree of complexity within which classroom activities can be completed	1	2	3	4	5	6	7
9. I am confident in supporting all students to collect data on their own behaviour for the purpose of monitoring their learning progress.	1	2	3	4	5	6	7

Section 5: Intentions

Please circle the degree to which you agree with the statement.

1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neutral, 5=Somewhat Agree, 6=Agree, 7=Strongly Agree

PLEASE NOTE:

- *Students with special educational needs will be considered as students with disabilities in this questionnaire.*
- *These statements relating to 'all students' in your class includes students with disabilities.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1. I intend to provide choices of representations of learning concepts	1	2	3	4	5	6	7
2. I intend to clarify terminology knowledge through multiple presentations	1	2	3	4	5	6	7
3. I intend to review prior knowledge required by each student to access every learning session	1	2	3	4	5	6	7
4. I intend to provide multiple ways for students to show their learning (e.g., pen, keyboard)	1	2	3	4	5	6	7
5. I intend to provide all students with a range of supportive learning tools (e.g., grammar checker, calculator)	1	2	3	4	5	6	7
6. I intend to provide wide set of examples for all students on how to set learning goals	1	2	3	4	5	6	7
7. I intend to minimise threats and distractions in the classroom through building a supportive classroom climate	1	2	3	4	5	6	7
8. I intend to provide various opportunities for collaboration and communication (e.g., peer-tutors, flexible rubrics)	1	2	3	4	5	6	7
9. I intend to support all students in building self-regulation strategies.	1	2	3	4	5	6	7

Section 6: Behaviour

Reflect on the teaching you have completed over the **past two weeks**.

How often did you implement the following?

Please circle the frequency to which you have the following behaviour.

1=Never, 2=Very Rarely, 3=Rarely, 4=Occasionally, 5=Frequently, 6=Very Frequently, 7=Always

PLEASE NOTE:

- *Students with special educational needs will be considered as students with disabilities in this questionnaire.*
- *These statements relating to 'all students' in your class includes students with disabilities.*

	Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
1. I provided access to a range of alternative learning materials for all students	1	2	3	4	5	6	7
2. I clarified networks of ideas in teaching key concepts to all students	1	2	3	4	5	6	7
3. I emphasised key learning concepts to all students	1	2	3	4	5	6	7
4. I provided all students choice of assessment tasks to show their learning	1	2	3	4	5	6	7
5. I used multiple media (e.g., texts, discussion forums) to support communication with all students	1	2	3	4	5	6	7
6. I provided various guides for all students to take learning notes	1	2	3	4	5	6	7
7. I designed various classroom activities that allow active participation for all students	1	2	3	4	5	6	7
8. I provided all learners with mastery-orientated, timely feedback	1	2	3	4	5	6	7
9. I provided differential support for all students to develop their personal coping skills (e.g., problem-solving, emotional regulation, stress management).	1	2	3	4	5	6	7

Survey Construct

Section 1: Demographics

Section 2: Attitudes

Teachers' Attitudes towards Inclusive Education or Inclusive Practices

(Affective Dimension: 1-3)

(Cognitive Dimension: 4-9)

Section 3: Subjective Norms

Teachers' Perceived Support for the UDL Framework: 1-10

Section 4: Perceived Behaviour Control

Teachers' Efficacy in Implementing the UDL Framework: 1-9

Section 5: Intentions

Teachers' Intentions to Implement the UDL Framework: 1-9

Section 6: Behaviour

Teachers' Actual Teaching Behaviour in Implementing the UDL Framework: 1-9

Research Study: *Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour*

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Section 1: Semi-Structured Face-to-Face Interview

1. Inclusive education has become an international trend to provide quality education for all students with and without disabilities in regular classrooms. It has also been introduced in China.

Have you heard of inclusive education before?

Yes: How would you define inclusive education in your classroom?

No: After the Phase 1 survey, what new beliefs do you have about inclusive education?

2. Do you believe all students with and without disabilities should be educated in regular classrooms, and why?

3. To develop inclusive education, teachers need to implement an inclusive pedagogical framework (e.g., the UDL framework). Now I want to briefly introduce the UDL framework.

Script: The UDL framework is an inclusive pedagogical framework that develops instructionally rich, barrier-free educational environments and accessible lessons for all students with and without disabilities. It prompts teachers to proactively identify and eliminate learning barriers to achieve high-quality inclusive education for all. Now I will raise some questions around inclusive education and the UDL framework.

Have you heard of the UDL framework before?

Yes: How do you view the UDL framework?

No: After the Phase 1 survey, what new beliefs do you have about the UDL framework?

4. Are there policies or procedures in your school that provide support in meeting the needs of students with disabilities?

Yes: How do these policies or procedures support the needs of students with disabilities? What do you think are the strengths of these policies or procedures in supporting students with disabilities?

No: What policies or procedures do you think could be developed to support students with disabilities?

5. During your lesson planning process, how do you set learning goals that allow all students to participate in learning, including all students with and without disabilities? What barriers did you encounter in setting learning goals during your lesson planning process? How did you address these barriers?

Have you received any support from school principals, colleagues, or parents of students with or without disabilities to remove these barriers in setting learning goals?

Yes: What kind of supports have you received? Who do you think has given you the most effective support, and why?

Will their provision of support or not have an impact on your decision to eliminate these barriers in setting learning goals?

No: What supports would you like to receive? Will their provision of support or not have an impact on your decision to eliminate these barriers in setting learning goals?

6. During your lessons, what are the barriers that impede students' classroom participation, including all students with and without disabilities? How did you address these barriers?

Have you received any support from school principals, colleagues, or parents of students with or without disabilities to remove these barriers in improving students' classroom participation?

Yes: What kind of supports have you received? Who do you think has given you the most effective support, and why?

Will their provision of support or not have an impact on your decision to eliminate these barriers in improving students' classroom participation?

No: What supports would you like to receive? Will their provision of support or not have an impact on your decision to eliminate these barriers in improving students' classroom participation?

7. During and After your lesson, what kind of assessments have you used to assess students' learning? What evidence have you collected from students for these assessments? What do you use the collected evidence from the assessment for?
- What are the barriers that impede you from assessing students' learning? How did you address these barriers? Have you received any support from school principals, colleagues, or parents of students with or without disabilities to remove these barriers in assessing students' learning?
- Yes:* What kind of supports have you received? Who do you think has given you the most effective support, and why? Will their provision of support or not have an impact on your decision to eliminate these barriers in assessing students' learning?
- No:* What supports would you like to receive? Will their provision of support or not have an impact on your decision to eliminate these barriers in assessing students' learning?
8. Have you used textbooks in your lessons? Would you consider presenting learning materials in different formats? How do you feel about your professional capacities to present learning materials in different formats?
...(In the previous discussion, you mentioned that you have used the assessments of...) What do you think if students use different ways to show their learning outcomes? How do you feel about your professional capacities to assess students' learning in different ways?
- What kind of classroom activities have you designed in your lessons? What approaches do you use to recruit students' interest in participating classroom activities? Would you consider preparing students to nominate their preferences for classroom activities, or directed by yourself? How do you feel about your professional capacities to design a variety of classroom activities?
9. Have you taught students with disabilities in your classroom before? How do you feel about your professional capacities to meet the diverse needs of students in your classroom? How do you feel about your professional capacities to collaborate with parents to educate students with disabilities?
10. How do you feel about your professional capacities to address students' disruptive behaviour (e.g., talking, laughing, crying) in your classroom?
11. In your future lessons, are you willing to include students with disabilities in your classroom, and why?
12. Now you have a brief understanding of the UDL framework, are you likely to implement the UDL framework in your future lessons, and why?
13. Are you willing to learn more knowledge and skills about the UDL framework, and why?
14. How do you use the information obtained from this interview to plan your next lessons?
-

Section 2: Post-Observation Unstructured Interview

Note: During the unstructured interviews, more specific interview questions will be developed based on the teachers' responses to the following possible questions.

1. Do you think you have met the diverse needs of students in your classroom?
 2. If any, what do you think was the most successful teaching behaviour to promote inclusive education in your previous lessons?
 3. If any, what do you think was the most challenging teaching behaviour to promote inclusive education in your previous lessons?
 4. Last time in Phase 2 interview, we discussed the UDL framework...Do you think you have implemented the UDL framework in your previous lessons?
Yes: Could you please provide some examples? How do you think it works in your classroom? What do you think are the barriers to implement the UDL framework in your previous lessons?
No: Why? Have you used other inclusive practices in your classroom? What do you think are the barriers to implement the UDL framework in your previous lessons?
 5. How would you like to evaluate your previous teaching experience? Is there anything that can be improved in your future lessons?
 - 6... You have...(behaviour according to video recordings), why you did it in your classroom?
-

Teacher Observation Guide



Research Study: *Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour*

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Universal Design for Learning Observation Measurement Tool (UDL-OMT)

Description: This instrument has been designed to measure the implementation of Universal Design for Learning (UDL) within instructional sessions. The directions provide general use guidelines. Those with questions are encouraged to contact the instruments developers. Observers should be familiar with UDL and the UDL framework as well as the rating scale used on this tool. For information on UDL see <http://www.udlcenter.org/> as well as the UDL Critical Elements (see <https://udl-irm.org/home/udl-resources/>). The UDL Instructional Observation Instrument (UDL-IOI) considers the design of the learning environment relative to teacher implementation that includes the use of strategies and tools as well as how students respond to the environment. It may be used across various instructional environments, across various curricula and teaching methodologies. The instrument is designed for observing both whole-class well as small-group implementation.

