

Social Interaction and Social Media: How Speech- Language Pathologists Support Adolescents with Communication Disability in a Digital Age

Nichola Shelton

MSLP, MA, BA (Hons.)

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Verrall Memorial Research Grant by Speech Pathology Australia.

Statement of Originality

This thesis has not been submitted for any other degree at The University of Sydney or any other university. The work contained in this thesis is my own. To the best of my knowledge and belief, no work has been published elsewhere or written by any other authors, except when appropriately referenced and acknowledged within the thesis. Approval for these studies was given by The University of Sydney Human Ethics Committee (reference numbers 2019/079 and 2023/774). Adult participants read a Participant Information Statement and informed consent was gained prior to data collection. Informed assent was obtained from the young people who participated in this research.

Name: Nichola Shelton

Date: 28/11/2025

Declaration of Completion

This is to certify that the thesis entitled *Social Interaction and Social Media: How Speech-Language Pathologists Support Adolescents with Communication Disability in a Digital Age* submitted by Nichola Shelton in fulfilment of the requirements for the degree of Doctor of Philosophy is in a form ready for examination.

Dr Melanie Keep

Date: 28/11/2025

Statement on the Use of Generative Artificial Intelligence

In preparing this thesis, I have used generative AI, specifically Copilot, for the purposes of text enhancement. The use of this generative AI tool includes minor sentence restructuring and paraphrasing content for clarity. To assist with copy editing, Copilot was employed with prompts such as: “Rewrite this sentence to make it clearer and more concise.” I confirm that where text was modified by generative AI, the content was reviewed for possible errors, inaccuracies, and bias. I take full responsibility for the submitted thesis, confirm the work is my own, and that I have used generative AI in accordance with University of Sydney guidelines and policies.

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To my children, Iris and Callum, who have witnessed the highs and the lows: Never stop learning. You can achieve anything you put your mind to.

To my husband, Patrick: Just the Grad Cert and then I'm done. Promise.

Authorship Attribution Statement

I am the first and corresponding author for all publications included in this thesis, as follows:

Chapter 2: Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2021). Clinical practices of speech-language pathologists working with 12-to 16-year olds in Australia.

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Chapter 3: Shelton, N., Munro, N., Starling, J., Tieu, L., & Keep, M. (2025). Assessment of the social interaction abilities of adolescents with communication disability: A scoping review. *Language, Speech, and Hearing Services in Schools*, Advance online publication.

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Chapter 4: Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2023). Do speech–language therapists support young people with communication disability to use social media?

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Chapter 5: Shelton, N., Munro, N., Starling, J., Tieu, L., & Keep, M. (2024). Social media use by young people with language disorders: a scoping review. *Disability and Rehabilitation*, 46(26), 6240-6250. <https://doi.org/10.1080/09638288.2024.2325039>

Chapter 6 is currently under review: Shelton, N., Munro, N., Starling, J., Tieu, L., Sutherland, R., & Keep, M. (Manuscript submitted for publication). Digital Dialogues: A Pilot Study to

Evaluate a Structured Interview that Explores the Social Media Experiences of Adolescents with Communication Disability. *Child Language Teaching and Therapy*.

Detailed author attribution statements are included before the relevant chapters. These are informed by the contributor roles outlined in the CRediT Taxonomy, available at <https://credit.niso.org/>.

Nichola Shelton

Date: 28/11/2025

As supervisor for the candidature upon which this thesis is based, I can confirm that the authorship attribution statements included in this thesis are correct.

Name: Melanie Keep

Date: 28/11/2025

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Publications and Presentations Arising from This Thesis

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6240-6250. <https://doi.org/10.1080/09638288.2024.2325039>

Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2023). Do speech–language therapists support young people with communication disability to use social media? A mixed methods study of professional practices. *International Journal of Language &*

Communication Disorders, 58(3), 848-863. <https://doi.org/10.1111/1460-6984.12826>

Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2021). Clinical practices of speech-language pathologists working with 12-to 16-year olds in Australia. *International Journal of Speech-Language Pathology*, 23(4), 394-404.

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Peer-Reviewed Presentations

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Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2021, July 13–17). *Skill capacity or skill performance: How do Australian speech pathologists working with 12-16 year olds assess pragmatics?* Paper presented (virtually) at the 15th Congress of the International Association for the Study of Child Language, Philadelphia, PA, USA.

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Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2020, July 13–17). *Skill capacity or skill performance: How do Australian speech pathologists working with 12-16 year olds assess pragmatics?* Paper accepted for presentation at the 15th Congress of the International Association for the Study of Child Language, Philadelphia, PA, USA. (Conference did not proceed due to COVID-19).

Shelton, N., Munro, N., Keep, M., Starling, J., & Tieu, L. (2020, May 24–27). *Clinical practices of Australian speech pathologists working with young people aged 12-16 years: Results of a national survey.* Paper accepted for presentation at the Speech Pathology Australia National Conference, Darwin, NT, Australia. (Conference did not proceed due to COVID-19).

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<https://theconversation.com/for-teens-getting-access-to-speech-pathology-services-depends-on-where-you-live-147193>

Kuang, W. (2021, March 2). *Speech pathology services vital for schools*. [Radio broadcast]. The Wire. <https://www.thewire.org.au/story/speech-pathology-services-vital-for-schools/>

Notes on Style

This is a thesis with publications, and as such, there are five papers in the style of journal articles embedded in the thesis. These articles represent Chapters 2, 3, 4, 5, and 6 of the thesis. As this thesis includes individually published or submitted for publication studies, which must stand alone as a complete work, there is some inherent repetition, particularly in the required background information for each article. Attempts were made to minimise repetition of information as much as possible.

Style

- The journal articles (Chapters 2, 3, 4, 5, and 6) are written in styles requested by the relevant journal in which the article was published or submitted for publication.
- The remainder of the thesis is written in accordance with APA 7th style, except for tables, which are presented single-spaced for ease of reading.
- Tables, figures, appendices, and supplements from Papers 1–5 have been renumbered to reflect the thesis chapter in which it is included. For example, Table 1 of Paper 1, which is in Chapter 2, becomes Table 2.1. Likewise, Figure 2 from Paper 2, which is in Chapter 3, is now Figure 3.2.
- Citations are embedded in the text of the thesis, with reference lists found at the end of each chapter.

Spelling

- The paper in Chapter 3 is written in American English in line with the author instructions for the journal *Language, Speech, and Hearing Services in Schools*.

- Papers in Chapters 2, 4, 5, and 6 are written in British English in line with the author instructions for the *International Journal of Speech-Language Pathology*, *International Journal of Language and Communication Disorders*, *Disability & Rehabilitation*, and *Child Language Teaching and Therapy*, respectively.
- The spelling for the remainder of this thesis is in keeping with Australian/British English spelling conventions.

Terminology

- The term speech-language pathologist (SLP) is used throughout this thesis, except for Chapter 4, where the term speech-language therapist (SLT) is used in accordance with the conventions of the *International Journal of Language and Communication Disorders*.
- Throughout this thesis the terms language disorder and communication disability are used, reflecting the specific terminology requirements of the journal in which each chapter is published. For clarity, Chapters 2 and 4 use the term communication disability and focus on services provided to young people with a broad range of difficulties, in line with the definition of communication disability provided in Chapter 1. However, while Chapter 3 focuses on young people with language disorders specifically, the term communication disability is used. Similarly, Chapter 6 focuses on young people with language and/or literacy difficulties but uses the term communication disability. Chapter 5 focuses on young people with, and uses the term, language disorders.
- The terms young people and adolescents are used interchangeably throughout this thesis to refer to children and teens between the range of ages for each chapter, as

specified below. The differing ages used across chapters reflects, in part, the ethics requirements of the studies presented in each chapter.

Terminology used in the thesis.

Chapter	Content	Age range	Terminology used
2	Survey of SLPs	12–16 years	Communication disability (as broadly defined in Chapter 1)
3	Scoping review of assessment tools	12–17 years	Communication disability used, but focuses on language disorders
4	Survey of and interviews with SLPs	12–16 years	Communication disability (as broadly defined in Chapter 1)
5	Scoping review of social media	12–18 years	Language disorders
6	Pilot study	12–17 years	Communication disability used, but focuses on language and/or literacy difficulties

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Glossary

Acronym	Meaning
AAC	Augmentative and alternative communication
ACT	Australian Capital Territory
ADHD	Attention-deficit/hyperactivity disorder
ADI-R	Autism Diagnostic Interview-Revised
ADOS	Autism Diagnostic Observation Schedule
ASD	Autism spectrum disorder
ASHA	American Speech-Language-Hearing Association
CALD	Culturally and linguistically diverse
CCC	Children’s Communication Checklist
CCP	Circles of Communication Partners
CELF	Clinical Evaluation of Language Fundamentals
DDI	Digital Dialogues Interview
DLD	Developmental language disorder
HREC	Human Research Ethics Committee
ICF	International Classification of Functioning, Disability and Health
ICF-CY	International Classification of Functioning, Disability and Health for Children and Youth
IDEA	Individuals with Disabilities Education Act
LD	Language disorder
LGBTQI	Lesbian, gay, bisexual, transgender, queer, intersex
LI	Language impairment
<i>M</i>	Mean (average)
MeSH	Medical subject headings

Acronym	Meaning
N/A	Not applicable
NDIS	National Disability Insurance Scheme
NSW	New South Wales
NT	Northern Territory
ORCID	Open Researcher and Contributor ID
OWLS	Oral and Written Language Scales
PEM-CY	Participant and Environment Measure-Children and Youth version
PRISMA	The Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QLD	Queensland
RTI	Response to intervention
SA	South Australia
SCQ	Social Communication Questionnaire
<i>SD</i>	Standard deviation
SDQ	Strengths and Difficulties Questionnaire
SES	Socioeconomic status
SLI	Specific language impairment
SLP	Speech-Language pathologist
SLT	Speech-Language therapist
SPA	Speech Pathology Australia
SRS	Social Responsiveness Scale
TAS	Tasmania
TBI	Traumatic brain injury
TILLS	Test of Integrated Language and Literacy Skills
TROG	Test for Reception of Grammar
UK	United Kingdom

Acronym	Meaning
US	United States
USA	United States of America
VIC	Victoria
WA	Western Australia
YAG	Youth advisory group
YARC	York Assessment of Reading Comprehension
YP	Young people

Preface

My own experience of using social media over many years (from discussion boards all the way through to Bluesky via Facebook, Flickr, Twitter/X etc!) was to actively interact with other people; I've used social media platforms to keep in touch with old friends and make new ones. Having two children, I was also aware of how much of their social lives and friendships were mediated through digital media—from conversations via Facetime with family overseas, to gaming with friends using Discord.

As a speech-language pathologist who has worked with teenagers, I have also witnessed firsthand the challenges faced by young people with language disorders, particularly as they navigate the complex social landscape of adolescence. The social and communicative demands of this developmental stage can be overwhelming. However, it was my growing awareness of the limited research on how young people navigate these challenges in the digital realm, especially in relation to social media, that sparked my desire to explore this topic further.

Despite my awareness of the importance of social media in life, I found little academic discussion on how adolescents with language disorders engage with social media platforms. This gap in research became even more apparent as I considered how crucial social media is for building belonging and social connection during adolescence, and the unique challenges adolescents with language disorders faced in the digital world. I wanted to better understand and support the adolescents I worked with, to bridge the gap between clinical practice and digital communication. This curiosity prompted me to undertake this doctoral research.

Thesis Abstract

Up to 16% of mainstream secondary school-aged children in Australia have some form of communication disability (McLeod & McKinnon, 2007), with estimates that between 6.4% and 8.04% of children aged five and above have persistently low language skills (Hill et al., 2023). Children who still have language difficulties after age five typically do not catch up to their peers and continue to require support (Norbury et al., 2017). However, Australian paediatric speech-language pathology (SLP) services have traditionally focused on early childhood, despite the data underscoring the widespread and long-term nature of communication disability. This highlights the urgency to understand its social consequences, particularly with respect to a person's interpersonal relationships and broader social functioning.

A central challenge in this space is the contested nature of social communication. The field of pragmatics is marked by definitional and conceptual ambiguities, with limited consensus regarding its scope and boundaries (Haugh et al., 2013). For young people with language disorders, challenges in comprehending and expressing language within social contexts, however these are defined, can hinder their ability to establish and maintain friendships (Ekström et al., 2023; Wadman et al., 2011). As such, SLPs must have a comprehensive understanding of a young person's social interaction abilities in general, and their pragmatic communication skills in particular, to effectively support their communication and social participation (Parsons et al., 2017). The theoretical uncertainties may partly explain why few clinical assessment tools sufficiently capture the pragmatic and social interaction abilities of young people with communication disability (Adams, 2002; Norbury, 2014; Pereira & Lousada, 2023). Consequently, it is crucial to critically examine how social communication is

evaluated in empirical research, and how it is operationalised in SLPs' clinical assessment practices.

Where services do exist in Australia, SLPs commonly employ traditional service delivery models (i.e., one-on-one, pull-out approaches) to support adolescents, including in the development of social communication skills (Utley & Hopf, 2021). However, a focus on social skills in offline, in-person interactions may be at odds with the realities of young people's lives, where digital communication, particularly social media, is central. For many adolescents, online and offline environments are not distinct but integrated and equally meaningful dimensions of their social world (Kennedy & Lynch, 2016). These environments require both digital literacy and sophisticated social communication skills (Polanco-Levicán & Salvo-Garrido, 2022). Indeed, digital communication has fundamentally reshaped the ways in which adolescents engage with peers, seek information, and navigate social relationships (Benvenuti et al., 2023). To uphold the principles of person-centred assessment, it is therefore essential for SLPs to consider a young person's social interactions within digital contexts. However, little is known about how adolescents with communication disability navigate the complexities of social media, and the clinical practices of the SLPs who support them to do so.