Observation Procedure

This instrument was designed based on the general flow of a lesson; however, this flow should not limit an observer from shifting among the various sections and variables. Ideally, observers should be present for the entire instructional session.

Pre-observation: The Critical Elements of UDL Instruction clearly specify that instructional goals must be clearly defined and understood by teachers/instructors and students. If possible, ask for an advance copy of the goals associated with the instructional event you are observing. If this is not possible, collect posthoc information (e.g., print version or via discussion with the teachers/instructor) that includes the goals.

General Directions: To begin, the observer should take five minutes to simply observe the overall classroom. Then, the observer should begin rating the practice of UDL, moving among sections A through D as needed, to indicate the observed level of UDL taking place. In addition, it is strongly recommended that the observer simultaneously compile an anecdotal record (actual recordings and narrative observations) to document specific and/or unique examples of UDL or situations where UDL should likely have been present but was not.

At the conclusion of the observation, the effectiveness rating scales for sections A-D should be completed. Section E serves to characterize the overall observation of the instructional environment, and students' engagement, interests, and focus levels. Provide any other relevant information not covered in sections A- E, in Other Observer Notes.

Observation Steps: During observation use underline “ ” for the initial rating on each item; at the end of the observation, circle “ε” the final rating for each item. For items you were unable to observe, draw a line through the item(s) at the end of the session.

Observing Partial Sessions: For observers unable to attend an entire instructional session, including multiple day instructional units, please be cognizant of components included in the measure that you may have missed due to the timing of your observation. For items you were unable to observe, draw a line through the item(s) at the end of the session. These items should not be scored in the overall observation. Scoring and associated reports should only be representative of the time spent in the environment.

Observing Complex Instructional Environments/Sessions: A complex instructional environment is defined as an environment where the numbers of observers are unable to readily observe all aspects of the entire instructional environment. Examples of these environments may include: an environment using a center-based instructional model (e.g., students moving to/form numerous centers), an environment using blended online instruction where the instruction is being delivered between online and brick-and-mortar modalities (including Flipped classroom models), or an environment where 60 students are working in numerous small groups during a project-based learning experience.

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Importantly. Observers should recognize that complexity within the environment might be associated with the implementation of UDL. To greatest extent possible this complexity should be noted and measured within the observation.

Single Observer in a Complex Environment: If a single observer is conducting the observation, they should gather extensive anecdotal records including recordings and narrative observations of the instructional environment. After establishing a solid understanding of the environment, the observer should move throughout the environment and complete the instrument while at the same time continually taking notes. Whenever possible, aspects of the environment should be noted next to single items of the protocol. For instance, “students given options for expressing understanding through multiple means only during station two; all other stations students were made to write with a pencil specific answers” (in Section C) should be noted and calculated into overall observation and/or report. Observers are strongly encouraged to take time immediately following the observation to finalize the observation notes and scoring.

Multiple Observers in a Complex Environment: Different from multiple observers in a normal environment, if multiple observers are present in a complex environment, observers should plan to both gather factual recording and narrative observations (see single observer situation) and then each target specific aspects of the environment to gather a complete picture of the environment. After the observation is over, the multiple observations should be combined into a single “complete” observation. Combining observations can be done two ways (1) through the process of negotiation with the other observers or (2) through the process of generating a combined mean score (see Section on Scoring).

Interacting with Teachers & Post Interview: A single, one-time observation, may not yield sufficient opportunity to observe and document the scope of UDL attributed to a broader context (e.g., how UDL is being implemented by a teacher, versus how UDL was implemented during a 50-minute period). For example, you might observe a session where the teacher is moving throughout a classroom working with students on individual and small group assignments based on a lesson that was actually started two days ago. Based on this observation, it’s unclear whether UDL was used within the unit two days ago. Thus, if you suspect that the session is more complex than what you observed, you should conduct a brief, post- observation interview with the teacher.

Inform the teacher that you suspect the observation was limited due to the narrow window of the observation and/or the timing of the observation (e.g., it was the 2nd day in a 4-day project-based learning experience). Ask the teacher to share any additional insight regarding how s/he approached the following elements in class during the days leading up to the observation: Introducing and Framing New Material; Content Representation and Delivery; Expression of Understanding; and Activities and Student Engagement. If the teacher identifies elements of UDL that would inform the final score on instrument, please adjust the score, and then cite these additions in the note section.

Scoring

This tool may be used to provide specific points of reflection on the UDL implementation of a specific teacher or to identify overall areas for program improvement. Based on specific needs, a reflective process of review may be desired. If a formalized scoring process is desired, the following process is suggested. Note: A single observation should not serve as a characterization of UDL implementation. It is recommended that multiple observations be conducted prior to characterizing the level of implementation within an environment. Specifically, it is suggested that at least three observations be conducted, with at least two unannounced.

Suggested Scoring Process: Calculate the mean score for each section (A-D) and then calculate overall mean for the complete observation. Calculate mean scores by adding the number of items scored in a single section and dividing by the total possible points for a given section (or multiple sections). Remember, items not scored (items with lines drawn through them) do not count for or against the section or overall mean. Thus, these items are not calculated in the mean. Items not scored may be discussed in the observation notes or a narrative summary.

Suggested ways to characterize scores:

No or low Occurrence: UDL is not occurring in this environment (Range 0-.5)

Pre-Emergent: UDL was not directly observed, however the environment is primed for UDL (Range .6-1.5)

Emergent: UDL was observed, but it was not necessarily applied consistently during the observation. This implementation is likely not sustainable over long periods of time (Range 1.6-2.3)

Ideal Implementation: UDL was obvious and being consistently implemented through sustainable practices (Range 2.4-3.0)

Online/Digital Version: Please contact James Basham, for access to an online version.

Section 1: Semi-Structured Non-Participant Observation

Background Information

Observer: _____

Teacher (s): _____

Date: _____ Subject Area: _____ Classroom: _____

Time Period Observed: _____ - _____

Notes:

Universal Design for Learning Observation Measurement Tool (UDL-OMT)

A1. Introducing and Framing New Material					Notes
1. Establishes student understanding of learning or activity goals	0	1	2	3	
2. Establishes student understanding for how to be successful in the learning or activity	0	1	2	3	
3. Activates or supplies background knowledge	0	1	2	3	
4. Highlights what is important for students to learn and/or do	0	1	2	3	
5. Supports understanding of big ideas and/or critical concepts	0	1	2	3	
6. Uses questions that support understanding or inquiry	0	1	2	3	
7. Identifies potential misunderstandings/misconceptions.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>
A2. Introducing and Framing New Material and Goal(s) Setting					
<i>From your perspective and the understanding of the learner variability in the environment....</i>					
1. The goal(s) were presented so the learners in the environment could perceive them. Yes..... <input type="checkbox"/> No..... <input type="checkbox"/> I Don't Know..... <input type="checkbox"/> Notes:					
2. The learning experience provided an opportunity for learners to demonstrate understanding of the goal(s). Yes..... <input type="checkbox"/> No..... <input type="checkbox"/> I Don't Know..... <input type="checkbox"/> Notes:					
3. The goals were separate from the means; meaning there were multiple options to accomplish the goal(s). Yes..... <input type="checkbox"/> No..... <input type="checkbox"/> I Don't Know..... <input type="checkbox"/> Notes:					
B1. Content Representation and Delivery					Notes
1. Presentation of information allows for customisation/flexibility	0	1	2	3	
2. Instruction allows alternatives for visual display of information	0	1	2	3	
3. Instruction allows alternatives for auditory information					
4. Supports options for multiple languages	0	1	2	3	
5. Supports multiple levels of content understanding (e.g., novice, intermediate, or expert)	0	1	2	3	
6. Supports understanding of relationships across disciplines, settings, or concepts	0	1	2	3	
7. Clarifies content-specific vocabulary, symbols, and/or jargon	0	1	2	3	
8. Clarifies content-based syntax and/or structure	0	1	2	3	
9. Highlights options for self-directed clarification of vocabulary and symbols.					
<i>Column Totals</i>					<i>Total:</i>
B2. Content Representation and Delivery Supporting Learner Ability					Notes
Content representation and delivery supported the learners' ability to....	Strongly Disagree	Disagree	Agree	Strongly Agree	
1. Access options to perceive and accomplish the goals	0	1	2	3	
2. Build options to understand language and symbols needed to accomplish the goals	0	1	2	3	
3. Internalise comprehension associated with accomplishing the goals.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>
C1. Expression of Understanding					Notes
1. Allows options for learners to express understandings in a variety of ways	0	1	2	3	
2. Provides access to a variety of tools and/or technologies for students to express their understanding	0	1	2	3	
3. Builds competencies in use of multiple options for expressing their understanding					
4. Intentionally provides supports for students' problem-solving and critical-thinking abilities	0	1	2	3	