This thesis examined the clinical services that SLPs provide to young people with communication disability and the assessment tools used in their clinical practice. The thesis also explored the experiences of these young people with social interaction, particularly with respect to their use of social media. Specific aims of this thesis were:

1. To examine the assessment and intervention services provided by SLPs to young people across Australia, with a focus on regional variations among states and territories.
2. To explore how social interaction skills are measured in young people with communication disability, including constructs, instruments, and their alignment with components of the International Classification of Functioning, Disability, and Health (ICF).
3. To analyse the role of SLPs in supporting young people's online communication, particularly through social media, and to identify the factors influencing their professional practices in this domain.
4. To examine existing literature on the use of social media by young people with communication disability, focusing on available interventions, and the factors that enable or hinder their participation in digital communication.
5. To assess the feasibility of implementing a new structured interview tool in research with young people with communication disability.

Method

To address these five aims, five studies were conducted. Three of these were empirical research, comprising a national survey, in-depth semi-structured interviews, and a pilot study using structured interviews. Complementing these, two large scale scoping review studies were conducted to address existing research gaps.

Study 1, which addresses the first and third aims, was a national survey study of 96 SLPs working in Australia. Data from this study were analysed using descriptive and inferential

statistics, specifically Chi-square tests of independence, to examine variations in both service provision practices and employers across the country.

Aligned with the second aim, Study 2 was a scoping review of 173 peer-reviewed publications. This study aimed to identify assessment measures that are used to assess the pragmatic and social interaction abilities of adolescents with communication disability by applying the International Classification of Functioning, Disability and Health (ICF) framework (World Health Organization, 2001) and taxonomies by Crumlish et al. (2022) and Denman et al. (Denman et al., 2019).

To achieve the third aim, Study 3 employed in-depth semi-structured interviews with 16 SLPs whose caseload included adolescent clients. As a qualitative study, data were subject to a six-phase thematic analysis, which sought to identify semantic themes via an inductive approach (Braun & Clarke, 2006).

Study 4, which addresses the fourth aim, was a further scoping review that included 44 peer-reviewed publications. This study examined existing literature on how young people with language disorders use social media for social interaction, and identified available interventions, as well as the barriers and facilitators to this population's use of social media.

Finally, Study 5 was a pilot study conducted to address the fifth aim. This study developed and evaluated a new structured interview tool, the Digital Dialogues Interview (DDI). The creation of the DDI was guided by research across three key domains: (a) language accessibility for young people with language disorders (Starling et al., 2012), (b) a framework of social media use (Kaye, 2021), and (c) the role of communication partners (Blackstone,

2003). Furthermore, the DDI was co-designed with a youth advisory group comprised of four young adults aged 18–22 years. Five young people (12–17 years old) with communication disability, characterised by language and/or literacy difficulties, completed a structured interview using the DDI. Data generated via the DDI were thematically analysed using a reflexive, semantic, inductive approach (Braun & Clarke, 2020).

Results

In Study 1, survey results indicated that SLPs in Australian states with government-mandated provision of speech-language pathology school-based services were more able to provide Tier 1 and 2 services than SLPs in states without government-mandated provision of speech-language pathology school-based services. Additionally, SLPs' assessments were largely impairment-focused, with tools primarily used that were focused on the activity, rather than participation, level.

Study 2, the first scoping review of the thesis, examined 173 peer-reviewed publications and identified 162 assessment instruments. Results indicated that only a limited number of measures targeting social interaction and pragmatics focus on participation. Furthermore, most existing measures focus on oral, rather than written, language abilities, raising concerns about the suitability of these measures to assess communication in the contexts within which it occurs for young people.

Study 3 reinforced findings from Study 1, highlighting that SLPs currently lack a systematic approach to addressing young people's communication needs within social media contexts. Where SLPs do offer clinical services focused on this area, SLPs adapt and apply their expertise and practices derived from offline environments.

Study 4 was the second scoping review of this thesis. It found that young people with language disorders use social media to build social connections, rather than for finding and sharing information. Additionally, interventions aimed at improving social media use can significantly increase the knowledge and skills of young people with language disorders and may enhance the social participation of this population.

Study 5 found that the DDI is both feasible and poses minimal administration challenges. Reflexive thematic analysis of the pilot interview data generated three themes with respect to how and why young people with communication disability use social media. These findings suggest that the DDI holds promise as a tool for collecting insights into this population's use of social media.

Conclusion

The findings presented in this thesis highlight an urgent need for more participation-level pragmatic assessment measures that capture a young person's social interaction abilities in the contexts within which they occur. Currently, SLPs' clinical practices with respect to the social skills of young people with communication disability remain largely grounded in traditional, offline models of communication. This suggests that there are missed opportunities to assess social skills in online contexts, with implications for understanding the full spectrum of adolescents' communication strengths, challenges, and experiences. To address this, including young people with communication disability in the co-design of new assessment measures may result in tools that better capture their lived experiences and perspectives, while also increasing the validity of such tools.

Results presented in the thesis highlight the significance of social media as essential platforms for participation among young people with communication disability, primarily due to their ability to nurture and strengthen social connections across contexts. However, many SLPs in Australia lack a systematic approach to addressing communication challenges in social media contexts, risking the exclusion of young people with communication disability from participating in online social environments. Participation-focused assessment tools and approaches are essential to addressing the communication needs of young people with disability. Current assessments largely focus on in-person contexts, impairment, and activity-level constructs, often using standardised tools that provide limited insight into the capabilities of young people with communication disability. The DDI is presented as a new tool to evaluate young people's social interaction skills in online environments.

A new conceptual model is introduced that illustrates how young people with communication disability engage with social media for connection. Designed specifically for SLPs, the model encourages consideration of not only the purposes and activities associated with a young person's social media use, but also the factors that mediate how and why they engage with these platforms. This framework aims to capture both the complexities and potential of social media platforms as tools for communication and relationship development. By offering a conceptual lens through which to understand social media engagement, the model supports the clinical practices of SLPs that aim to empower young people with communication disability to navigate communication challenges in digital environments.

Chapter 1

Introduction: Contemporary Contexts of Communication for Young People with Communication Disability

In a world where communication in its myriad forms is often taken for granted, the experiences of those with communication disability can remain hidden (McCormack et al., 2018). This may be particularly the case during adolescence, a critical developmental stage when difficulties with communication can profoundly shape young people's daily and future experiences. Imagine navigating the intricate social labyrinth of adolescence with your ability to articulate thoughts, comprehend complex language, and engage in meaningful conversations being compromised by communication disability. This has implications for a young person's social interactions, self-esteem, emotional well-being, and academic achievements. Understanding and addressing communication disability is crucial for fostering inclusive environments and ensuring young people's equitable access to social opportunities and education (Gillett-Swan et al., 2019).

The following quotes are taken from submissions to the 2014 senate inquiry into the prevalence of speech, language, and communication disorders and speech pathology services in Australia, and were provided by a young person with a language disorder and their parent:

I always thought I was dumb ... I just never liked reading and took a long time to do my work. But when the years went past and the work began building up and the teachers were getting impatient with me and not bothering to help I felt like they believed I was dumb which convinced me I was and I dreaded going to school.
(Submission 56)

Socially, [my daughter] had a nice group of friends but struggled to recognise sarcasm and would often "miss the joke" (while her friends would all be laughing). As nice as they were, they had a tendency to be condescending and say things like, "poor

[name]—you don't get it, do you?" As she progressed through her teen years I could see her confidence declining. (Submission 55)

This thesis seeks to understand the clinical practices of speech-language pathologists (SLPs) with this population and explore the impact of communication disability in adolescence, particularly with respect to the under-researched area of pragmatics and social media use. This chapter begins by outlining typical language development during adolescence, before introducing communication disability and language disorder. It then explores the challenges faced by young people with communication disability, providing context for the thesis's focus on adolescents with communication disability broadly, and language disorder specifically.

The chapter continues with a discussion of the history of clinical pragmatics, including the impact on SLPs' assessment practices, and contemporary communication contexts for young people, including those with communication disability. This discussion underpins the thesis's focus on pragmatics and social interaction for this population, particularly with respect to social media; understanding the perspectives of young people with communication disability regarding their social media use is highlighted as essential. Finally, the chapter provides an overview of the Australian context, particularly with respect to speech pathology services, which highlights the importance of understanding the clinical services that SLPs provide to young people with communication disability.

Typical Language Development in Adolescence

During adolescence, language development is marked by significant cognitive and social transformations that influence both the form and function of communication (Anil & Bhat, 2020) and is characterised by notable changes in how individuals use and understand

language (Nippold, 2000). As young people progress through this period, their language becomes increasingly complex and sophisticated, mirroring their enhanced capacity for abstract thinking and nuanced social interactions (Feick et al., 2021). Adolescents often modify their language use to fit different social contexts, such as adjusting their speech styles between friends and formal settings, which helps develop their pragmatic language skills (Alduais, Al-Qaderi, & Alfadda, 2022). Multifaceted factors, including neurobiological changes and environmental influences, together shape a young person's language abilities (Levickis et al., 2022).

During adolescence, there is a fundamental reorganisation of the brain's structure, significantly impacting cognitive functions that facilitate advanced cognitive processes (Konrad et al., 2013), including language development (Gaudet et al., 2020). One of the key advances during adolescence is the refinement in understanding and use of higher-order language skills such as irony, metaphor, and sarcasm (Feick et al., 2021). These forms of figurative language require a high level of cognitive sophistication, including the ability to grasp underlying meanings and intentions beyond the literal content of speech (Vulchanova et al., 2019). This development in language use is linked to the maturation of the frontal and parietal cortices, which are implicated in selective attention, decision-making, response inhibition, working memory and social cognition, including theory of mind and perspective taking such as understanding the beliefs, desires, and intentions of other people (Blakemore & Choudhury, 2006).

Social context also plays a crucial role in shaping language development, significantly impacting how adolescents acquire and refine their language skills. Environmental influences include family communication patterns, educational experiences, and social interactions

(Hoff, 2006). During this period, young people are often exposed to complex and diverse environments, such as via academic discourse (Fahy & Browning, 2021) and digital media-related activities (Nesi et al., 2020). In these increasingly linguistically-sophisticated environments, abstract topics are discussed using complex syntax and vocabulary, and often using pragmatic rules associated with those specific contexts (Fahy & Browning, 2021).

Communication Disability

Communication disability is a broad term, which encompasses a diverse range of difficulties that affect an individual's ability to produce and/or comprehend verbal, nonverbal, and graphic symbol systems (S. L. Gillam, 2024). It includes challenges understanding and expressing communicative messages in one's home language(s) (McLeod, 2018), meaning it is unrelated to the issues of learning a second language. As an umbrella term involving a range of conditions, communication disability may be characterised by difficulties with speech (the ability to perceive and/or produce speech sounds), comprehension and/or use of language (listening, speaking, reading, and/or writing), pragmatics (language use in social contexts), fluency (the smoothness of speech), and voice (vocal quality, pitch, loudness, and resonance; American Speech-Language-Hearing Association, 1993).

Communication disability can result from both developmental conditions, such as developmental language disorder or autism (Simeonsson, 2003), or acquired conditions, such as traumatic brain injury (Ylvisaker & Feeney, 2007). The interaction between a person's communication difficulties and personal and environmental context impacts their activities and/or their participation (Threats, 2008). As such, communication disability may significantly impact various aspects of a person's daily functioning, including their social interactions, educational achievement, and overall quality of life (J. Law et al., 1998).

Prevalence of Communication Disability

Communication disability is highly prevalent in children (Cummings, 2023). Estimates suggest that between 2.0% to 24.6% of children experience some form of communication disability, depending on the type of impairment, the assessment measure used, and cut-offs pertaining to the degree of severity of the impairment (J. Law et al., 2000). In Australia, communication disability is highly prevalent in mainstream secondary school aged children, occurring in up to 16% of that population (McLeod & McKinnon, 2007). Given its widespread impact, addressing communication disability in children and adolescents is critical (McLeod & Harrison, 2009).

Terminology

Language disorders are one of the most common forms of communication disability (DeThorne et al., 2023). While children's language skills develop over time, the evidence indicates that language trajectories are stable at the individual level, meaning children with language disorders do not narrow the gap with peers (Norbury et al., 2017). A systematic review of epidemiological literature that estimated the prevalence of low language skills in children aged 5 and older revealed rates between 6.4% and 8.04% (Hill et al., 2023), with language disorders of unknown origin estimated to affect 7.58% of the population (Norbury et al., 2016).

The CATALISE consortium (Bishop et al., 2016, 2017) achieved consensus on terminology and recommended the term *developmental language disorder* (DLD) for language difficulties that are significant enough to impact daily life, have a poor prognosis, and lack a clear biomedical cause. When language difficulties are part of a broader pattern of impairments, the CATALISE consortium recommends that they should be referred to as *language disorder*

(LD) associated with X, where X specifies the condition (e.g., autism or intellectual disability). The terms do not imply a discrepancy between verbal and nonverbal abilities. Both DLD and LD are broadly characterised by significant difficulties in acquiring language skills (Bishop et al., 2017). The DLD/LD terminology replaces terms previously used in the literature, such as language impairment (LI) and specific language impairment (SLI; McGregor et al., 2020).

Language Disorder in Adolescence

Language disorders that persist into adolescence can exacerbate challenges related to managing the complex language demands of both educational and social environments (Conti-Ramsden & Durkin, 2014). Language and literacy are fundamentally and intrinsically linked, meaning that young people with a language disorder may experience difficulties with speaking, listening, reading, and/or writing (Snow, 2016). Compared to peers with typically developing language, children with language disorders are known to have difficulty with oral and written language comprehension and expression (Baird, 2008), vocabulary learning (C. P. Y. Law et al., 2015), both short-term and working memory (Archibald & Gathercole, 2006; Archibald & Harder Griebeling, 2016; C. Larson & Ellis, 2022; Leonard et al., 2007), executive function (Pauls & Archibald, 2016), and theory of mind (Nilsson & de López, 2016). In addition, young people with language disorders may experience difficulties with understanding and using language in social contexts, leading to challenges in social interactions, such as forming and maintaining friendships (Ekström et al., 2023; Wadman et al., 2011). Language disorders during adolescence are particularly impactful due to the increased demands of complex academic language and abstract reasoning required during this period (Novak, 2002).

Adolescents with language disorders may have difficulties with a range of structural linguistic elements, which can significantly impact their communication abilities. Lexically, they may have a limited vocabulary, have difficulties in understanding and using complex words, and/or struggle with word retrieval (Starling et al., 2011). At the utterance level, young people with language disorders typically produce shorter, less complex sentences, and may continue to show difficulties with grammatical structures such as verb tense and sentence agreement (Conti-Ramsden et al., 2001; Leonard & Schroeder, 2023). Discourse-level challenges for this population include difficulties in abstract reasoning, logical thinking, and using appropriate discourse structures, for example, persuasive or expository texts (Hill, Whitworth, et al., 2021).

Research indicates that the population of young people with a language disorder is very heterogeneous, with different linguistic aspects (e.g., syntax, phonology, lexical, pragmatics) being affected and to differing degrees (Friedmann & Novogrodsky, 2009). However, given that structural language difficulties impact language use, a focus on a young person's pragmatic skills and social interaction abilities may be especially warranted (Janik Blaskova & Gibson, 2021). This is because these skills directly impact a young person's ability to engage in effective communication, navigate social environments, and form meaningful relationships, which are foundational skills for academic success and overall well-being (Whitehouse et al., 2009).

Longitudinal Research on Language Disorder

While not all children with communication disability continue to have difficulties throughout life (J. Law et al., 2000; Roulstone et al., 2009), a body of evidence exists, taken from longitudinal studies, demonstrating that many individuals with language disorders face

significant challenges into adolescence and adulthood compared to their peers (e.g. Conti-Ramsden et al., 2012; Dubois et al., 2020; Johnson et al., 2010; Lewis et al., 2015; Norbury & Gooch, 2022; Rice & Hoffman, 2015). This is typically the case when children continue to experience difficulties with language after the age of 5 years (Armstrong & Scott, 2022). This is because children's typical language development trajectories are stable after the age of 5–6 years (Norbury et al., 2017).

Emotional and Behavioural Outcomes

Children with language disorders face significant emotional and behavioural challenges. Lindsay and Dockrell (2012) found that young people with a history of DLD in the UK had higher levels of behavioural, emotional, and social difficulties compared to the normative sample. This is consistent with more recent research from the Millennium Cohort Study in the UK, which showed that poor emotion regulation significantly predicted children's later peer interactional and emotional difficulties, with stronger effects in children at risk of DLD (Forrest et al., 2020). Similarly, Helland et al. (2022) found that children with language problems in Norway experienced more severe emotional and behavioural difficulties compared to a control group of children without language problems, with persistent language problems linked to more severe issues. Moreover, van den Bedem et al. (2020) found that emotional competence, particularly emotion recognition and anger regulation, mediates the relationship between communication problems and reactive externalizing behaviours in children with DLD in the Netherlands. The consistency of these findings underscores the robustness of the link between language and emotional and behavioural development.

Social and Relationship Outcomes

The impact of language skills on social development, with consequential difficulties in establishing and maintaining both friendships and romantic relationships, is well-documented in the literature (for example, Clegg et al., 2005; Whitehouse et al., 2009). Results from the Manchester Language Study—a population-based study of children with DLD and their longitudinal outcomes—indicated that young people with language disorder perceive themselves as prosocial (e.g., sharing with others, being helpful if someone is hurt; Toseeb et al., 2017). Despite this, further research with this cohort identified that people with a history of DLD have poorer long term social outcomes in terms of peer relations and quality of friendships (St Clair et al., 2011); the majority of young people with DLD had childhood-onset persistent or adolescent-onset problems with peer relationships (Mok et al., 2014). One potential explanation for this is that language, specifically pragmatic language abilities, may contribute to the increasing difficulties with peer interactions and peer relations observed in young people with a language disorder during adolescence. As identified by Durkin and Conti-Ramsden (2007), adolescents with a history of SLI were more likely than their typically-developing peers to experience lower-quality friendships.

Young people with DLD face significant social challenges, including a higher risk of victimisation compared to typically-developing peers according to self-report data (Conti-Ramsden & Botting, 2006). According to van den Bedem et al. (2018), young people with DLD experience comparable levels of bullying (whether as aggressor or victim) but greater victimisation compared to peers, with secondary difficulties in emotional competence specifically making them more vulnerable to victimisation. However, while young people with a language disorder are more likely to experience social and emotional challenges compared to typically developing peers, the link between language difficulties and emotional

problems is partially mediated by peer problems suggesting that better relationships with peers may offer some protection against poor mental health outcomes (Forrest et al., 2018).

Mental Health Outcomes

There is a strong link between language disorders and mental health issues. For example, data from the Millennium Cohort Study (Tamayo et al., 2024) supported a bidirectional association between symptoms of internalising and externalising behaviour, emotions, and language ability, with stronger effects in those at risk of DLD. Similarly, Botting et al. (2016) reported that individuals with language disorder experienced consistently higher anxiety, but fluctuating depression levels, from adolescence to adulthood compared to age-matched peers. A scoping review of the long-term impacts of speech and language disorders found suboptimal mental health outcomes, comprising psychiatric disorders (including mood disorders or personality disorders) and behavioural problems (including hyperactive behaviour and reactive temperaments), but no difference in rates of substance use disorders, between people with a history of speech and language disorders and their controls (Langbecker et al., 2020). Thus, research emphasises the enduring mental health challenges associated with language disorders from childhood through to adulthood.

Employment Outcomes

Language disorders can significantly impact vocational outcomes in adulthood. Dubois et al. (2020) systematically reviewed the employment outcomes of adults with DLD and found that they had comparable employment rates to comparison groups; however, adults with DLD faced difficulties in the job search process, longer periods of unemployment, lower job levels, and risk of lower income. Similarly, Clegg et al. (2005) found that adults with a history of DLD had prolonged unemployment compared to their non-language-disordered siblings.

Whitehouse et al. (2009) found that adults with a history of DLD were likely to pursue vocational training and work in jobs that did not demand high levels of language/literacy ability, for example, manual labour. These studies highlight the persistent vocational disadvantages faced by individuals with language disorders throughout their lives.

Quality of Life Outcomes

Language disorders can impact a person's quality of life. Data from the Longitudinal Study of Australian Children (LSAC) indicate that children with speech and language difficulties have reduced health-related quality of life compared to children with typical speech/language skills (Feeney et al., 2017). Additionally, the Early Language in Victoria Study (ELVS) identified that from early childhood to adolescence (children aged 4–13 years), differences in children's quality of life corresponded with severity of language difficulty, whereby higher language scores were associated with better quality of life (Le et al., 2021). Further, difficulties accessing accommodations and health services have been identified by adolescents with DLD as barriers to their quality of life (C. Larson, 2025). In contrast, results of the Ottawa Language Study indicate that while individuals with language impairments had poorer outcomes in communication, cognitive skills, academic achievement, educational attainment, and occupational status compared to peers, their subjective quality of life reports were similar, highlighting the importance of strong social networks of family and friends for well-being (Johnson et al., 2010). Therefore, while language disorders undeniably impact a person's quality of life, access to social support networks may help mitigate these challenges.

Summary of Longitudinal Research

The evidence presented in this section highlights the multifaceted challenges faced by individuals with language disorders with respect to emotional, social, mental health,

employment, and quality of life outcomes. It underscores the critical need for further consideration of both the specific needs of young people with language disorders and the services that SLPs provide to them. A better understanding of these needs can inform the development of targeted support services to improve the long-term outcomes and overall well-being of this population.

Having established the broad range of difficulties experienced by young people with communication disability, this chapter continues with a discussion of the history of clinical pragmatics to contextualise the thesis's focus on social interaction for young people with communication disability. This is followed by a section on social media use by young people, including those with communication disability, to provide an overview of contemporary communication contexts for this population and underscore the need for understanding their perspectives.

A Brief History of the Field of Clinical Pragmatics

The study of clinical pragmatics has evolved significantly over the decades, reflecting broader shifts in both linguistic theory and clinical practice (Cummings, 2017a). This section outlines key developments in the field, tracing its progression from early foundations to recent advancements.

Pre-1970s: A Focus on Linguistics

Until the late 1950s, the dominant behaviourist tradition considered language as a form of verbal behaviour that was governed by stimulus–response associations (A. Anderson, 2006). However, Chomsky's seminal work, *Syntactic Structures* (Chomsky, 1957), shifted attention to mental representations of language, particularly syntactic structures. This challenge to

behaviorist views revolutionised the understanding of language acquisition and processing due to an emphasis on the cognitive processes underlying language use (Altmann, 2006). However, with this focus on language form and content, the social use of language was often overlooked (Duchan, 2023).

1970s: Foundations of Pragmatics as a Field

In response to the work of linguists and psycholinguists on syntactic structures, phonology, and semantics, the second half of the twentieth century saw a shift in emphasis towards the practical function of communication (Duchan, 2023). A “pragmatic revolution” (Duchan, 1984) in speech-language pathology during this period was influenced by the language philosophies of John Austin, John Searle, and Paul Grice (Cummings, 2017a). Simply put, the focus moved from language content and form to language use (Bloom & Lahey, 1978). Research expanded into pragmatic concepts such as speech acts, implicatures, presupposition, deixis, context, and non-literal and figurative language (Cummings, 2021). Understanding the concept of pragmatics as social competence highlighted the importance of context to communication and the various functions language serves, resulting in an emphasis on functional communication (Prutting, 1982).

1980s: Growing Interest in Pragmatics in Language Disorders

By the 1980s, the perspective of language as an integrated system capable of being used to produce desired effects appropriate to the social context was well established (O’Neill, 2014). Accordingly, the concept of “communicative disability” and the resulting expansion of criteria for the identification of language disorder was a key contribution of pragmatics research at this time (Gallagher, 1991, p. 3). The field of research concerned with the characterisation, assessment, and treatment of pragmatic difficulties is known as clinical

pragmatics (Cummings, 2017a). It presented SLPs with new avenues for clinical management beyond structural language (Cummings, 2017a). Greater attention was being paid to the evaluation, and in particular assessment, of pragmatic competence (Cummings, 2007); however, studies often lacked clear definitions and boundaries, leading to varied interpretations of what constituted pragmatic impairments (Alduais, Majorano, et al., 2022).

1990s and 2000s: Expansion of Theoretical Frameworks

From the 1990s, due to the recognition that children with a language disorder may experience both broader cognitive difficulties and challenges with social interactions, greater attention was directed at theory of mind and executive function research (O'Neill, 2014). The centrality of these concepts to understanding pragmatic competence was accompanied by an awareness that adolescents require pragmatic skills to navigate increasingly complex social, academic, and vocational contexts (Nippold, 1993). The work of Marilyn Nippold (e.g., Nippold, 1998) and Vicki Lord Larson and Nancy L. McKinley (e.g., V. L. Larson & McKinley, 2003) focused attention on discourse-level and higher-order language pragmatics (e.g. organisation of discourse, adapting to interlocutor knowledge, and language such as idioms, humour, irony, and sarcasm) in this population. The importance of pragmatic language features in both diagnosing pragmatic disorders and differentiating between various clinical conditions was increasingly recognised (O'Neill, 2014). This reflects that difficulties with pragmatics has been documented in individuals with a diverse range of conditions, including autism, DLD, fragile X syndrome, Down syndrome, neurodevelopmental disorders, Williams syndrome, attention deficit hyperactivity disorder, cerebral palsy, and those who are deaf or hard of hearing (Cummings, 2017b).

2010s and 2020s: Recent Developments

More recently, research has investigated pragmatic difficulties in diverse clinical populations, including those who use multimodal communication and marginalised, underserved populations (such as children in care and young offenders; Cummings, 2021). There has also been growing interest in culturally responsive approaches to pragmatics in multilingual populations (Hyter & Salas-Provence, 2021). Increasingly, researchers and clinicians have started to critically evaluate existing assessment tools and techniques, with a greater focus on holistic, individualised, person-centred, and inclusive practices that leverage clients' strengths (Bottema-Beutel et al., 2024). In addition, advocates of neurodiversity-affirming approaches have called for the acceptance and inclusion of people with neurological divergence and rejected the notion of a singular, “right” way of thinking, learning, or being (Ferreira et al., 2024).

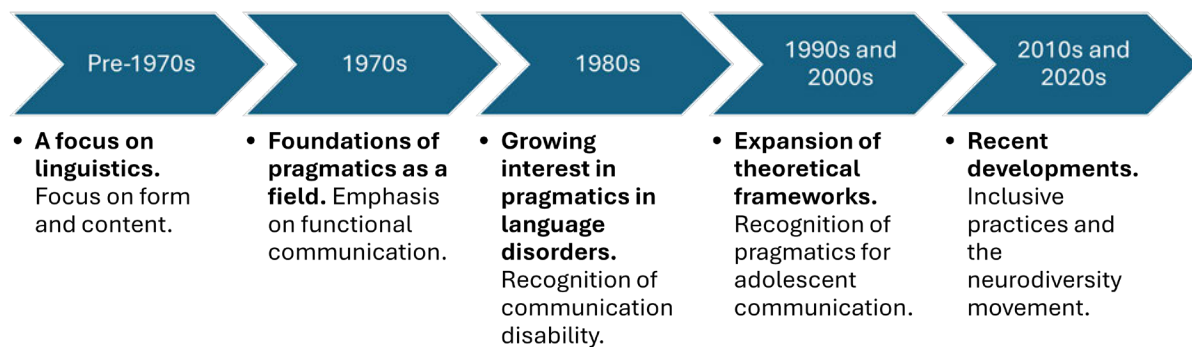


Figure 1.1: Timeline of developments in the field of clinical pragmatics.