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5. Provides options that guide students to plan, develop strategies, and/or goal-setting that promotes expression of understanding	0	1	2	3	
6. The environment facilitates management of information and resources to achieve desired learning outcomes	0	1	2	3	
7. Facilitates student self-monitoring of progress.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>
C2. Expression of Understanding Supporting Learners' Action and Expression					Notes
The learners' ability to take action and express themselves in order to...	Strongly Disagree	Disagree	Agree	Strongly Agree	
1. Access physical options to accomplish the goals	0	1	2	3	
2. Build options for expression and communication to accomplish the goals	0	1	2	3	
3. Internalise options for supporting executive functions for accomplishing the goals.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>
D1. Activity and Student Engagement					Notes
1. Promotes learner choice and self-determination while engaging with the content	0	1	2	3	
2. Provides a variety of activities relevant to all learners	0	1	2	3	
3. Promotes sustained effort and focus	0	1	2	3	
4. Encourages learners' use of strategic planning to complete instructional tasks	0	1	2	3	
5. Encourages or give choice for collaboration and communication among learners	0	1	2	3	
6. Supports multiple levels of challenge					
7. Provides for self-reflection and self-assessment	0	1	2	3	
8. Provides formative progress monitoring and content checks	0	1	2	3	
9. Provides closure that reiterates big ideas and instructional purposes.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>
D2. The Learning Experience Supporting Student Engagement					Notes
The learning experience supported student engagement by...	Strongly Disagree	Disagree	Agree	Strongly Agree	
1. Providing access to options to recruit interest to accomplish the goals	0	1	2	3	
2. Building options for sustaining effort and persistence to accomplish the goals	0	1	2	3	
3. Internalise options for supporting self-regulation for accomplishing the goals.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>

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UDL-OMT Rating Scale

Use the following scale to rate the individual items in Section A1, B1, C1, and D1.

Rating	Description and examples
<i>0 = No Evidence of UDL</i>	No multiple means—Learners were <u>not provided options for engagement, expression, or learning</u> . Learners experienced or used a single strategy or tool; they did not experience or engage in any other option to access the information, demonstrate understanding, take action, or engage in the activity.
<i>1 = Incomplete Evidence of UDL in Environment</i>	Learners experienced or used a <u>single strategy or tool</u> ; <u>however, other strategies or tools were clearly available in the environment</u> but not explicitly used by students or referenced by the teacher.
<i>2 = UDL is Occurring</i>	Learners experienced or used at least <u>two</u> or more strategies and/or tools for how they accessed the information, demonstrated understanding, took action, or engaged in the activity. <u>However, the options were generally static and/or traditional in nature; learners are relying heavily on teacher dependence</u> to support the interpreted range of learner variability.
<i>3 = Dynamic, Interactive UDL</i>	Learners experienced or used at least <u>two</u> or more strategies and/or tools for how they accessed the information, demonstrated understanding, took action, or engaged in the activity; in addition, <u>learners are relying far less on teacher dependence, have more choice on their use of tools or strategies that are customisable, interactive, dynamic, and efficiently</u> support the interpreted range of learner variability.
<i>If “don’t know”, simply write “Don’t Know” in the note area next to the item.</i>	

Scoring Summaries

If desired, this page provides a scoring summary sheet.

Summary of UDL Scores	Mean	Notes
A1. Introducing and Framing New Material		
B1. Content Representation and Delivery		
C1. Expression of Understanding		
D1. Activity and Student Engagement		
Total Score		
Ground Mean		

Summary of Impression of Learner Support	Mean	Notes
B2. Content Representation and Delivery Supporting Learner Ability		
C2. Expression of Understanding Supporting for Learners' Action and Expression		
D2. The Learning Experience Supporting Student Engagement		
Total Score		
Ground Mean		

Instructional Components and Summation

1. Lesson Type (select one): Teacher Centered Student Centered Other (please specify): _____

2. Please write a brief description of the lesson:

3. What would you estimate was the overall percentage of learners who were engaged during this observation?

Low Engagement			High Engagement		
0%	20%	40%	60%	80%	100%

Estimated overall engagement: _____

Notes on student engagement:

4. Formative assessment:

Formative assessment was used to monitor student progress and understanding throughout the learning experience	Strongly Disagree	Disagree	Agree	Strongly Agree	Notes
	0	1	2	3	

5. Support for expert learning:

The learning experience supported expert learning by developing students who are...	Strongly Disagree	Disagree	Agree	Strongly Agree	Notes
1. Purposeful about learning	0	1	2	3	
2. Motivated about learning	0	1	2	3	
3. Resourceful in learning	0	1	2	3	
4. Knowledgeable in learning	0	1	2	3	
5. Strategic about learning	0	1	2	3	
6. Goal-directed about learning.	0	1	2	3	
<i>Column Totals</i>					<i>Total:</i>

6. What might be some areas for improved implementation of UDL within the learning environment?

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Appendix B – Corresponding UDL-OMT Sections and Items Mapped to CAST (2018)

UDL Guidelines and Checkpoints

Content representation and delivery

- Presentation of information allows for customization (G1; C1.1).
- Instruction allows alternatives for visual display of information (G1; C1.3).
- Instruction allows alternatives for auditory information (G1; C1.2).
- Supports options for multiple languages (G2; C2.4).
- Supports multiple levels of content understanding (e.g., novice, intermediate, or expert) (G3; C3.1, C3.3).
- Supports options for multiple languages (G2; C2.4).
- Supports understanding of relationships across disciplines, settings, or concepts (G3; C3.2).
- Clarifies content-specific vocabulary, symbols, and jargon (G2; C2.1, C2.3).
- Clarifies content-based syntax and structure (G2; C2.2).
- Highlights options for self-directed clarification of vocabulary and symbols (G2; C2.1, C2.3).

Expression of understanding

- Allows options for learners to express understandings in a variety of ways (G5; C5.1, C5.2, C5.3).
- Provides access to a variety of tools and/or technologies for students to express their understanding (G4; C4.1, C4.2).
- Builds competencies in the use of multiple options for expressing their understanding (G5; C5.3).
- Intentionally provides supports for students' problem-solving and critical-thinking abilities (G3; C3.2).
- Provides options that guide students to plan, develop strategies, and/or goal-setting that promotes expression of understanding (G6; C6.1, C6.2).
- The environment facilitates management of information and resources to achieve desired learning outcomes (G6; C6.3).
- Facilitates student self-monitoring of progress (G6; C6.4).

Activity and student engagement

- Promotes learner choice and self-determination while engaging with the content (G9; G7; C7.1).
- Provides a variety of activities relevant to all learners (G7; C7.2).
- Promotes sustained effort and focus (G8; C7.3).
- Encourages learners' use of strategic planning to complete instructional tasks (G6; 9; C6.2, 9.2).
- Encourages collaboration and communication among learners (G8; C8.3).
- Supports multiple levels of challenge (G8; C8.2).
- Provides for self-reflection and self-assessment (G9; C9.3).
- Provides formative progress monitoring and content checks (G6; 9; C6.3, C6.4, C9.3).
- Provides closure that reiterates big ideas and instructional purposes (G8; C8.1, C8.4).

Note. UDL Guideline (G), UDL Checkpoint (C). The items map to the UDL Guidelines (CAST, 2018) presented in Figure 1. UDL = Universal Design for Learning; OMT = Observation Measurement Tool.

Appendix C - Phase 1 Invitation Email to School Principal

To: <<Email Address>>

Subject: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Dear Principal

My name is Miss Hongyu Chen, and I am currently undertaking a dissertation as part of my Doctor of Philosophy in the Sydney School of Education and Social Work at the University of Sydney. I am writing to seek your cooperation in conducting a research study as part of my dissertation.

This three-phase study will investigate how secondary school teachers cater for all students in their classroom. The three phases include:

Phase 1: Questionnaire. I am seeking potential participants, teachers from across your school, to complete a questionnaire about their intentions towards inclusive practice. This will take 30-40 minutes. At this point, teachers will be asked to volunteer to be part of Phases 2 and 3.

Phase 2: Interviews. Teachers will engage with me in an interview about their intentions towards inclusive practice. This will provide us with greater understanding of teachers work towards catering for all learners in their classroom. The interviews will be audio-recorded and take approximately 1 hour.

Phase 3: Classroom observations and interviews. I plan to observe each teacher who volunteers working with students in their classroom on two occasions for approximately 120 minutes. These teaching sessions will be video recorded. Following these observations, I will undertake a post observation interview for about 30 minutes.

I request that the *Letter of Invitation* to teachers and the *Participant Information Sheet: Teacher* be distributed to teachers. I ask that this be undertaken by a member of administrative staff. If after reading this information staff decide to take part in the study, a link to the questionnaire is provided within the *Letter of Invitation Teacher* and the *Participant Information Statement: Teacher*. At the completion of the questionnaire, teachers will be asked to volunteer to be part of Phase 2 and Phase 3 of the study.

All research data will be securely stored during and after the study. Only the researchers will have access to responses. We are planning for the study findings to be part of publications (e.g., *Australasian Journal of Special and Inclusive Education*, *International Journal of Chinese Education*) and/or presented at conferences. Your school and teachers will not be identified within this dissemination of results.

If you require further information regarding this study, Professor David Evans would be happy to provide it at your convenience. He can be contacted at: david.evans@sydney.edu.au You can also contact Dr Sisi Wang, Nanjing Normal University of Special Education

We also invite you to tell other people about the study. We ask that you forward a copy of this email, and attachments to your colleague/s, inviting them to be part of the study.