Impact on SLPs' Assessment Practices

Developments in the field of pragmatics research have both informed the creation of assessment tools and have had a significant impact on SLPs' assessment practices (Gibson & St Clair, 2020). To assess pragmatic language difficulties in children and young people, a range of methods and tools are available (Adams, 2002). However, assessment of pragmatic

language skills is complex, as these abilities are shaped by social and cultural practices that are learned via economic, political, and cultural relations (Hyter, 2007). As such, the applicability of these tools as means by which to adequately address pragmatic language is subject to debate.

Standardised Tests of Pragmatic Skills

Several published standardised tests include pragmatic components, for example, the Clinical Evaluation of Language Fundamentals (Semel et al., 2017) and the Test of Language Competence (Wiig & Secord, 1989). Additionally, measures such as the Test of Pragmatic Language (Phelps-Terasaki & Phelps-Gunn, 2007) are also available, which assess specific pragmatic components such as physical setting, audience, topic, purpose, visual-gestural cues, and abstraction. Advantages of standardised tests include being able to compare a person's performance to a wider population, being time efficient, and requiring minimal practitioner training to administer, while the major disadvantage is the ability of such measures to reliably reproduce behaviours that involve context-dependence or interpretation of context (Adams, 2002).

Checklists and Profiles

Examples of structured interviews and observation checklists include the Pragmatics Profile (Dewart & Summers, 1995), Pragmatic Protocol (Prutting & Kirchner, 1987), and the Children's Communication Checklist-2 (Bishop, 2003). They are commonly administered in a standardised manner, according to manualised instructions. Such checklists may be generalised, examining a broad range of pragmatic parameters (for example, speech acts, topic introduction, topic maintenance), or more specific, focusing on a particular aspect of pragmatic ability (such as communicative intent; Cummings, 2009). Checklists are typically

more comprehensive than tests and avoid issues related to the absence of normative data, meaning they may be favoured by practitioners (Adams, 2002), although less-experienced clinicians may struggle to interpret what they are observing in a young person in the absence of norms.

Narrative and Discourse Assessments

These assessments evaluate a person's ability to produce different forms of discourse, such as narrative (Dipper & Pritchard, 2017). Sampling methods for the assessment of narrative skills include story retelling tasks (e.g., Expression, Reception and Recall of Narrative Instrument; Bishop, 2004), elicitation of a personal narrative (e.g., Westerveld et al., 2004), and the creation of stories for wordless picture books (e.g., Tager-Flusberg & Sullivan, 1995). As such, these assessments may involve generating or recounting a story in response to a prompt, such as a picture book or object. Assessment techniques include analysing the length, structure, and coherence of narratives, as well as the use of cohesive devices (Diehl et al., 2006). While narrative discourse dominates the focus of much assessment research, other genres of discourse have garnered interest as a means by which to profile strengths and weaknesses in discourse-level language, particularly for older children (e.g., Heilmann et al., 2020; Westerveld & Moran, 2011). Accordingly, assessments of a young person's recount, expository, and persuasive discourse can also provide important insights into their language skills (Hill, Whitworth, et al., 2021) via tools such as the Curtin University Discourse Protocol, Adolescent Version (Hill, Claessen, et al., 2021).

Naturalistic Assessment of Interaction

In contrast to the assessments described earlier, naturalistic assessment of interaction involves observing young people's social interactions and using systems for coding and counting a

range of pragmatic skills, including: communicative intent, speech acts, initiation, responsiveness, topic (selection, introduction, maintenance), repairs, turn taking, cohesion, and coherence (Adams, 2002). While such measures allow the observation of behaviours in naturalistic contexts, they can result in subjective descriptions that do not sufficiently account for context and lack evidence to support their clinical use (Cummings, 2009). Such limitations make it difficult to compare results across different individuals and settings (Gibson & St Clair, 2020).

Conversation Analysis

This assessment approach involves eliciting, recording, transcribing, and analysing conversations to identify pragmatic difficulties (Cummings, 2009). Conversational exchanges, as a naturalistic context regardless of the setting, provide an opportunity to assess a speaker's ability to incorporate shared background knowledge and presuppositions into their utterances (Cummings, 2009). Conversation analysis examines aspects like turn taking, topic management, and repair strategies (Schegloff, 1999). The process can be time consuming and demand a high level of skill of the person administering the assessment (Cummings, 2009). However, a benefit of this approach is that it can capture the dynamic and context-dependent nature of communication (Schegloff, 2007). Further, conversation analysis allows the focus of assessment to move from social communication as an individual skill to recognising it as an interactional achievement (Yu & Sterponi, 2023). This perspective recognises that difficulties in understanding arise in interactions between individuals, rather than being inherent within those labelled as disabled (Sterponi et al., 2015). Hence, conversation analysis as an assessment of social communication has the potential to be neurodiversity affirming (Yu & Sterponi, 2023).

Contemporary Notions of Pragmatics

Language may be conceptualised as comprised of three interrelated components: content, form, and use (Bloom & Lahey, 1978). According to this view, content refers to the meaning conveyed by language, encompassing semantics and the mental lexicon; form involves the structural aspects of language, including phonology, morphology, and syntax; and use pertains to pragmatics and discourse (Owens, 2020). Pragmatics, or sociolinguistic conventions, guide a person's decision making on what to say to whom, how to say it, and when to say it (R. B. Gillam et al., 2021). Accordingly, pragmatics focuses on how language is employed in context to inform meaning, such as when employed to manage conversations and achieve communication goals (Gibbs & Colston, 2020).

Pragmatics, broadly defined, is the system through which individuals manage the complexities of communication, allowing them to express their intentions clearly, interpret others' intentions, and adapt their communication style to fit social contexts (Airenti, 2017). Turkstra et al. (2017) proposed that pragmatic communication consists of three key elements: the use of both verbal and non-verbal communication for social functions (such as requesting, greeting, or persuading); the ability to adapt language and non-verbal cues according to the listener and the physical and social context (e.g., interacting with a teacher versus with peers); and the capacity to use contextual cues to interpret verbal and non-verbal communication (e.g., detecting deception). This framework aligns with the perspective that pragmatic communication spans two connected domains, encompassing both linguistic and social aspects (Prideaux, 1991). Andrés-Roqueta and Katsos (2017) describe an interplay between linguistic-pragmatics, which involves structural language competence, and social-pragmatics, which additionally requires understanding other people's intentions, desires, and

beliefs (i.e., social cognition; see Figure 1.2). Thus, effective pragmatic communication integrates two essential skills: language skills and social skills (Jensen de López et al., 2022).

Pragmatic development is viewed as the convergence of social cognitive and communicative development (Rollins, 2017), encompassing interconnected aspects such as social interaction, social cognition, pragmatics (both verbal and nonverbal), and language processing (Adams, 2005). For young people with language disorders, including those with DLD, impairments in social cognition, particularly poor theory of mind and emotion identification abilities, may explain social, emotional and behavioural problems experienced by individuals (Forrest et al., 2023).

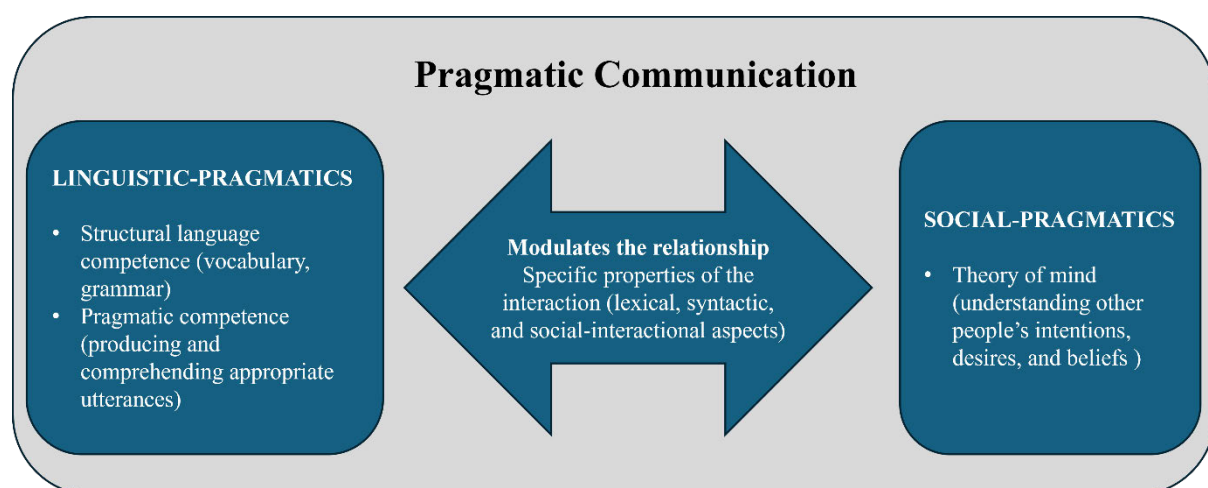


Figure 1.2: Linguistic and social pragmatics (developed from Andrés-Roqueta & Katsos, 2017).

The study of pragmatics is fraught with definitional and conceptual ambiguities. A key issue is the lack of consensus on what pragmatics encompasses, with multiple divergent views on the scope of pragmatics. According to the component view of language (whereby language is composed of components such as phonetics, phonology, morphology, syntax, and semantics), pragmatics constitutes a component of linguistic theory and is concerned with topics such as

implicature, speech acts, and presupposition (Huang, 2017). An alternative approach, the perspective view of pragmatics, argues that pragmatics should present a functional perspective on every aspect of linguistic behaviour and thus aims to expand the research scope of pragmatics to social culture (Niu, 2023). This lack of agreement on the fundamental definition of pragmatics complicates efforts to establish a unified framework for the field.

Another challenge in the field of pragmatics is in identifying specific constructs that can be consistently measured across different contexts and languages (Yamashita, 2008). Concepts such as politeness and implicature can vary widely depending on cultural norms, situational factors, and individual speaker intentions (Baider et al., 2020). This is because pragmatics is inherently variable and dynamic, being concerned with context-dependent meaning (Alduais, Al-Qaderi, Alfadda, et al., 2022). There is a need for both clearly defined constructs and reliable measures, as without these it is challenging to compare findings across studies and thus build knowledge in the field (Parsons et al., 2017).

This discussion of the lack of consensus in the field of pragmatics underscores the need for more rigorous specification and definition of key constructs, as well as further development of operationalised measures, to facilitate both empirical investigation and theoretical development of how language functions in real-world contexts. This ambiguity directly influenced the thesis, shaping key methodological decisions. In Chapters 3 and 5 (the scoping reviews), the search strategies and coding frameworks were intentionally broad so that studies using different terminology to describe overlapping constructs were not excluded. Additionally, the design of the clinician survey and interview tools (Chapters 2 and 4) required careful wording of items to ensure that respondents with differing conceptualisations of pragmatics could interpret the questions consistently. Similarly, the development of the

Digital Dialogues Interview (Chapter 6) focused on observable social interaction behaviours rather than relying on any single contested definition of pragmatic competence.

Interactions between Social Communication, Language, and Pragmatics

Social interaction, defined as “encounters between at least two people in which they attend to one another and adjust their behaviour in response to one another” (Hoppler et al., 2022, p. 1-2), necessitates linguistic and social competencies (Snow & Powell, 2008). Social interactions through language include exchanging information, achieving individual goals, maintaining social bonds, and showing interest in others’ lives and interests (Abbot-Smith et al., 2023). For young people with communication disability, social interactions provide crucial opportunities for them to practice communication skills in real-life settings, which is essential for the development of their social skills, social-emotional functioning, and overall well-being (Janik Blaskova & Gibson, 2021).

Language difficulties, including in domains of grammar and the lexicon, have implications for social communication and social interaction (Adams, 2022). For example, difficulty understanding and/or expressing complex language (such as idioms, metaphors, jokes, sarcasm, and/or inferences) may result in discourse-level difficulty and problems understanding meaning in context. Therefore, understanding social interactions requires an examination of the pragmatic competence of the individuals involved (Alduais, Al-Qaderi, & Alfadda, 2022).

Social Interaction: Offline and Online

Digital technologies have transformed how adolescents interact (Benvenuti et al., 2023). Social media are now a “critical part of the social fabric that makes up adolescents’ lives”

(Nesi et al., 2018, p. 268). In 2021, social media was used by 84% of 13- to 18-year-olds in the United States, who spent 87 minutes per day on such platforms (Rideout et al., 2022). Social media affords young people opportunities to communicate and socially interact online with peers, family members, and other individuals, whether they are known or unknown (Rose & Morstyn, 2013). Such interactions can include: (a) messaging; (b) emailing; (c) video chatting; (d) participating in online communities; and (e) commenting on, reacting to, and/or sharing posts (M. Anderson & Jiang, 2018).

The rise of digital media and communication platforms have impacted language use and communication patterns, influencing the development of new linguistic conventions and norms, such as abbreviated forms, emoticons, emojis, and slang (Ladzekpo et al., 2023). Online participation necessitates language and literacy skills, including digital literacy ability (Alvermann, 2004) and pragmatics (Hoffmann, 2017). For young people, especially those with communication disability, engaging with social media may be crucial for social participation and overall well-being (Raghavendra, Newman, Grace, et al., 2015). However, it should also be noted that a number of downsides and barriers to the use of social media by people with communication disability have been identified in the literature, including language (particularly literacy) difficulties (Hemsley et al., 2024).

Definition of Social Media

A recent systematic review has highlighted that there are several commonalities among the various definitions of social media proposed, which can be broadly understood as a category of digital platforms such as websites and applications. (Aichner et al., 2021). These platforms are defined by two primary functions: first, they facilitate many-to-many communication, allowing interaction between numerous individuals, communities, and organisations; second,

they support and encourage the creation, sharing, and engagement with user-generated content, or participation in social networking (Barreto & Whitehair, 2017; Matassi & Boczkowsk, 2021; McCay-Peet & Quan-Haase, 2018).