If you would like to know the results of the study, I ask that you go to the following [link](#). You will be asked to provide your name and email to send you a one-page lay summary of the findings.

I thank you for considering this request.

Regards

Hongyu Chen [Miss]
Sydney School of Education and Social Work
University of Sydney

Appendix D - Phase 1 Invitation Letter to Teachers

Letter of Invitation

Teachers



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

David Evans PhD
Sydney School of Education and Social Work
Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716@uni.sydney.edu.au

Dear Teacher

You are invited to participate in a research project investigating how secondary teachers cater for all students in their classroom. Attached to this letter of invitation is a Participant Information Statement that will inform you about the research project. We ask that you read this statement carefully, and if you have further questions, please contact the people listed within the statement.

If you wish to participate in this study, we thank you. You can access the questionnaire at: https://sydney.au1.qualtrics.com/jfe/form/SV_8HtNQ2F83g6IK7s

We thank you for considering this invitation.

Yours sincerely

Hongyu Chen
David Evans PhD
Betty Luu PhD

Appendix E - Participant Information Statement (Phase 1)

Participant Information Statement

Teachers (Phase 1)



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans (Responsible Researcher)

Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au

Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

1. What is this study about?

We are conducting a research study that examines how secondary school teachers address the educational needs of all learners in their classrooms. We are interested in what teachers do in their classrooms, how they work to know their students, and the actions they take to understand the busy nature of the classroom. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- Dr David Evans, Professor of Special and Inclusive Education, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Dr Betty Luu, Research Fellow, Research Centre for Children and Families, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Miss Hongyu Chen is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

We are seeking to understand how secondary classroom teachers address the educational needs of all learners in their classroom. We have invited teachers in China from across all subject areas to be part of this study.

You have been invited to take part in this study because you are a teacher working in a secondary school in China identified at random from a list of secondary schools listed online.

4. What will the study involve for me?

This study has three phases. Each phase is outlined below including the research activity we are asking teachers to complete, the duration of the research activity, and how data will be recorded. All data will be securely stored in data site within the University of Sydney. Only the researchers have access to these data.

Phase	Research Activity	Time	Recordings
1	Complete an anonymous online survey about your professional ideas about catering for all students in your classroom.	30-40 minutes	Online survey stored on a secure server at the University of Sydney
	Invitation to participate in Phases 2 and 3		
2	Participate in an interview to further explore your professional ideas about catering for all learners in your classroom	45-60 minutes	Audio recording
	Invitation to participate in Phases 3		
3	Classroom observations to capture the skills, knowledge and behaviour you use to cater for all students.	2 lessons of 60 minutes (120 minutes)	Audio-visual recordings will be made of your teaching using a recording device located in the classroom. This device will 'follow' or rotate to capture what you are doing in the classroom. All communication with students will be captured via a tag worn by you. This tag will also alert the recording system to where you are in the classroom.
	Interview to elaborate on the professional knowledge you used during these observations to assist cater for all learners.	15-30 minutes	Audio recording

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part. If you volunteer to be part of Phase 1, you can then volunteer to participate in Phases 2 and 3. You will be asked at the end of Phase 2 to confirm your participation in Phase 3.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney or your school.

If you decide to take part in the study and then change your mind you can withdraw. In Phase 1, by not submitting your survey responses. By submitting your survey, you consent to take part in the study. You can withdraw any time before you submit, however, once your responses are submitted, they cannot be withdrawn. This is because they are anonymous, and we will not be able to tell which one is yours.

In Phase 2 and 3, you can withdraw by emailing Dr David Evans [david.evans@sydney.edu.au] or Dr Sisi Wang. If you take part in an interview you may refuse to answer any questions that you do not wish to answer. If you take part in the classroom observations, you can stop recording at any time. If you withdraw, please let us know at the time you withdraw what you would like us to do with information we have collected about you up to that point

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study.

7. Are there any benefits?

You will not receive any direct benefits from being in the study.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information (e.g., survey responses, interviews, observations) you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. These data will be destroyed approximately after the completion of the study.

We plan to publish study findings in professional journals, and present at conferences. You will not be individually identifiable in these publications or presentations.

We may use parts of the results of this study in future research we undertake. If we do plan to use results, we will obtain permission from the University of Sydney Human Research Ethics Committee.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can indicate your wish to receive feedback about the results by completing the section at the end of the survey. This feedback will be in the form of a brief lay summary.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences [hche6716@uni.sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [[HREC Approval No. 2023/209](#)] according to the *National Statement on Ethical Conduct in Human Research (2007)*.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

In China:
Dr Sisi Wang
Nanjing Normal University of Special Education

(+86) 138 5178 5015

This information sheet is for you to keep

Appendix F - Participant Information Statement (Phase 2)

Participant Information Statement

Teachers (Phase 2)



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans (Responsible Researcher)

Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au

Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

1. What is this study about?

We are conducting a research study that examines how secondary school teachers address the educational needs of all learners in their classrooms. We are interested in what teachers do in their classrooms, how they work to know their students, and the actions they take to understand the busy nature of the classroom. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- Dr David Evans, Professor of Special and Inclusive Education, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Dr Betty Luu, Research Fellow, Research Centre for Children and Families, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Miss Hongyu Chen is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

We are seeking to understand how secondary classroom teachers address the educational needs of all learners in their classroom. We have invited teachers in China from across all subject areas to be part of this study.

You completed the online survey as part of Phase 1 of this study and volunteered to be part of Phase 2 and 3. We are now inviting you to be part of Phase 2.

4. What will the study involve for me?

In Phase 2 of the study, we are asking you to be part of an interview where we will further explore with you your professional ideas about catering for all learners in your classroom.

The interview will be scheduled at a time that is convenient to you; the interview can take place at your school or at a public place convenient for both of us.

The interview requires 45-60 minutes of your time. The interview will be audio-recorded to allow the researchers to undertake analysis of your professional ideas.

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part. During the interview you may refuse to answer any questions that you do not wish to answer. You can withdraw from Phase 2 of the study at any time by emailing Dr David Evans [david.evans@sydney.edu.au] or Dr Sisi Wang. If you withdraw, please let us know at the time you withdraw what you would like us to do with information we have collected about you up to that point.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney or your school.

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study.

7. Are there any benefits?

You will not receive any direct benefits from being in the study.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information (e.g., survey responses, interviews, observations) you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. These data will be destroyed approximately after the completion of the study.

We plan to publish study findings in professional journals, and present at conferences. You will not be individually identifiable in these publications or presentations.

We may use parts of the results of this study in future research we undertake. If we do plan to use results, we will obtain permission from the University of Sydney Human Research Ethics Committee.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can indicate your wish to receive feedback about the results by completing the section at the end of the survey. This feedback will be in the form of a brief lay summary.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences [hche6716@uni.sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education [sisw007@njts.edu.au]

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [HREC Approval No. 2023/209] according to the *National Statement on Ethical Conduct in Human Research (2007)*.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

In China:
Dr Sisi Wang
Nanjing Normal University of Special Education

(+86) 138 5178 5015

This information sheet is for you to keep

Appendix G - Participant Consent Form (Phase 2)

Participant Consent Form

Teachers Phase 2



Research Study: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Participant Name _____

I agree to take part in this research study. In giving my consent, I confirm that that:

- The details of my involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.
- I understand the purpose of the study is to investigate my understanding of how I cater for all students in my class.
- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.
- I understand that in Phase 2 of the study I will be required to participate in an interview.
- I understand during my participation interview will be audio recorded.
- I understand that my information may be used in future research that addresses how teachers and schools cater for all learners through developing quality inclusive educational environments. We will obtain consent to use your information prior to commencing future research.
- I understand that being in this study is completely voluntary.
- I am assured that my decision to participate will not have any impact on my relationship with the research team or the University of Sydney or my school.
- I understand that I am free to withdraw from this study at any time and that I can choose to withdraw any information I have already provided (unless the data has already been de-identified or published).
- I have been informed that the confidentiality of the information I provide will be protected and will only be used for purposes that I have agreed to. I understand that information identifying me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.
- I confirm the following:

I consent to recordings (audio) Yes No

I would like to review my interview transcripts Yes No

I consent to my data being used in future research Yes No

I would like feedback on the overall results of this study Yes No

If you answered **yes**, please provide your preferred contact details (email/telephone/postal address):

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

Date _____

Appendix H - Participant Information Statement (Phase 3)

Participant Information Statement

Teachers (Observations: Phase 3)



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans (Responsible Researcher)

Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au

Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

1. What is this study about?

We are conducting a research study that examines how secondary school teachers address the educational needs of all learners in their classrooms. We are interested in what teachers do in their classrooms, how they work to know their students, and the actions they take to understand the busy nature of the classroom. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- Dr David Evans, Professor of Special and Inclusive Education, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Dr Betty Luu, Research Fellow, Research Centre for Children and Families, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Miss Hongyu Chen is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

We are seeking to understand how secondary classroom teachers address the educational needs of all learners in their classroom. We have invited teachers in China from across all subject areas to be part of this study.