An alternative perspective, which conceptualises social media more in terms of being digital spaces in which people conduct their lives, shifts the focus from the specific technologies or platforms that constitute social media to focusing on what people do in these environments (Appel et al., 2020). One framework (Kaye, 2021) suggests four categories of social media use (interactive, reactive, broadcasting, and passive) based on two dimensions: level of interactivity (two-way interactive vs. one-way non-interactive) and the user's position in the communication (sender vs. recipient/audience). Interactive, reactive, and broadcasting social media use may be considered active, being behaviours that are more social in nature as they involve communicating directly with others (Winstone et al., 2023).

Role of Social Media Use in the Lives of Adolescents

Social media presents young people with new opportunities for communication and social interaction (Livingstone & Brake, 2010), which may explain why adolescents aged 13–18 years now spend less time interacting in-person socially compared to previous generations (Twenge et al., 2019). Social media presents young people with opportunities to foster social interactions, build relationships, and maintain a sense of connectedness with others (Marsden et al., 2022; Pérez-Torres, 2024). Benefits of social media use include increased social capital and self-esteem (Best et al., 2014), and greater opportunities for social contact and social support (Reid Chassiakos et al., 2016). For young people, social media use contributes significantly to their overall well-being by supporting (a) their connections with peers, friends, and family; (b) their emotional experiences, particularly positive mood; and (c) their

identity, by supporting a young person's authenticity, self-esteem, and distinctiveness (Shankleman et al., 2021). A systematic review found that adolescent social media use can sometimes be associated with positive effects; for example, quality interactions, social support, and social connectedness were consistently related to lower levels of depression and anxiety (Seabrook et al., 2016). The integral role that social media plays in the daily lives of young people is reflected in their high levels of engagement with social media platforms.

Adolescents and young adults are the most active group of social media users (Schønning et al., 2020). The most common reasons young people use social media include staying in touch with friends and family, and engaging with content by sharing, commenting on, or liking photos, updates, and videos posted by others (Gray, 2018). Such activities highlight social media's significant role as a dynamic space for young people's growth, including their personal and social development (Uhls et al., 2017).

Changing Nature of Adolescent Communication: Implications for Adolescents with Communication Disability

The advent of digital communication has significantly transformed how adolescents connect with their peers, access information, and participate in social relationships (Benvenuti et al., 2023). This shift has had profound implications, especially for adolescents with communication disability who face unique challenges and opportunities in this evolving landscape (Raghavendra, Newman, Wood, et al., 2015).

Challenges Faced

Parents may act as gatekeepers with respect to their child's use of social media, managing both access to devices and shaping digital habits. Parents often adopt strategies, such as co-

use, active mediation, restrictive mediation, monitoring, and technical mediation, to manage their child's social media use (Poulain et al., 2023). Their motivation for implementing these media regulation strategies may stem from a desire to maximise opportunities and/or reduce online risk for their child (Livingstone et al., 2017). Research indicates that parents predominantly use restrictive mediation practices —such as setting rules for use or blocking access to certain content (Valkenburg et al., 1999) — to regulate their child's use of social media, although this depends on the child's age (Poulain et al., 2023). A recent systematic review revealed that these parental mediation strategies effectively reduce the time young people spend on social media (Sevilla-Fernández et al., 2025).

Digital inequality means that many people with disabilities, as a broad population, do not use the Internet to the same extent as other groups (Dobransky & Hargittai, 2006; Scholz et al., 2017). Within this wider group, young people with communication disability may be particularly vulnerable to digital exclusion. This may be because actively using technology to communicate online necessitates skills such as digital literacy (Alvermann, 2004). The digital exclusion faced by people with disabilities in general is a significant social concern, affecting identity, social participation, and involvement in community and civic activities (Chadwick & Wesson, 2016). More specifically, Raghavendra et al. (2015) reported that young people with disabilities, including those with communication disability, strongly desired to learn how to use social media to connect/communicate with others but faced significant barriers to doing so, including low literacy skills.

Benefits of Social Media

Durkin et al. (2010) asserted that computer-mediated communication may make less stringent demands on a young person's language skills; therefore, online communication presents

young people with language disorders with a context within which they can positively adapt to the situation's communicative demands. For example, asynchronous communication offers young people with communication disability more control over the pace of conversation than either real-time, mediated communication or face-to-face communication, while visual-based platforms (e.g., Instagram) do not rely on written communication (Alper, 2014). Similarly, young people who experience difficulties with social interactions, such as those with autism, may prefer to use technology as a less threatening way to interact with others (Schimmel-Bristow & Ahrens, 2018), as it does not necessitate attention to facial cues, gestures, and other nonverbal expressions. For young people with disability, engaging with social media can be crucial for their social participation and belonging (Kaur & Saukko, 2022) as they may use social media to bolster their sense of self and belonging (Swist et al., 2015). This may particularly be the case for those with communication disability.

Social Media Use by Adolescents with Language Disorders

Most of the existing literature on social media use by adolescents does not focus on young people with language disorders, neither does it report language disorders as a demographic variable. A recent narrative review reported on social media use in populations with communication disability (i.e., augmentative and alternative communication users, people with complex communication needs, and people with intellectual disability; Hemsley et al., 2024). The 19 studies included in the review were highly heterogeneous, varying substantially in design (11 qualitative, four mixed-methods, four quantitative), sample size (ranging from three to 571 participants), methods of data collection, and populations. It should be noted that participants in 11 papers were exclusively adults and in one paper participants' ages were not reported. Of the remaining seven papers, all included both adolescent and adult participants. Therefore, understanding the use of social media by

adolescents with communication disability broadly, and language disorders specifically, including the perspectives of young people themselves, remains a significant gap in the literature.

Positive findings from the review indicated that social media offered a range of benefits for people with communication disability, including it being fun, increasing the number of communication partners for the person with communication disability to interact with, and allowing them to maintain and enrich friendships by keeping in touch with others. However, Hemsley et al. (2024) also noted that not all experiences were positive. Across individual studies, participants reported barriers to social media use such as gatekeepers restricting access, limited support to access social media, and literacy difficulties. A small number of studies also described instances where online interactions created tensions or misunderstandings within friendships, although these were not universal findings across the review.

While there is some preliminary evidence that health professionals support the use of social media by adults with communication disability (Brunner et al., 2021), whether or not SLPs assess and/or provide interventions that support the learning of skills to enable young people's digital participation through social media has not yet been systematically investigated. Chapter 4 aims to address this gap in the literature by examining SLPs' clinical practices with respect to if and how SLPs facilitate the use of social media by young people with communication disability.

Having established the need for research into pragmatics and social interaction for young people with communication disability, particularly with respect to social media, the focus

shifts to an overview of the Australian speech-language pathology environment. This discussion will underscore the importance of understanding the clinical services that SLPs provide to young people with communication disability.

Education in an Australian Context

School systems in Australia aim to provide equitable access to education for all students, regardless of a child's abilities and background, via an inclusive approach (Dean et al., 2023). The system encompasses both government (public) schools, and non-government (private) schools. The latter are comprised primarily of Catholic and independent schools (Australian Curriculum, Assessment and Reporting Authority, 2024). Public schools are primarily funded by state and territory governments, with additional funding through federal government agencies (Boyle & Anderson, 2020). In addition to government sources of funding, non-government schools receive funding via tuition fees and private donations (Australian Curriculum, Assessment and Reporting Authority, 2024).

In Australia, schooling is obligatory for children who have turned 6 years old but, as early childhood education (preschool) is not compulsory in Australia (Australian Council for Educational Research, 2018), the age at which children commence formal schooling can vary. According to the Australian Curriculum, Assessment and Reporting Authority (2024), the first year of enrolment at primary school is known by different names in each state (for example, kindergarten in New South Wales, preparatory or foundation in Victoria, and pre-primary in Western Australia). Following this first year of compulsory education, children commence Year 1 and continue with primary education until Grade 6 (i.e., for 7 years total). On completion of primary education, children are enrolled at a high school, typically for a further 6 years, from Grade 7 through to Grade 12. In most states and territories, young

people may leave school at the end of Year 10 under certain conditions (i.e., participation in education, training, or employment for at least 25 hours per week, until 17 years of age). Once they complete Year 12 secondary education, students who achieve a minimum standard are awarded a qualification (e.g., the Higher School Certificate [HSC] in New South Wales; Australian Council for Educational Research, 2018).

Education funding may be available for speech-language pathology services; some state/territory education departments allocate specific funds within their budgets to support such services in schools (Pearce et al., 2024). However funding is often limited and allocated based on the severity of a student's profile of difficulties (Daniel & McLeod, 2017). Alternatively, schools may employ SLPs directly and fund these services privately, for example through tuition fees or by parents paying out-of-pocket for services received by their child (Australian Education Union, 2014).

Speech-Language Pathology in an Australian Context

In Australia, Speech Pathology Australia (SPA) is the profession's peak body and accredits university speech pathology programs to ensure they meet the required standards for education and training, with graduates of approved Bachelor- or Master-level qualifications eligible for SPA membership and recognition as a certified practising speech pathologist (CPSP; Speech Pathology Australia, 2020). Speech pathology is a self-regulating profession, with SPA being the body responsible for setting and maintaining the standards for the profession (Speech Pathology Australia, 2024b). In recent years, there has been a notable shift in the education and training of SLPs towards developing more transferable skills (Hewat, 2022). This change reflects evolving service needs and funding models, ensuring that

SLPs are equipped to provide flexible and effective support across different contexts (Speech Pathology Australia, 2023).

Speech pathology services are diverse in Australia, and include clinic, community, and home-based services; individual, family, and group services; in-person and telepractice services; and multidisciplinary, interdisciplinary, and transdisciplinary team approaches (Speech Pathology Australia, 2022b). Within the education sector, a multi-tiered response to intervention (RTI) framework (Snow et al., 2013) may inform service provision, whereby collaborative classroom-based services are provided at Tier 1, targeted small groups are provided at Tier 2, and one-on-one services are provided at Tier 3. Services may be delivered in schools, hospitals, community health centres, or via private clinics (Pearce et al., 2024). Historically, speech pathology services have been overseen by the health and disability sectors, with services provided through public and not-for-profit organisations (Cowden et al., 2021). However, the frequency and availability of speech pathology services can vary significantly by state due to differences in funding, with some states offering more comprehensive coverage than others (Pearce et al., 2024).

Speech pathology services are funded via a complex mix of federal and state government funding arrangements (Nickless et al., 2023a). Services for school-aged children are funded by education departments, community services, hospitals, non-government agencies, individual centres and schools, and/or by parents/caregivers (Speech Pathology Australia, 2022a). With respect to health funding, the federal government provides funding through the Medicare and National Disability Insurance Scheme (NDIS) programs, which are both publicly funded insurance schemes (Brebner et al., 2019). As Australia's universal public healthcare system, Medicare offers rebates for eligible speech pathology services while the

NDIS provides support for individuals with permanent and significant disability to access necessary services, including those provided by SLPs (Speech Pathology Australia, 2024a). Furthermore, state and territory health departments provide access to medical and health services, including allied health services (Nickless et al., 2023a). Many public funding provisions may only partially cover speech pathology service costs, thereby creating funding gaps, with families contributing the remaining out-of-pocket balances (Nickless et al., 2023b). Personally funded private health insurance may help cover some of these costs, depending on the individual's policy (Speech Pathology Australia, 2024a).

Best Practice Recommendations for Speech-Language Pathology Support for Adolescents with Communication Disability

Assessment and management of communication disability is a core component of a SLP's scope of practice (American Speech-Language-Hearing Association, 2016; Speech Pathology Australia, 2022b). Best practice recommendations for SLPs supporting adolescents with communication disability emphasise a multifaceted, individualised approach that is sensitive to cultural and linguistic diversity and considers medical, behavioural, environmental, educational, vocational, social, and emotional factors that may impact a young person's functioning (American Speech-Language-Hearing Association, 2004).

Research into the clinical assessment practices of Australian SLPs has shown that they typically employ a combination of standardised and non-standardised (e.g., language sampling) measures across a range of contexts (Westerveld & Claessen, 2014). Intervention strategies used are diverse and focus on individualised treatment catering to the specific needs of a child using direct (e.g., one-on-one, pull-out) and indirect (e.g., collaborative, consultative) methods (Utley & Hopf, 2021). However, much of the data about Australian

SLP practice are either outdated or pertain to populations that differ significantly from adolescents with communication disability. Chapter 2 aims to address this gap in the literature by providing updated and focused research on the clinical practices of Australian SLPs as they relate to adolescents with communication disability.

Theoretical Framework and Methodology of the Thesis

This thesis is comprised of three empirical research studies. Details of the methodology for each of the studies are found in the papers in Chapters 2, 4, and 6. However, the overarching theoretical framework that informed the methodological decision-making, and so design, of each study is underpinned by pragmatism as a research paradigm. Pragmatism is based on the proposal that the most effective philosophical and/or methodological approach is the one that best addresses the specific research question at hand (Teddle & Tashakkori, 2009). This stance prioritises practical outcomes and the usefulness of the research findings over adherence to any single theoretical perspective (Long et al., 2018). Unlike positivists, who contend that an objective knowledge exists and can be acquired through hypothesis testing and empirical evidence, and constructivists, who argue that knowledge is inherently relative and shaped by individual experiences, pragmatists acknowledge that reality is complex and view the process of acquiring knowledge as a continuum (Kaushik & Walsh, 2019). This continuum encompasses both objective and subjective elements, acknowledging that the boundaries between these approaches are not strictly dichotomous (Giles & Hirschheim, 2000).

Pragmatism, therefore, is not confined to a single methodological approach but is instead associated with a plurality of methods, allowing researchers to select and integrate various methods that best address their research questions and leading to the adoption of mixed

methods approaches (Gillespie et al., 2024). The mixed methods design, as advocated by pragmatism, combines quantitative and qualitative techniques, thereby enabling a more comprehensive exploration of research problems and yielding richer insights (Kaushik & Walsh, 2019). This methodological pluralism aligns with the pragmatic view that different approaches can be employed in tandem to enhance the robustness and applicability of research findings (Morgan, 2013). By embracing the strengths of both qualitative and quantitative data, researchers can address complex questions more effectively and generate findings that are both contextually relevant and methodologically sound (O’Cathain et al., 2010).