You completed the online survey as part of Phase 1 and volunteered to be part of Phase 2 and 3. You participated in the Phase 2 interview. We are now inviting you to participate in Phase 3.

4. What will the study involve for me?

In this phase of the study (i.e., Phase 3), we are seeking to complete a set of audio-visual recordings of you teaching at your school, and to complete a post-observation interview.

Audio-visual recordings will be made of your teaching using a recording device located in the classroom. This device will 'follow' or rotate to capture what you are doing in the classroom. All communication with students will be captured via a tag worn by you. This tag will also alert the recording system to where you are in the classroom.

During the post-observation interview, we would like you to elaborate on the professional knowledge you used during these observations to assist cater for all learners. The interview will be undertaken at your schools and will take up to 30 minutes of your time.

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part. If you volunteer to be part of Phase 3, you can withdraw at any time. You can stop the recording at any time, and you may refuse to answer any interview questions that you do not wish to answer.

you can withdraw by emailing Dr David Evans [david.evans@sydney.edu.au] or Dr Sisi Wang. If you withdraw, please let us know at the time you withdraw what you would like us to do with information we have collected about you up to that point. Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney or your school.

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study.

7. Are there any benefits?

You will not receive any direct benefits from being in the study.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information (e.g., interviews, observations) you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. These data will be destroyed approximately after the completion of the study.

We plan to publish study findings in professional journals, and present at conferences. You will not be individually identifiable in these publications or presentations.

We may use parts of the results of this study in future research we undertake. If we do plan to use results, we will obtain permission from the University of Sydney Human Research Ethics Committee.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can indicate your wish to receive feedback about the results by completing the section at the end of the survey. This feedback will be in the form of a brief lay summary.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences [hche6716@uni.sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [HREC Approval No. 2023/209] according to the *National Statement on Ethical Conduct in Human Research (2007)*.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

In China:
Dr Sisi Wang
Nanjing Normal University of Special Education

(+86) 138 5178 5015

This information sheet is for you to keep

Appendix I - Participant Consent Form (Phase 3)

Participant Consent Form

Teachers (Observations: Phase 3)



Research Study: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Participant Name _____

I agree to take part in this research study. In giving my consent, I confirm that:

- The details of my involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.
- I understand the purpose of the study is to investigate my understanding of how I cater for all students in my class.
- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.
- I understand that in Phase 3 of this study I will be observed in one of my classes for about 120 minutes and complete a post-observation interview.
- I understand that class observations will be video-recorded, and the post-observations interview will be audio recorded.
- I understand that my information may be used in future research that addresses how teachers and schools cater for all learners through developing quality inclusive educational environments.
- I understand that being in this study is completely voluntary.
- I am assured that my decision to participate will not have any impact on my relationship with the research team or the University of Sydney or my school.
- I understand that I am free to withdraw from this study at any time and that I can choose to withdraw any information I have already provided (unless the data has already been de-identified or published).
- I have been informed that the confidentiality of the information I provide will be protected and will only be used for purposes that I have agreed to. I understand that information identifying me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.
- I confirm the following:

I consent to recordings (audio/video/photographic) Yes No

I would like to review my interview transcripts Yes No

I consent to my data being used in future research Yes No

I would like feedback on the overall results of this study Yes No

If you answered **yes**, please provide your preferred contact details (email/telephone/postal address):

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

Date _____

Appendix J - Student Information Sheet (Phase 3)

Study Information Sheet

Students Phase 3



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans

Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au

Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Hello! Our names are:

- Dr David Evans, University of Sydney
- Dr Betty Luu, University of Sydney
- Hongyu Chen, University of Sydney

1. What is this about?

We are doing a study about how your teacher helps all students with their learning.

We have asked you to be a part of our study because the teacher of one of your classes has volunteered to be part of our study. We are most interested in what you teacher does to support all students in your class with their learning. To do this, you will in their class.

You can choose to take part, but you don't have to. This sheet will tell you more about what will happen so you can make up your mind.

We will also ask your parent if they are happy for you to be part of this study, but even if they say yes, you can still choose to say no.

If you have any questions, you can ask us, or you can talk to someone else who looks after you. If you want to, you can contact David Evans [david.evans@sydney.edu.au] or Dr Sisi Wang

2. What will happen if I say yes?

If you decide you want to be in our study, this is what will happen:

- We ask that you be part of your usual classes so we can observe your teacher
- We will set up a camera in your classroom to observe your teacher

- You may be captured by the camera as you take part in the lesson, but our focus is the teacher.

If you say it's ok, we will make a video of you teacher working in the class with a video recorder so we can remember what happened during the study. You may be captured on these recordings.

3. What are the good or bad things about the study?

The study will take up some of your time, but we don't think it will upset you or cost you anything.

You won't get anything for taking part, but you will be helping us do our study. Once we have finished the study, we will let you know what we found out.

4. What are your rights?

Whatever we see today and what you tell us is private. We will write about the things we learn from you, but we won't use your name, the name of your teacher or your school, and we won't say anything that could tell other people who you are unless you say its ok to use your name.

If you change your mind that's ok. It won't change how we feel about you. All you have to do is tell us you don't want to be part of the study anymore and we won't use anything you tell us. But this needs to happen before we finish the report about the study.

It is important to know that– just like teachers and doctors – we might have to report things that are illegal or things that might be important for your safety or the safety of other people.

If you have any questions about the study, you can talk to

- Dr David Evans, University of Sydney [david.evans@sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education

5. What if I am not happy about the study?

If you are not happy with how we are doing the study and want to contact someone else, you can:

- **Call** the university on +61 2 8627 8176
- **Email** the manager at human.ethics@sydney.edu.au

This sheet is for you to keep

Appendix K - Student Consent Form (Phase 3)

Study Consent Form

Students Phase 3



Research Study: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Participant Name _____

If you are happy to be in this study, please

- **Check** your **name** is in the space above
- **Sign** your **name** at the bottom of the next page
- **Provide** your **contact details** if you would like to know what we learn

By saying yes to being in this study, I am saying that:

- I know what I will be asked to do and have been given a Study Information Sheet to keep.
- I know that this study is about how my teacher assists all students in my class with their learning.
- Someone has talked to me about the study and what it means for me.
- I know that I will be asked to be part of a class where the researchers want to observe my teacher. I understand that I may be captured on the video recording of my teacher.
- I know that I don't have to be in the study if I don't want to.
- I know that I can choose not to talk about something if I don't want to.
- I have been asked if it is ok or not ok to record what is happening in my class.

- I have been told that I can change my mind if I don't want to take part anymore.
- I have been told that if I say yes or no it won't change how the study team feel about me.
- I know that what I say or do in this study is private and when the study team write about what they learn they won't use my name or anything that could tell other people who I am.
- I understand that after I sign and return this consent form it will be kept by the researcher, and that I can ask for a copy at any time.

Your Name _____
Your Signature _____
Today's Date _____

We would like to tell you what we learned once we finish the study. How can we contact you to tell you what we found out? (write your address, email or phone number)

Appendix L - Parent/Guardian Information Statement (Phase 3)

Parent/Guardian Information Statement Classroom Observations



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

1. What is this study about?

We are conducting a research study that examines how secondary school teachers address the educational needs of all learners in their classrooms. We are interested in what teachers do in their classrooms, how they work to know their students, and the things they do to understand the busy nature of the classroom.

Your child is enrolled in a classroom where their teacher has volunteered to be part of this study. While the focus of this study is the teacher, your child may be part of data that we capture (i.e., captured audio-visual recordings in the classroom). Your child has been invited to take part. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- Dr David Evans, Professor of Special and Inclusive Education, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Dr Betty Luu, Research Fellow, Research Centre for Children and Families, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Miss Hongyu Chen is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

We are seeking to understand how secondary classroom teachers address the educational needs of all learners in their classroom. We have invited teachers in China from across all subject areas to be part of this study.

Your child has been invited to take part in this study because one of their teachers has volunteered to be part of the study.

4. What will the study involve?

If you decide your child can take part in this study, they will be asked to attend classes as usual. The study involves making audio-visual recordings of 4-5 lessons planned and delivered by the teacher to your child's class. These are lessons your child would normally participate in.

Audio-visual recordings will be made using a recording device located in the classroom. This device will 'follow' or rotate to capture what the teacher is doing in the classroom. All communication with students will be captured via a tag worn by the teacher. This tag will also alert the recording system to where the teacher is in the classroom.

In making these recordings, your child may be captured as part of the typical literacy routines, exchanges and learning activities led by the teacher. While this study is not looking specifically at your child, there is a chance he/she will be captured on recordings that will be analysed later.

At the end of the study, the researchers will interview the teacher about his/her understanding of literacy and approaches to teaching literacy in kindergarten. We may discuss some of the audio-visual recordings to gain further insight into the teacher's approach and decision-making.

If you decide you do not want your child to be part of the classes in which we collect audio-visual data, the school will arrange for them to undertake their learning in another equivalent class in the school.

5. Can we withdraw once started?

Being in this study is completely voluntary and your child does not have to take part. They will also be asked if they agree to take part if you decide they can.

Any decision will not affect current or future relationships with the researchers or anyone else at The University of Sydney.

We do not anticipate your decision will affect your relationship or your child's relationship with the school.

If you and your child decide they will take part in the study and either of you change your mind, you can withdraw by emailing Dr David Evans (david.evans@sydney.edu.au) or Dr Sisi Wang. In this event, your child may be allocated to another class during recording of sessions in their regular class.

If you or child decide to withdraw from the study, we will not collect any more information about them. Any information that we have already collected, however, will be kept in our study records and may be included in the study results as it will not be possible to withdraw recordings that involve other students.

6. Are there any risks or costs?

Aside from giving up time, we do not expect that there will be any risks or costs associated with taking part in this study for your child.

7. Are there any benefits?

There are no direct benefits for you or your child from being in the study.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about the lessons in which your child is enrolled for the purposes of this study. I understand that the focus of these lessons is the class teacher.

Any information provided to us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. We are planning for the study findings to be published.

Your child, their teacher and their school will not be individually identifiable in these publications.

Data collected (i.e., interviews with teachers, audio-visual recordings) will be analysed as part of the study by the listed researchers. Results will initially be used by Miss Chen to complete the requirements of her doctoral thesis; data will also be used as part of journal publications and conference presentations. Data and result may be used as part of a larger body of research investigating how teachers provide quality inclusive education for all learners.

Data will be securely stored within the University of Sydney for five years and then erased. Throughout the storage of the data Dr Evans will maintain oversight of its security and ensure its safe disposal.

9. Will I be told the results of the study?

You and your child have a right to receive feedback about the overall results of this study. You can tell us if you want feedback by providing your contact details on the Participant Consent Form. This feedback will be in the form of a one-page lay summary.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have. If you or your child would like to know more at any stage, please feel free to contact:

- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences [hche6716@uni.sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education [sisw007@njts.edu.au]

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [INSERT HREC Approval No. 2023/XXX] according to the *National Statement on Ethical Conduct in Human Research (2007)*.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au

+61 2 8627 8176

In China:
Dr Sisi Wang
Nanjing Normal University of Special Education

(+86) 138 5178 5015

This information sheet is for you to keep

Appendix M - Parent/Guardian Consent Form (Phase 3)

Parent/Guardian Consent Form Classroom Observations



Research Study: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Participant Name _____

Parent/Guardian Name _____

**Guardianship Status
(parent/carer/legal guardian)** _____

I agree my child may take part in this research study.

In giving my consent, I confirm that that:

- The details of any involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.
- I understand the purpose of the study is to investigate how secondary school teachers in China address the educational needs of all learners in their classrooms.
- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.
- I understand that in this study my child will be present in a class where observations of the class teacher are being undertaken. I understand that my child is not the focus of the study.
- I understand that video-recordings of the class teacher are being made and that my child may be captured on these recordings.
- I understand that information may be used in future research. This research is about the actions of class teachers and how they cater for all learners in the classroom. My child will not be the focus of this research.
- I understand that being in this study is completely voluntary.
- I am assured that my decision to let participate will not have an impact on any relationship with the research team or the University of Sydney or the school my child attends.

- I understand that my child is free to withdraw from this study at any time.
- I have been informed that the confidentiality of the information collected in the project (i.e., class video observation data) will be protected and will only be used for purposes that has been agreed to. I understand that information identifying my child will only be told to others with my permission, except as required by law.
- I understand that the results of this study may be published, and that publications will not contain any identifiable information about my child.
- I confirm the following:

I consent to recordings (video) Yes No

I consent to data being used in future research Yes No

I would like feedback on the overall results of this study Yes No

If you answered **yes**, please provide your preferred contact details (email/telephone/postal address):

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Parent/Guardian Name _____

Signature _____

Date _____

Appendix N – Phase 2 & Phase 3 Invitation Email to School Principals

To: <<school email>>

Subject: Attn Principal: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Dear Principal,

I am writing to seek your cooperation in conducting the third phase of a research study as part of my PhD (Education).

This study will investigate how secondary school teachers cater for all learners in their classroom. This phase of the study involves audio-visual recordings of classes and interviews with teachers.

[teacher's name] completed an online survey as part of the first phase of this study and volunteered to be contacted to participate in Phase 2 and Phase 3 of the study. In Phase 2, the teacher will be interviewed about their insights of inclusive education. In Phase 3, I am seeking to make an audio-visual recording of at least two lessons planned and conducted by the teacher followed by an interview where the teacher can reflect on their lessons.

I am asking for your consent to collect recordings of lessons and to conduct interviews with [teacher's name] at the school.

Please find attached Participant Information Statements for teachers and parents/carers and consent forms for teachers and parents/carers. I have also attached a consent form for you, the principal, to sign, scan and email to me indicating your consent to undertake this research at your school.

If you require further information regarding the study, I am happy to discuss it at your convenience.

Thank you for considering this request.

Regards,

Hongyu Chen
hche6716uni.sydney.edu.au
PhD Candidate
Sydney School of Education and Social Work
University of Sydney

Appendix O – Principal Information Statement (Phase 3)

Participant Information Statement

Principal Phase 3



Research Study: *Chinese Secondary School Teacher Intentions towards Inclusive Practice*

Professor David Evans (Responsible Researcher)

Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au

Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

1. What is this study about?

We are conducting a research study that examines how secondary school teachers address the educational needs of all learners in their classrooms. We are interested in what teachers do in their classrooms, how they work to know their students, and the actions they take to understand the busy nature of the classroom. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- Dr David Evans, Professor of Special and Inclusive Education, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Dr Betty Luu, Research Fellow, Research Centre for Children and Families, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences

Miss Hongyu Chen is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

We are seeking to understand how secondary classroom teachers address the educational needs of all learners in their classroom. We have invited teachers in China from across all subject areas to be part of this multi-phase study.

Your secondary school is invited to take part in this study as one your teachers, <<name of teacher>>, has volunteered to be part of Phase 3 of the study.

4. What will the study involve for me?

This study has three phases. In Phase 3 we are asking to undertake observations in one of your teacher's classrooms. <<name of teacher>> volunteered to be part of this phase

of the study involving video-recordings of two lessons (120 minutes), and post-observation interview. Audio-visual recordings will be made of their teaching using a recording device located in the classroom. This device will 'follow' or rotate to capture what they are doing in the classroom. All communication with students will be captured via a tag worn by the teacher. This tag will also alert the recording system to where you are in the classroom. An audio-recording will be made of the post-observation interview.

While this study is focused on teachers, we understand that some students may be captured as part of recordings. We are therefore seeking permission from students in the classroom and their parents for these observations to be conducted in the classroom.

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

If you decide for these observations to take place and then change your mind you can withdraw for your school's involvement. You can withdraw by emailing Dr David Evans [david.evans@sydney.edu.au] or Dr Sisi Wang. You or teachers can stop recording at any time. If you withdraw, please let us know at the time you withdraw what you would like us to do with information we have collected up to that point

6. Are there any risks or costs?

Aside from giving up time, we do not expect that there will be any risks or costs associated with taking part in this study.

7. Are there any benefits?

You or teachers will not receive any direct benefits from being in the study.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about the participating teacher for the purposes of this study.

Any information you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. These data will be destroyed approximately after the completion of the study.

We plan to publish study findings in professional journals, and present at conferences. Your school or teachers will not be individually identifiable in these publications or presentations.

We may use parts of the results of this study in other research we undertake. If we do plan to use results, we will obtain permission from the University of Sydney Human Research Ethics Committee.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can indicate your wish to receive feedback about the results by completing the section at the end of the survey. This feedback will be in the form of a brief lay summary.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- Miss Hongyu Chen, Doctor of Philosophy student, Sydney School of Education and Social Work, Faculty of Arts and Social Sciences [hche6716@uni.sydney.edu.au]
- Dr Sisi Wang, Nanjing Normal University of Special Education [sisw007@njts.edu.au]

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [INSERT HREC Approval No. once obtained] according to the *National Statement on Ethical Conduct in Human Research (2007)*.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

In China:
Dr Sisi Wang
Nanjing Normal University of Special Education

(+86) 138 5178 5015

This information sheet is for you to keep

Appendix P – Principal Consent Form (Phase 3)

Participant Consent Form

Principal Phase 3



Research Study: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Professor David Evans (Responsible Researcher)
Sydney School of Education and Social Work, Faculty of Arts and Social Sciences
Phone: +61 2 9351 8463 | Email: david.evans@sydney.edu.au
Miss Hongyu Chen (Doctor of Philosophy student) | Email: hche6716uni.sydney.edu.au

Participant Name _____

I agree to teacher/s and their student taking part in this research study. In giving my consent, I confirm that that:

- The details of the involvement by teachers and their students have been explained to me, and I have been provided with a written Participant Information Statement to keep.
- I understand the purpose of the study is to investigate the understanding of teachers about how they cater for all students in their class/es.
- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.
- I understand that in Phase 3 of this study observations will be made in classes, and that the class teacher will participate in a post-observation interview.
- I understand that class observations will be video-recorded, and the post-observations interview will be audio recorded. I understand that video-recordings will focus on the teacher, yet students may be captured in these recordings.
- I understand that information may be used in future research that addresses how teachers and schools cater for all learners through developing quality inclusive educational environments. I understand the researchers will obtain consent to use this information prior to using it in future research.
- I understand that being in this study is completely voluntary.
- I am assured that my school's participation will not have any impact on my relationship with the research team or the University of Sydney.
- I understand that teachers and/or students are free to withdraw from this study at any time. Teachers are free to withdraw any information already provided (unless the data has already been de-identified or published).