Aim and Structure of the Thesis

The purpose of the research was to examine the clinical services that SLPs provide to young people with communication disability, specifically language disorder, and the experiences of this population with social interaction, with a particular focus on their use of social media.

The thesis starts with a focus on SLPs. Chapter 2 examines the assessment and intervention clinical services provided by SLPs to adolescents with communication disability. This chapter reports the results of a national survey and examines the differences in practices according to geographical location of SLPs. Chapter 3 identifies the constructs and measures used to evaluate the social interaction abilities of young people with a language disorder, through a scoping review of 173 peer-reviewed publications. Chapter 4 examines SLPs’ assessment and intervention practices regarding the use of social media by young people with communication disability. This chapter utilises mixed methods, reporting the results of both a national survey and in-depth semi-structured interviews.

The focus then turns to young people with communication disability and their use of social media. Chapter 5 examines how young people with language disorders use social media for social interaction, through a scoping review of 44 peer-reviewed publications. Chapter 6 details the findings of a pilot study, which investigated the feasibility of a new supported, structured interview tool, the Digital Dialogues Interview. The development of this tool enables a critical gap in the literature to be addressed, as it facilitates the participation of young people with communication disability in research that seeks to understand how they use social media, why they use it, and what activities they engage in when using it.

Finally, in Chapter 7, three key points are explored: participation-focused assessments, particularly of pragmatics/social interaction; a reimagining of how social interaction is evaluated in young people with communication disability; and social media as a contemporary context for participation for young people with communication disability. I also discuss implications of this research for leadership and policy, alongside its theoretical and methodological contributions.

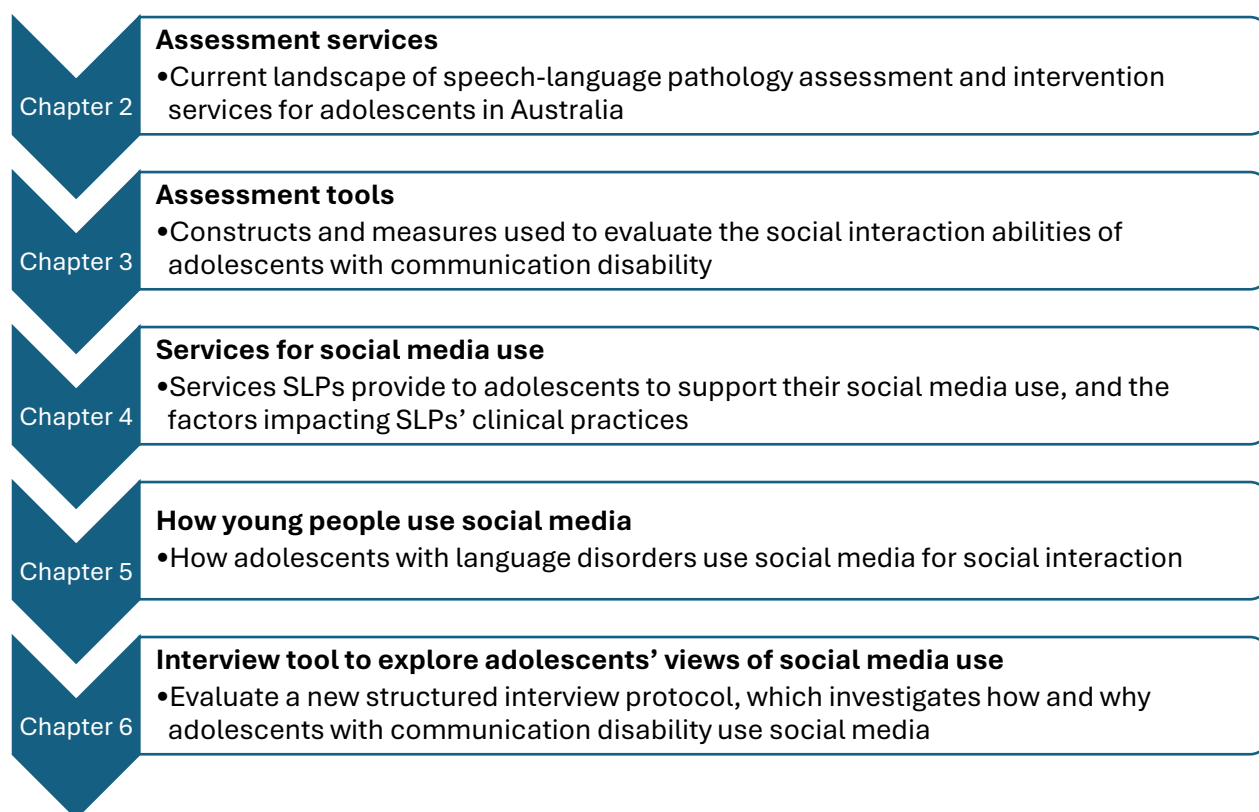


Figure 1.3: Overview of the thesis.

Positioning Statement on Deficit-Based Discourse, Ableism, and Neurodiversity

This thesis initially approached the study of language disorder specifically and communication disability broadly through a deficit-focused lens, mirroring the prevailing narratives within existing literature and reflecting my own professional training. As a SLP working with children and young people, my early clinical practice was grounded in frameworks that emphasised impairment and remediation. This professional positioning shaped the assumptions I brought to the research and the ways I initially conceptualised communication disability.

However, as my understanding has deepened, through both clinical experience and engagement with critical disability scholarship, my perspective has evolved to acknowledge the situated and interactional nature of communication disability and the rich diversity

represented. My work with children and young people has shifted to recognise a person's unique strengths, to value diverse communication practices, and to understand communication as something co-constructed within relationships and contexts. This perspective has informed the approach taken in this thesis, as I recognise that continuing to explore the complex and multifaceted nature of language and communication must include listening to the voices, experiences, and perspectives of young people with communication disability.

This thesis adopts the term language disorder in accordance with CATALISE recommendations (Bishop et al., 2017). I use the term communication disability, over other umbrella terms such as speech-language communication needs, to recognise the socially constructed nature of communication difficulties (Roulstone & Harding, 2013). As Kovarsky & Walsh (2011, p. 211) argue, “language disabilities do not exist as independent, self-contained psycholinguistic phenomena inside the heads of individuals ... [they] are interactional achievements that are brought to life in situated contexts.” My clinical positioning aligns with this view, which has shaped the analytical lens adopted throughout the thesis.

Chapter Summary

This chapter discussed typical language development during adolescence, emphasising the role of cognitive, neurobiological, and environmental factors. It defined communication disability, explored its prevalence, and provided an overview of the challenges faced by young people with communication disability through an examination of the long-term impacts on their emotional, social, mental health, employment, and quality of life outcomes.

The chapter underscores the need for inclusive environments and targeted speech-language pathology support for adolescents with communication disability but recognises that little is known about the services that SLPs generally, and Australian SLPs in particular, provide to this population. The evolving nature of social interactions in the digital age and the role of social media as a tool for communication and social inclusion was discussed. However, there is a gap in the literature with respect to how young people with communication disability use this medium and the challenges they face. Therefore, this thesis addresses the following research questions:

- 1) What services do SLPs offer to people aged 12-16 years, and how do these services differ across states/territories in Australia?
- 2) What assessment practices do SLPs utilise when working with this population?
- 3) What intervention practices do SLPs utilise when working with this population?
- 4) How are social interaction skills measured in research on adolescents with communication disability?
 - a) What constructs have been measured to describe the social interaction abilities of adolescents with communication disability?
 - b) What instruments have been used to measure the social interaction abilities of adolescents with communication disability?
 - c) Which components of the ICF are these measures addressing for adolescents with communication disability?
 - d) What form do the measurement instruments take?
- 5) What services do SLPs provide that support young people's online communication interactions, specifically with respect to social media use?

- 6) What are the professional practices of SLPs concerning young people's use of social media?
- 7) What factors affect SLPs' practices around young people's use of social media?
- 8) What is known from the existing literature on how young people with language disorders use social media for social interaction?
- 9) What interventions involving the use of social media are being implemented for young people with language disorders?
- 10) What are the barriers and facilitators to the use of social media by young people with language disorders?
- 11) How feasible (e.g., participant engagement, usability of the interview, time/resources) was the Digital Dialogues Interview (DDI) to implement in research with young people with communication disability?
- 12) What challenges were encountered when administering the DDI?
- 13) What does the DDI tell us about how and why young people with communication disability use social media?

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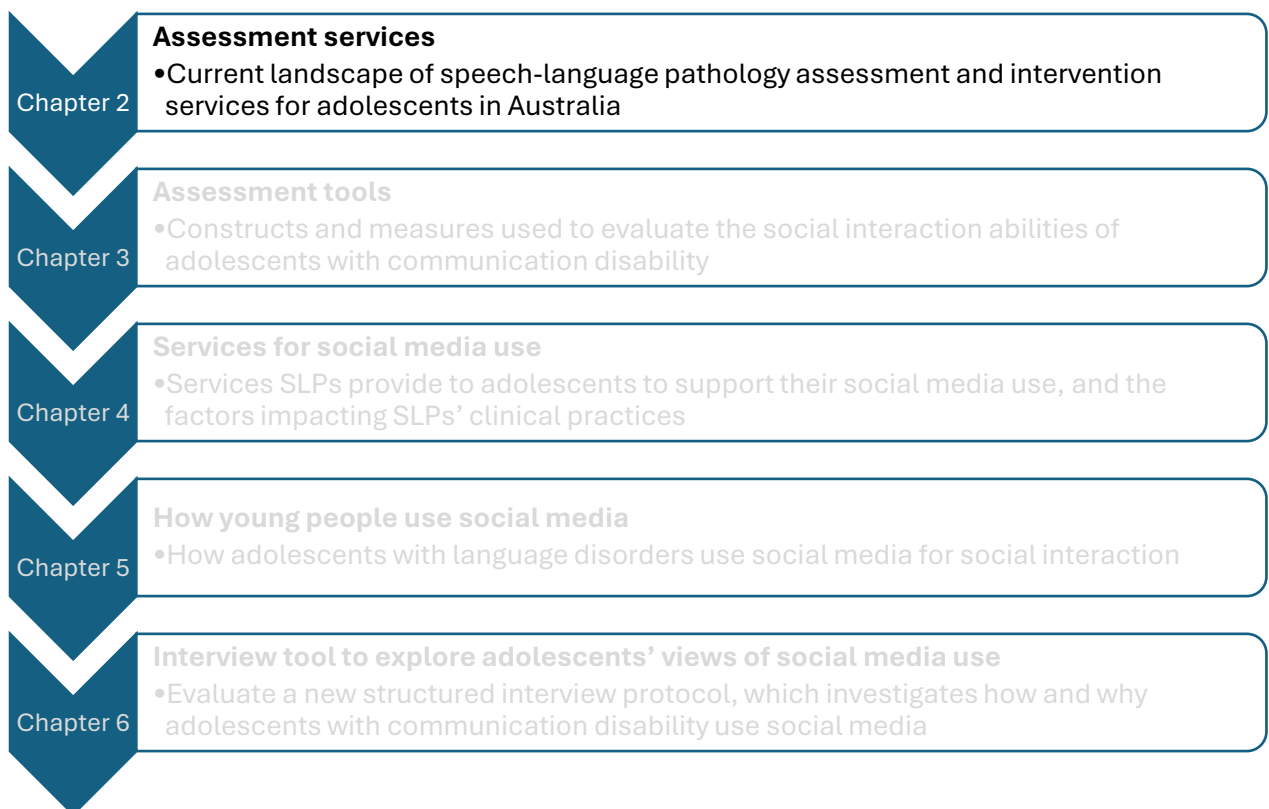
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Chapter 2 (Paper 1)

Services for Young People with Communication Disability: SLPs' Assessment and Intervention Practices



Chapter 2 presents the findings of a national survey investigating the assessment and intervention practices of SLPs working with young people with communication disability across Australia. Although SLPs play a critical role in supporting this population, there is a notable lack of contemporary research detailing the specific services currently available. The last survey conducted in 2005 was limited to a single state, highlighting the need for updated, nationwide data. This study filled that gap by providing a comprehensive overview of contemporary service provision for young people with communication disability in Australia. The findings indicate that SLPs continue to use impairment-driven models and assessment tools over social participation approaches.

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- Conceptualisation
- Formal analysis
- Investigation
- Methodology

- Project administration
- Resources
- Visualisation
- Writing – original draft
- Writing – review & editing

Name: Melanie Keep

Date: 28/11/2025

Clinical practices of speech-language pathologists working with 12- to 16-year olds in Australia

NICHOLA SHELTON¹ , NATALIE MUNRO¹ , MELANIE KEEP¹ ,
JULIA STARLING¹  & LYN TIEU² 

¹Faculty of Medicine and Health, University of Sydney, Sydney, Australia; ²Office of the Pro Vice-Chancellor (Research & Innovation), School of Education, MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Sydney, Australia

Abstract

Purpose: The current landscape of speech-language pathology (SLP) services for 12- to 16-year olds in Australia remains largely uncharted. Implementing the Speech Pathology 2030 vision necessitates mapping current services, and gaps in services, provided by speech-language pathologists (SLPs). However, the last survey of Australian SLPs' practices with young people was conducted in 2005. The aim of this study was to bridge the service delivery information gap.

Method: Ninety-six SLPs working with 12- to 16-year olds in Australia completed an anonymous online survey consisting of binary choice, multiple choice, and Likert scale questions. A theoretical approach to service delivery based on response to intervention models underpinned question design.

Result: SLP clinical practices remain traditional, following an impairment/diagnostic model. Additionally, there is an inequitable provision of SLP services across states/territories of Australia, according to whether or not there is government provision for SLP services in public schools.