- I have been informed that the confidentiality of the information provided will be protected and will only be used for purposes agreed to. I understand that information identifying my school, teachers or students will only be told to others with my permission, except as required by law.
- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about my school, teachers or students.
- I confirm the following:

I consent to recordings (audio/video) Yes No

I consent to data being used in future research Yes No

I would like feedback on the overall results of this study Yes No

If you answered **yes**, please provide your preferred contact details (email/telephone/postal address):

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

School _____

Date _____

Appendix Q – Ethics Approval



Research Integrity & Ethics Administration
Human Research Ethics Committee

Wednesday, 21 June 2023

Prof David Evans
Education; Faculty of Arts and Social Sciences
Email: david.evans@sydney.edu.au

Dear David,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved.

Approval is granted for a period of four years from **21/06/2023** to **21/06/2027**

Project No.: 2023/209

Project Title: Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour Short Title: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Authorised Personnel: Evans David; Chen Hongyu; Luu Betty;

First Annual Report due: 21/06/2024

Documents Approved:

Date Uploaded	Version number	Document Name
12/05/2023	Version 1	Email Principal v2 2023/209
12/05/2023	Version 1	Email SiSi Wang 24-4-23
12/05/2023	Version 1	Memo 20-4-23 2023/209
12/05/2023	Version 2	PCF Parents Ph3 v2 2023/209
12/05/2023	Version 2	PCF Teacher Ph2 v2 2023/209
12/05/2023	Version 2	PIS Parent Ph3 v2 2023/209
12/05/2023	Version 2	PIS Students Ph3 v2 2023/209
12/05/2023	Version 2	PIS Teacher Ph1 v2 2023/209
12/05/2023	Version 1	PIS Teacher Ph2 v1 2023/209
12/05/2023	Version 1	PIS Teacher Ph3 v1 2023/209
12/05/2023	Version 1	Script Ph3 v1 2023/209
12/05/2023	Version 1	Section 365 Revised 2023/209
12/05/2023	Version 1	Section 367

Special Condition/s of Approval

- Please note that it is a condition of approval that a modification request is submitted if the design of the study changes following the completion of the pilot/prototype phase.
- It will be a condition of approval that certified translations of the public documents (eg Participant Information Statement, Participant Consent Form, Survey) are provided once

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Level 2, Margaret Telfer Building (K07)
The University of Sydney
NSW 2006 Australia

T +61 2 9036 9161
E human.ethics@sydney.edu.au
W sydney.edu.au/ethics

ABN 15 211 513 464
CRICOS 00026A

these have been approved in English. <https://intranet.sydney.edu.au/research-support/ethics-integrity/human-ethics/guidelines.html#translated-documents>

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
 - Serious or unexpected adverse events (which should be reported within 72 hours).
 - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.
- The Clinical Trials Support Office has been notified as outlined in the University's Clinical Trials Policy where a clinical trial is being undertaken.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

Associate Professor Helen Mitchell
Chair
Human Research Ethics Committee (HREC 1)



THE UNIVERSITY OF
SYDNEY

The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) current National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's current Australian Code for the Responsible Conduct of Research (2018).

Appendix R – Ethics Modification



Research Integrity & Ethics Administration
HUMAN RESEARCH ETHICS COMMITTEE

Monday, 18 March 2024

Prof David Evans
Education; Faculty of Arts and Social Sciences
Email: david.evans@sydney.edu.au

Dear David,

Your request to modify this project, which was submitted on 11/02/2024, has been considered.

After consideration of your response to the comments raised, this project has been approved to proceed with the proposed amendments.

Protocol Number: 2023/209
Protocol Title: Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour Short Title: Chinese Secondary School Teacher Intentions towards Inclusive Practice

Addition of Authorised Persons:

Removal of Authorised Persons:

New Completion Date:

Annual Report Due: 21/06/2024

Documents Approved:

Date Uploaded	Version Number	Document Name
11/02/2024	Version 2	Interview Ph2 v2 2023/209 clean

Special Condition/s of Approval

The Committee approved this revised modification in the absence of ethical objections and on the basis of satisfactory scientific merit. The special conditions of approval are as follows:

- Given that consent is being obtained from the teacher/s involved, approval is given to undertake the video recordings of teachers on the condition that students will not be captured in the video footage.
- Because consent will not be obtained from students/parents or carers, in cases where it is not possible to only record/film teachers, the method for record keeping should be fieldnotes only (and not video recording).
- Thank you for liaising with the Research Data Consulting team regarding the storage and transfer of data between China and Australia. Please update the Ethics Office on any changes made to your research data management plans.

Please contact the ethics office should you require further information.

Sincerely,

Dr Kathryn Bartimote
Chair
Modification Review Committee (MRC 2)

Research Integrity & Ethics Administration
Research Portfolio
Level 3, F23 Administration Building
The University of Sydney
NSW 2006 Australia
T +61 2 9036 9161
E human.ethics@sydney.edu.au
W [sydney.edu.au/ethics](https://www.sydney.edu.au/ethics)

ABN 15 211 513 464
CRICOS 00026A



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SYDNEY

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) [National Statement on Ethical Conduct in Human Research \(2018\)](#) and the NHMRC's [Australian Code for the Responsible Conduct of Research \(2018\)](#)



Research Integrity & Ethics Administration
HUMAN RESEARCH ETHICS COMMITTEE

Tuesday, 5 September 2023

Prof David Evans
Education; Faculty of Arts and Social Sciences
Email: david.evans@sydney.edu.au

Dear David,

Your request to modify this project, which was submitted on 03/07/2023, has been considered.

After consideration of your response to the comments raised, this project has been approved to proceed with the proposed amendments.

Protocol Number: 2023/209
Protocol Title: Secondary school teacher intentions to implement Universal Design for Learning and their actual teaching behaviour in China: An application of the Theory of Planned Behaviour
Short Title: Chinese Secondary School Teacher Intentions towards Inclusive Practice
Annual Report Due: 21/06/2024

Documents Approved:

Date Uploaded	Version Number	Document Name
03/07/2023	v.2.0	Survey v2 2023/209 Clean

Special Condition/s of Approval

- Please submit certified translations of the public documents (e.g. Participant Information Statement, Participant Consent Form, Survey) via a Special Conditions of Approval Form in IRMA once they are available: <https://intranet.sydney.edu.au/research-support/ethics-integrity/human-ethics/guidelines.html#translated-documents>
- Please contact the ethics office should you require further information.

Sincerely,

Dr Marinda Taha
Chair
Modification Review Committee Chair (MRC 1)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) [National Statement on Ethical Conduct in Human Research \(2018\)](#) and the NHMRC's [Australian Code for the Responsible Conduct of Research \(2018\)](#)

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ABN 15 211 513 464
CRICOS 00026A

Fw: Advice: Protocol 2023/209

David Evans <david.evans@sydney.edu.au>

Fri 22/12/2023 12:54 AM

To: Merlyn Chen <hche6716@uni.sydney.edu.au>

Dear Hongyu

Please see response from ethics office about video observations.

Seems to be a simple way around the matter.

Regards

David

David Evans PhD | Professor of Special and Inclusive Education
Faculty of Arts and Social Sciences
Sydney School of Education and Social Work

FASS Disability Liaison Officer
Co-Chair, Disability Inclusion Action Plan Implementation Committee
Access and Inclusion Champion

Visiting Professor, Universitas Negeri Yogyakarta | 2017
Adjunct Professor, Universiti Pendidikan Sultan Idris | 2021-23

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Room A35-707 Education Building | The University of Sydney | NSW | 2006

T +61 2 9351 8463 | **F** +61 2 9351 2606

E david.evans@sydney.edu.au | **W** sydney.edu.au

From: Human Ethics <human.ethics@sydney.edu.au>

Sent: Tuesday, 19 December 2023 1:21 PM

To: David Evans <david.evans@sydney.edu.au>

Subject: RE: Advice: Protocol 2023/209

Hi there David,

Thanks for getting in touch with the Ethics Office.

Our recommendation would be to keep the camera focused on the teacher at the front of the room to avoid capturing any video footage of students. After filming, you could transcribe only the teacher's verbal interactions with students from the audio-recording, then securely destroy the video recording so all that's left is data pertaining to the teacher.

This change will require the submission of a modification in IRMA, but as it's a minor change, we should be able to review the modification in-office, rather than needing to send it before an ethics committee.

If you can submit the modification ASAP and let me know via email once you've done so, I'll try and arrange approval for you before the university closes for the year.

Kind regards,
Kate

KATE LOWRIE (she/her) | Human Ethics Officer
The University of Sydney
Research Integrity & Ethics Administration, Research Portfolio

Appendix S – Coding Examples (Phase 2)

Quote	Code
Treat every student equally	equality
Inclusive education suggests that attention should be given to exceptional students in the classroom. Inclusion refers to the ability of exceptional students to be integrated into a classroom with their peers.	paying attention to students with disabilities students with and without disabilities receive education in regular classrooms
Regardless of a person's background or learning situation, they should be treated according to their role as a student.	equality
If other children can learn love and tolerance from this, perhaps it is a good thing.	beneficial for students without disabilities to learn care and tolerance including students with disabilities in regular classrooms
It should be possible; I do recognize that. However, it depends on a case-by-case basis. Perhaps there is potential for this student with disabilities to fulfill their potential.	It depends stimulate potentials of students with disabilities
This means that you need to consider the needs of different students when designing your instruction.	meeting students' learning needs
Does this framework mean that in a single classroom, the teacher prepares in advance to provide different pre-determined programs for students of various levels, exposure, and abilities, so that each student receives instruction suited to their foundation and progress.	differentiation
In terms of learning, we usually differentiate assignments. That is, we avoid setting overly high standards for students with difficulties and adjust expectations for them accordingly.	differentiation
For students without learning difficulties, reteaching what they already know to others can serve as a process of self-improvement.	improve learning of students without disabilities
However, the government seems to have a policy of providing scholarships for students, which is implemented in schools. These scholarships are not only for students with disabilities but also for those from economically disadvantaged backgrounds.	financial support
Additional support can be provided through home visits, allowing educators to better understand the student's family situation, as well as the student themselves and their parents.	home visit
It is important to communicate promptly when problems arise so that students, especially those with disabilities, receive timely feedback from their teachers.	timely feedback
For example, there are designated elevators for students with disabilities, ensuring accessibility within schools.	providing assessible elevators, wheelchairs

Schools that accept students with disabilities often reduce or waive tuition, fees, and other expenses. Students with physical disabilities will be placed in regular classrooms and treated as equal members of the learning environment.

For instance, if you observe a lesson from a colleague, it means attending a session led by a more experienced teacher.

My mentor visits my class almost every week.

Our lesson preparation group activities provide opportunities to share experiences and insights about our students.

Since I have a fellow math teacher teaching the same grade and subject as I do, we discuss which topics fall within the normal range, which are slightly more challenging, and which are easier. Senior teachers are very enthusiastic about allowing us to observe their lessons.

Regarding in-depth study of the subject, I often receive valuable insights and teaching strategies from my colleagues.

Observing how my colleagues handle various classroom situations helps me learn as a new teacher.

The headmaster is rarely involved in frontline teaching work. That is, they do not engage in the finer details of classroom instruction.

While handling this issue, the student's parent would also come to speak with me in the evening. The headmaster and class leaders primarily serve supervisory roles. They patrol the classroom during lessons and observe students from outside the window. Under their supervision, I pay special attention to students who struggle or are disengaged.

Since my colleagues and I face similar challenges, we often discuss our problems together, propose solutions, and experiment with different methods. If a strategy works, we continue using it; if not, we refine it through further discussions. We interact with various teachers daily, exchanging ideas on effective teaching methods.

Experienced veteran teachers often share classroom strategies that have proven effective.

Since our school has many students facing difficulties, if a student exhibits problematic behavior, teachers may remove them from class or take them to the office for a discussion.

financial support
students with and without disabilities
receive education in regular
classrooms

observing experienced colleagues'
lesson
mentor (an experienced colleague)
observes new teachers' lesson

frequent discussions with colleagues

frequent discussions with colleagues
observing experienced colleagues'
lesson

experienced colleagues share
resources

observing experienced colleagues'
lesson

principal rarely participate in teaching
work

communicate with parents

principal inspects class situation

colleagues provide teaching
suggestions

colleagues provide teaching
suggestions

colleagues communicate with students

Colleagues have shared strategies with me on how to keep students engaged in learning. For instance, they suggested administering quick quizzes before class, allowing students to spend five or ten minutes answering them.

Colleagues also suggest methods for ensuring students submit their assignments.

One of my colleagues recommended implementing mild punishments, and after doing so, I noticed a slight improvement in student behaviour.

Calendar-based review games, which incorporate integrated learning practices, are something I also use, though not frequently. I think they are effective, and I am proficient in using them.

I believe it ultimately comes down to a teacher's willingness. If they want to implement something, they certainly can.

I am confident in the projects I undertake and feel competent in this area.

I believe I have a good ability to assess students and remain confident in my evaluations.

I feel that I can present knowledge to students in a way that is not overwhelming. I have confidence in myself and do not question my abilities.

I am confident that I can address the diverse needs of students at different levels and abilities.

However, since I have never worked with students with disabilities, I am uncertain about how I would handle teaching a student with autism, for example.

I recognize that I lack experience in educating students with disabilities and have limited expertise in this field.

This may also be a skill I am lacking, as my expertise is generally suited to most students but may not be sufficient for specialized instruction.

I believe my professional competence is strong, and I can generally meet the needs of all my students.

Implementing the Universal Design for Learning (UDL) framework will enhance my teaching.

In language instruction, students might write a short literature review. This could be an area where some students struggle while others excel.

To support them, I can provide a structured rubric or guiding prompts beforehand.

We prepare lessons collaboratively, discussing and refining each other's ideas.

colleagues provide teaching suggestions

colleagues provide teaching suggestions

colleagues provide teaching suggestions

proficient in using physical objects

highly confident

quite good at doing it

confident

highly confident

confident to meet the needs of students at different ability levels

unsure whether can meet the needs of students with disabilities

lack of professional knowledge

lack of professional knowledge

excellent professional skills

improving teaching skills

providing scaffolds to guide information processing

collective lesson preparation

Using more multimedia, such as videos, can increase classroom engagement since students often find visual content more accessible than text. During our group lesson planning sessions, we share resources, most of which are sourced from the internet.

In our math groups, we focus on key concepts and essential topics, identifying weaknesses through training sessions and addressing them in class. Another challenge is students' personalities—many are introverted and, even after extensive guidance, remain too shy to speak up. Encouraging well-behaved and proactive students to answer questions may gradually encourage others to participate.

Evaluation is typically based on a predetermined rubric. Rather than introducing the rubric after students complete their work, they receive it beforehand to guide their efforts. After completing the task, they engage in peer evaluation, also using the rubric. If the work is completed in class, the teacher provides additional feedback on areas students missed or misunderstood. If the work is done outside class, the teacher reviews it first and facilitates peer discussions in the next lesson.

In project-based learning, students may self-assess, assess their peers, and finally receive teacher evaluation using established criteria. For English classes, I incorporate performance-based assessments, such as role-playing activities. For instance, when studying humor, students might perform scenes from Mr. Bean.

This includes making presentations, dividing into groups, and presenting their ideas on stage. Verbal praise and encouragement are always part of my teaching approach.

I plan to research the specific implications, examples, and strategies related to the Universal Design for Learning framework. I believe I can find relevant academic papers to enhance my teaching.

Regarding learning activities, I believe I currently employ a variety of effective methods. However, due to limited class time, I would like to explore more activities in the future to further engage students and enhance their learning experience. The Universal Design for Learning framework is particularly inspiring to me. I intend to study it further and integrate its principles into my teaching.

using videos to present learning materials

collective lesson preparation

cooperative group learning

students do not willing to express themselves

positive feedback

rating scale;
peer assessment;
homework
rating scale;
self-assessment and reflection;
peer assessment

role play

group presentation

positive feedback

searching for the UDL framework

designing more diverse classroom activities

learn more about the UDL framework

I will also pay closer attention to my students' language use and expression in the classroom. implement the UDL framework in class

Appendix T – Coding Examples (Phase 3)

Quote	Code
<p>This will undoubtedly provide students with greater choice and freedom.</p> <p>The main reason might be that lesson preparation takes a long time, requiring consideration of various details, which can be very time-consuming and energy-intensive.</p> <p>However, due to the class schedule and the pressure of numerous exams, there are times when only you can convey certain information to the student. Because they are unable to seek help elsewhere, you may feel anxious. This direct instruction may not be as beneficial to the development of their independent thinking habits as an alternative approach, such as the Universal Design for Learning (UDL) framework.</p> <p>Providing students with more choices—in terms of materials, texts, and formats—can be beneficial. As long as class time permits, I believe the format should allow them greater flexibility in making these choices.</p>	<p>providing students with greater choices and freedom of space</p> <p>spending too much energy and time on lesson preparation</p> <p>lesson time pressure; exam pressure; providing direct instructions is not conducive to cultivating independent learners</p> <p>providing students with more choices</p>
<p>The study group remains consistent, with this semester's group being the same as last semester's. Each group includes students with varying academic performance—some with higher grades, some who need improvement, and others with more outgoing personalities. Some students may be more willing to speak, while others prefer to listen. The goal is to ensure that each group has at least one student who actively participates in discussions.</p> <p>One important aspect is student focus. It is unrealistic to expect them to maintain full concentration at all times. Therefore, providing reminders about key information and main points is essential.</p>	<p>fixed study groups</p> <p>different types of students in one study group</p> <p>remind students to focus on key information</p>
<p>This also involves Bloom's Taxonomy, ensuring the exercise of different levels of cognitive thinking, both of which are necessary.</p> <p>For after-school assignments, we take these considerations into account. For example, some assignments involve special project designs, or students work together to create a public account. Within each group, students with stronger language skills coordinate and support each other, making the process more manageable. Each group must have a leader or a supervisory role to ensure that tasks progress smoothly.</p>	<p>Bloom's Taxonomy; exercising students' thinking skill</p> <p>different types of students in one study groups</p>