Conclusion: The results suggest a need for standard government provision of SLP services across Australia to ensure equity of access. These findings inform our understanding of contemporary assessment and intervention practices of SLPs working with 12- to 16-year olds in Australia.

Keywords: Adolescents; survey; assessment; intervention; Australia

Introduction

In 2015, 2.73% of the 1 423 491 adolescents (aged 13–17 years) in Australia reported living with communication disability (Australian Bureau of Statistics, 2017).¹ However, up to 16% of mainstream secondary age school children in Australia may have communication disability (McLeod & McKinnon, 2007). Lack of access to timely, tailored, speech-language pathology (SLP) services can perpetuate inequality and increase the disadvantages of those living with communication disability, including later life outcomes (Jones et al., 2018). This paper focuses on the SLP services offered to Australian 12- to 16-year olds with communication disability, including the assessment and intervention practices speech-language pathologists (SLPs) utilise to deliver those services.

Current SLP service provision to young people

Adolescence is a period associated with significant cognitive, social, emotional, and physical development (Symonds, 2015). In Australia, it also involves the transition from primary to high school, a progression that can be particularly difficult for those with communication disability (Dockrell & Lindsay, 2007). Communication disability can result in poor educational outcomes (Snowling et al., 2001), with long-term implications for psychosocial, occupational, and quality of life outcomes (Clegg et al., 2005; Johnson et al., 2010). Accordingly, Ehren (2002) has argued that SLPs have a significant contribution to make in academic supports for adolescents with communication disability. Despite this, literature across Europe and the UK, USA, and Australia has

Correspondence: Nichola Shelton, Discipline of Speech Pathology, Faculty of Medicine & Health, The University of Sydney, PO Box 170, Lidcombe, NSW 1825, Australia. E-mail: Nichola.Shelton@sydney.edu.au

consistently highlighted that adolescents are underserved by the SLP profession (Bercow, 2008; Brandel & Frome Loeb, 2011; Hollands et al., 2005; McKean et al., 2019). This area has been identified for professional growth, and Speech Pathology Australia envisions that SLPs will become core staff in secondary schools (Speech Pathology Australia, 2016).

Current legislation in Australia

Federal legislation requires that reasonable adjustment be made to enable students with disability to access their education (Australian Government, 2005). However, as education remains a state/territory government responsibility (Graham et al., 2018), SLP services within schools are inconsistent between Australian states/territories. Queensland (QLD), South Australia (SA), Tasmania (TAS), and Victoria (VIC) provide SLP services for children in public schools, while New South Wales (NSW), Northern Territory (NT), Australian Capital Territory (ACT), and Western Australia (WA) either have minimal or no government-mandated provision of SLP services in public schools (Parliament of Australia Community Affairs Committee, 2014). The mediating effect of federal policy via state, and even local, influences on service delivery has been recognised with respect to interpretation of the Individuals with Disabilities Education Act (IDEA, 2004) legislation in the United States (Hebbeler et al., 2012).

Response to intervention framework

SLP paediatric service provision has been conceptualised as consisting of three tiers, according to a Response to Intervention (RTI) framework (Snow et al., 2013). Tier 1 services provide high quality teaching and interactions for all children; Tier 2 services deliver small group services for children who require additional support (Law et al., 2013); and Tier 3 services provide individualised assessment and either indirect (Tier 3A) or direct (Tier 3B) tailored intervention (Ebbels et al., 2019). While surveys in Australia and the United States have found that SLPs typically provide Tier 3B services to children (Egeland, 2019; Hollands et al., 2005), a survey of UK-based SLPs indicated that only 40% of their time in mainstream schools was dedicated to Tier 3B intervention (Dockrell et al., 2006). This suggests a move towards Tier 3A indirect therapy provided by, or in collaboration with, teaching assistants and other professionals. Similarly, Pring et al. (2012) found that UK-based SLPs spent less than one quarter of their working time in Tier 3B direct intervention. The extent to which this shift is driven by the evidence base or resource considerations is unclear. Regardless, this change in the methods of delivery of clinical services, at least in the context of the UK, highlights the need for an updated profile of current SLP service practices in Australia.

Scope of practice and provision of SLP services in Australia

Within Australia, SLPs may provide a variety of services (assessment, diagnosis, treatment) to adolescents across a variety of environments, including natural contexts (e.g. school classrooms). They provide services that can address issues at different levels: impairment, activities of daily living, and/or participation (Speech Pathology Australia, 2011), with the aim of improving outcomes for young people with communication disability. Service delivery models span the scope of the RTI framework (Speech Pathology Australia, 2011).

The last Australian survey into SLP service provision to adolescents was conducted in 2005 (Hollands et al., 2005) in just one state (QLD, which has mandated government provision for SLP services in public schools). Results indicated that SLPs prioritised early intervention, with fewer adolescents receiving support than younger children. Approximately one third of respondents reported having no adolescents on their caseload. Therefore, Hollands et al.'s (2005) findings may not accurately reflect current SLP service provision across Australia.

Current evidence/recommendations for services to adolescents – a growing literature

The paucity of SLP services for adolescents may be due to the lack of evidence to support clinical decision making (Kamhi, 2006). However, there is a growing body of evidence, including randomised controlled trials, to support SLPs working on both oral (e.g. Joffe et al., 2019; Murphy et al., 2017; Spencer et al., 2017) and written (e.g. Dietrichson et al., 2020; Ward-Lonergan & Duthie, 2016) language with adolescents. Two systematic reviews (Lowe et al., 2018; Peterson et al., 2020) have also included studies that focussed on adolescent language interventions.

The move towards the inclusion of young people with disabilities to be educated in mainstream classroom environments and the need for differentiated teaching have been highlighted as drivers of increased SLP/teacher collaboration (Archibald, 2017). A scoping review of school-based services for children with disabilities revealed 10 principles of organising and delivering services, key amongst these being collaborative intervention, that is, collaboration between teachers and SLPs, including co-teaching (Anaby et al., 2019). This collaborative approach provides opportunity for increased generalisation of skills taught (Meaux & Norris, 2018). There is also evidence of the effectiveness of a collaborative classroom-based approach with high school teachers (Starling et al., 2012). Barriers to effective collaboration, however, include differing priorities for outcomes and how best to deliver interventions (Gallagher et al., 2019a).

Student-centred approaches, including seeking advice from 10–13 year olds with language disorders on improving SLP intervention services in schools, have shown that young people prioritise facilitating their inclusion, participation, and achievement (Gallagher et al., 2019b). In combination, the growing evidence base of adolescent interventions, inclusive collaborative co-practice, and the need for listening to the voices of young people, highlights the need for further investigation into adolescent SLP service provision.

Clinical practices of SLPs

While SLPs utilise both standardised and informal assessments (Betz et al., 2013; Caesar & Kohler, 2009), they are typically decontextualised, that is conducted in a clinical environment, rather than in everyday contexts (Denman, 2019). Recently, SLPs have been repeatedly called upon to consider people's capacity to perform a task under controlled conditions and naturalistic contexts (Threats, 2008; Westby & Washington, 2017). Westby and Washington (2017) argue that common assessments, such as standardised tests and observational tools, are typically focussed at the Activity level, that is, "execution of a task or action by an individual" (World Health Organization, 2011 p. 9), and constitute impairment-based assessment (McLeod & Bleile, 2004). In contrast, assessments that evaluate a young person's ability to perform skills in naturalistic contexts are focussed at the Participation level, defined as "involvement in a life situation" (World Health Organization, 2011 p. 9).

Challenges with mapping SLP assessment practices onto categories of the International Classification of Functioning, Disability and Health - Children and Youth Version (ICF-CY; World Health Organization, 2011) has resulted in inconsistency in classifying language assessments in the literature (Denman et al., 2019). Assessments may be categorised according to the domain they assess, their purpose, delivery method (clinic vs. community), and their form (such as standardised or criterion referenced, Denman et al., 2019). However, the extent to which Australian SLPs' assessment practices focus on the activity or participation levels remains unknown.

Purpose of the present study

While the need for SLP services for 12–16 year olds is evident, little is known about the services provided to this population in Australia. Although concerns regarding the inconsistent provision of appropriate SLP services to young people with communication disability in Australia are well documented (Parliament of Australia Community Affairs Committee, 2014; Speech Pathology Australia, 2011), state/territory-based data on current service provision, including assessment and intervention practices, remain absent. This study aimed to survey

SLPs across Australia about the following research questions:

- (1) What services do SLPs offer to people aged 12–16 years, and how do these services differ across states/territories in Australia?
- (2) What assessment practices do SLPs utilise when working with this population?
- (3) What intervention practices do SLPs utilise when working with this population?

Method

Questionnaire design and distribution

An online survey was designed to canvass Australian SLPs about their clinical practices with young people aged 12–16 years. Taking into account best practice guidelines (Kelley et al., 2003), questions were developed based on published articles reporting on surveys about SLP service delivery and clinical practice (e.g. Hollands et al., 2005; O'Connor & Pettigrew, 2009; Ruggero et al., 2012; Vallino-Napoli & Reilly, 2004; Zipoli & Kennedy, 2005). The anonymous online survey consisted of 55–70 questions, took approximately 20–40 minutes to complete, and could be completed in more than one sitting. Some items were only displayed conditional upon participants' responses to other items. The survey consisted of twelve sections, and included questions covering demographics, caseload, respondents' role as an SLP, assessment practices and tools, and intervention practices and tools. The final three sections of the survey focussed on assessment and intervention practices with respect to 12- to 14-year olds including their use of social media, and will be reported in a separate paper. Rather than creating a second survey, these sections were included in the current one to avoid the volume of surveys administered negatively impacting response rates (Braithwaite et al., 2003).

Binary choice, multiple choice, and Likert scale responses were used. Question design was underpinned both by a theoretical approach to service delivery based on RTI models² (Ebbels et al., 2019) and by the taxonomy of language assessment practices developed for school-aged children via a recent Delphi study (Denman et al., 2019). Piloting was conducted with a SLP working in Australia, which ensured maximal clarity, usability, and technical functionality of the survey. The research was approved by The University of Sydney Human Research Ethics Committee (project number 2019/079).

The survey was available through Qualtrics (www.qualtrics.com) from March to July 2019. Respondents were recruited using Twitter and Facebook posts, and announcements in newsletters (such as Speech Pathology Australia's) and the Children's Healthcare Network Allied to Kids (A2K) website. A convenience sample of respondents was sought so the survey was not password protected (or closed). No incentives were offered for participation.

Table I. Demographic information of respondents.

Demographic	<i>n</i>	(%)
<i>Gender (n = 96)</i>		
Female	93	96.9%
Male	3	3.1%
<i>State/territory of practice (n = 95)</i>		
Australian Capital Territory (ACT)	2	2.1%
New South Wales (NSW)	43	45.3%
Northern Territory (NT)	0	0%
Queensland (QLD)	17	17.9%
South Australia (SA)	8	8.4%
Tasmania (TAS)	3	3.2%
Victoria (VIC)	15	15.8%
Western Australia (WA)	7	7.4%
<i>Urban or regional location (n = 95)</i>		
State or Territory capital city and surrounding areas	70	73.7%
Regional town or city	22	23.2%
Outer regional area (restricted accessibility to goods/services)	3	3.2%
<i>Years working as a speech-language pathologist (SLP) (n = 92)</i>		
Five or fewer years	37	40.2%
6-15 years	22	23.9%
16+ years	33	35.9%
<i>Employment status (n = 95)</i>		
Full time	51	53.7%
Part time	44	46.3%
<i>Main agency through which speech-language pathology services are provided (n = 95)</i>		
Community health	7	7.4%
Hospital (public)	3	3.2%
Department of Education (public/government school)	16	16.8%
Catholic education	4	4.2%
Other non-government school	1	1.1%
Private practice (clinic setting, mobile or contract service)	48	50.5%
University clinic	1	1.1%
Non-government organisation	11	11.6%
Other (Please specify)	4	4.2%
<i>Employer (main agency variable recoded, n = 95)</i>		
Government service	29	30.5%
Non-government service	18	18.9%
Private practice	48	50.5%
<i>Number of clients on caseload (n = 87)</i>		
1-8	22	25.3%
20-39	30	34.5%
40-59	16	18.4%
60-79	8	9.2%
80+	11	12.6%

Data analysis

Analysis was conducted using IBM SPSS Statistics for Windows version 24.0 (IBM Corp, 2016). Chi-square tests of independence were used to compare service provision practices and differences in employers across Australia. A significance level of 0.05 was used. All responses that met eligibility criteria (qualified practising SLP in Australia with a clinical caseload that included clients aged 12-16 years) were included in data analysis, including those from respondents who terminated the survey early. Data reported are based on the number of valid responses for each question, that is, the number of respondents who answered a particular question or, in the case of multiple answer questions, part of the question.

The variable “main agency through which SLP services are provided” was recoded to three categories: government service (Department of Education [public/government school], community health, and public hospital roles), non-government service (Catholic Education, other non-government school, non-government organisation, and university clinic), and private practice values. Respondents ($n = 4$) who selected “other” were assigned to either the government service or non-government service value as

appropriate. This was to facilitate data analysis due to small numbers in some of the original categories.

Result

Participants

Of the 101 people who consented, 96 met the eligibility criteria and were included in the analyses, yielding a participation/recruitment rate of 95%. The completion rate for the survey was 59.4%. This is in line with a previous survey of SLPs, where a dropout rate of 42% was reported (Selin et al., 2019). SLP is a self-regulating, not registered, profession in Australia (Speech Pathology Australia, 2018a), so the number of SLPs working with young people is unknown³ and an indicator of sample representativeness is not possible. Table I summarises demographic and practice characteristics.

Caseload

Figures 1 and 2 show respondents' caseload by age of client and practice area.

The majority (63.5%, $n = 54$) of respondents reported caseloads that included 12- to 16-year olds

who identified as culturally and linguistically diverse (CALD). A further 44.7% ($n=38$) reported that their caseload included Aboriginal and/or Torres Strait Islander clients, while 11.8% ($n=10$) of respondents had clients who identified as LGBTQI. These data speak to the diversity of SLPs' caseloads, although it is worth noting that 25.9% ($n=22$) of respondents indicated that they had no clients identifying with any of the preceding identities. Respondents reported that their clients presented with a range of concomitant conditions. The most commonly reported were attention-deficit/hyperactivity disorder (reported by 85.9% of respondents, $n=73$), autism spectrum disorder (85.9%, $n=73$), intellectual (developmental) disability (72.9%, $n=62$), and emotional and/or behavioural disorder (43.5%, $n=37$).

Services SLPs offer to young people aged 12–16 years: differences across Australia

A significantly greater proportion of SLPs in states/territory (hereafter “states”) with government

provision of SLP services in public schools (74.4%, $n=29$) reported being able to provide Tier 1 (universal) services to 12- to 16-year olds, compared to SLPs in states with zero/minimal government provision for SLPs in public schools (45.5%, $n=20$) ($\chi^2=7.14$, $p=0.013$).

Further, respondents' ability to offer Tier 2 (small group) services also significantly differed between states with/without government provision for SLPs in public schools ($\chi^2=8.52$, $p=0.007$). A greater proportion of respondents in states with government provision for SLP services in public schools (56.4%, $n=22$) were able to offer Tier 2 services compared to respondents in states with zero/minimal government provision for SLPs in public schools (25%, $n=11$). There were no differences in the ability to offer Tier 3 (individual direct or indirect) services between states with/without government provision for SLPs in public schools (89.7%, $n=35$ and 84.1%, $n=37$ respectively; $\chi^2=0.58$, $p=0.529$).

A 2×3 chi-square test of independence showed significant differences in employers (government, non-government, private practice) across states with and without (or with minimal) government provision of SLP services in public schools ($\chi^2=15.20$, $p \leq 0.0001$). States with government provision of SLP services had a greater proportion of SLPs employed in government service roles (48.8%, $n=21$ compared to 15.4%, $n=8$), and states with zero/minimal government provision for SLPs in public schools had a greater proportion of SLPs employed in private practice (67.3%, $n=35$ compared to 30.2%, $n=13$) (see Figure 3).

Upon closer inspection, it was identified that of the eight participants in government service roles in NSW and WA (no respondents from ACT were employed in a government service position), all were working in community health roles, that is, no

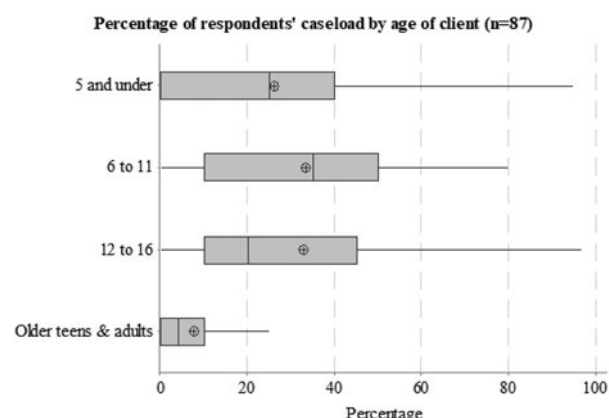


Figure 1. Respondents' caseload by client age group (outliers removed for clarity).

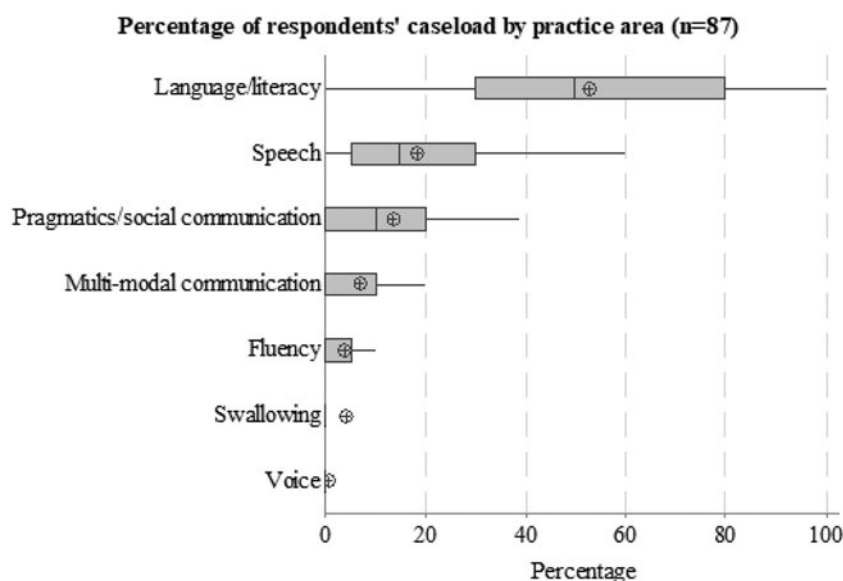


Figure 2. Respondents' caseload by speech pathology practice area (outliers removed for clarity).

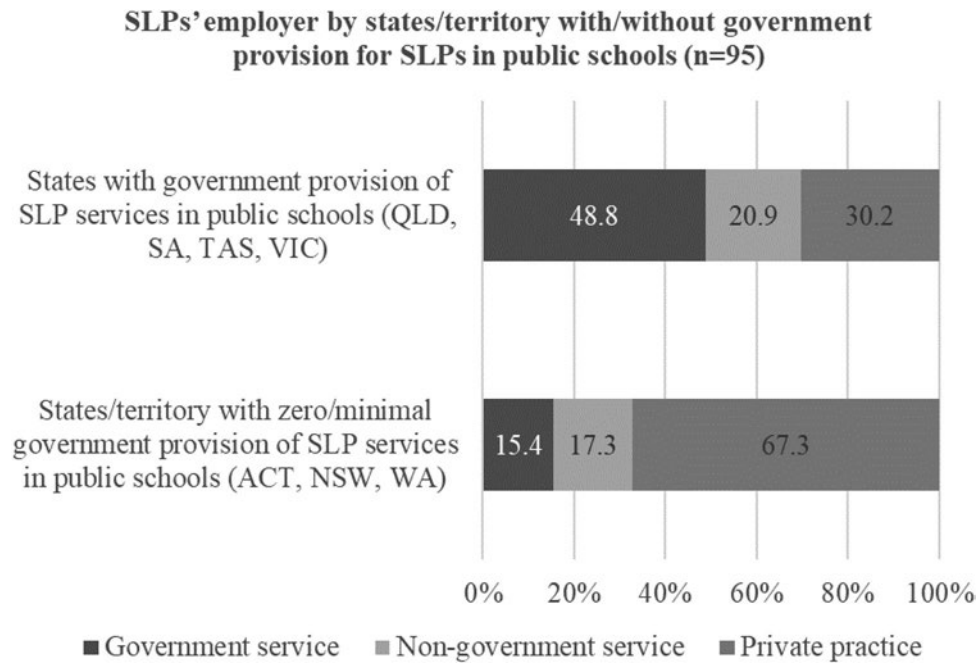


Figure 3. SLPs' employer in states with and without government provision for speech-language pathology services in public schools.

Table II. Clinical practice summary (assessment).

Assessment domains, methods, and tools for 12- to 16-year olds	<i>n</i>	(%)
<i>Language domains assessed (n = 77)</i>		
Semantics	72	93.5%
Morphosyntax	70	90.9%
Social abilities and discourse	67	87%
Meta-abilities (including meta-cognition and meta-linguistics)	54	70.1%
Executive functions	33	42.9%
<i>Standardised assessments utilised by SLPs (n = 72)</i>		
Omnibus assessment that covers comprehension and expression of oral and/or written language (e.g. CELF)	69	95.8%
Assessment that addresses a specific domain of language (e.g. TROG)	46	63.9%
Assessment that addresses case history, communication functioning, and/or participation (e.g. discourse/language sampling that is standardised such as the Persuasive Discourse Task)	36	50%
<i>Commonly used omnibus assessments of oral language (n = 58)</i>		
CELF	56	96.6%
OWLS	9	15.5%
TILLS	7	12.1%
<i>Commonly used omnibus assessments of written language (n = 47)</i>		
CELF	19	40.4%
OWLS	18	38.3%
YARC	11	23.4%
<i>Non-standardised assessments utilised by SLPs (n = 70)</i>		
Interview with parent/caregiver or young person that does not follow a set protocol	57	81.4%
Discourse (oral language) sampling assessments created by the SLP	44	62.9%
Teacher interview	44	62.9%
Classroom observation	37	52.9%
Asking parents, teacher(s) or peers about the young person's social network	32	45.7%
Observation at home or during other day-to-day activity	17	24.3%
Sampling skills by role playing real life scenarios	8	11.4%

CELF: Clinical Evaluation of Language Fundamentals (Wiig, Semel, & Secord, 2017); TROG: Test for Reception of Grammar (Bishop, 1989); OWLS: Oral and Written Language Scales (Carrow-Woolfolk, 1995); TILLS: Test of Integrated Language & Literacy Skills (Nelson, Plante, Helm-Estabrooks, & Hotz, 2016); YARC: York Assessment of Reading Comprehension (Snowling et al., 2009).

respondents in these states were employed by a Department of Education.

Assessment practices SLPs utilise when working with 12-16 year olds

Table II summarises the frequency of different assessment practices. The vast majority of SLPs (98.8%, $n = 79$) reported that they conducted their own

assessments with 12- to 16-year olds. Assessments were typically face-to-face (offered by 100% of participants, $n = 80$), and proxy-report measures were also utilised by 42.5% ($n = 34$) of SLPs. Just 3.8% ($n = 3$) of SLPs reported using telehealth during assessments. SLPs indicated that the primary purposes of their assessment were to: identify a suitable intervention approach or select intervention goals/targets (64.6% of respondents, $n = 53$); diagnose a condition or

Table III. Clinical practice summary (intervention).

Intervention practices with 12- to 16-year olds	<i>n</i>	(%)
<i>How respondents decide on the goals of intervention for 12- to 16-year olds (multiple choice) (n = 67)</i>		
Informed by assessment results	25	37.3%
Young person preference	24	35.8%
Parent preference	21	31.3%
Evidence-based practice	21	31.3%
Best practice clinical guidelines	10	14.9%
Other (Please specify)	8	11.9%
Own preference	0	0%
All of the above	40	59.7%
<i>Language related domains respondents target in intervention with 12-16 year olds (multiple choice) (n = 61)</i>		
Semantics (including specific interventions, such as Robust Vocabulary Instruction)	54	88.5%
Social abilities and discourse (such as interventions targeting narrative or persuasive macrostructure, or other aspects of pragmatics/social communication)	54	88.5%
Meta-abilities (such as interventions targeting meta-cognition or meta-language skills, e.g. phonological awareness intervention)	47	77.0%
Morphosyntax (including specific interventions, such as Shape Coding)	40	65.6%
Executive functions (such as interventions targeting working memory or sustained attention)	28	45.9%
<i>Other professionals SLPs collaborate with to provide intervention services (n = 65)</i>		
Classroom teachers	61	93.8%
Learning support teachers	48	73.8%
Psychologists	41	63.1%
Other speech pathologists	41	63.1%
Occupational therapists	40	61.5%

make a comparison with peers (i.e. determine whether functioning is different to peers, 63.4%, $n = 52$); predict outcomes/planning for the future (57.3%, $n = 47$); and profile strengths and weaknesses/describe and explain a particular aspect of a child's functioning (57.3%, $n = 47$).

As evidenced in Table II, the majority of SLPs utilise tools that Mcleod and Bleile (2004) frame as impairment-based assessments. Most (95.8%; $n = 69$) respondents utilise an omnibus, standardised assessment; fewer SLPs utilise assessments that focus on a young person's communicative participation. Classroom observation was utilised by 52.9% ($n = 37$) of respondents, while observation at home or during other day-to-day activity was utilised by 24.3% ($n = 17$). The use of tools focussed at the Activity level is consistent with the finding that the purpose of SLPs assessments are, typically, impairment-focussed.

Intervention practices SLPs utilise when working with 12-16 year olds

Table III summarises SLPs' intervention practices. Most SLPs reported providing intervention services to 12-16 year olds in a clinic environment (62.1%, $n = 41$). Half ($n = 33$) provided therapy services in a mainstream secondary school, including specialist units within such schools, while 21.2% ($n = 14$) of

SLPs provided therapy in the young person's home, possibly indicative of some private practitioner respondents offering a mobile service. Just 9.1% ($n = 6$) of SLPs offered therapy via telehealth to this population; the majority of those respondents that did (83.3%, $n = 5$) were located in capital cities and surrounding areas.

Respondents' intervention goals focussed on language/literacy 56.8% (SD = 32.1%, $n = 67$) of the time, on pragmatics/social communication 15.9% (SD = 16.4%) of the time, and on speech 13.2% (SD = 17.8%) of the time. The remaining 14.1% (SD = 11.1%) was accounted for by multimodal communication, fluency, swallowing, and voice goals. These intervention goals closely reflected the composition of respondents' overall caseload.

Discussion

This research aimed to identify the services SLPs provide to young people aged 12–16 years in Australia, describe how these services differ across states/territories, and identify the assessment and intervention practices SLPs use when working with this population. Results of the study demonstrated that SLPs in states with government provision for SLPs in public schools (i.e. QLD, SA, TAS, and VIC) were more able to offer Tier 1 and 2 services than SLPs in states that do not employ, or else provide only minimal, SLP services in public schools (i.e. ACT, NSW, and WA). Respondents in states with government provision for SLPs in public schools were more likely to be employed in government service roles than respondents in states with zero/minimal government provision for SLPs in public schools, who were more likely to be employed in private practice. Although barriers to providing Tier 1 and 2 services exist (Gallagher et al., 2019a), the value of such intervention is increasingly documented (Archibald, 2017; Meaux & Norris, 2018).

The inequities in service provision across Australia could be due to policy and funding issues. Legislation and policies for service provision and funding for children with communication disability vary across Australian states/territories (Mcleod et al., 2014). Boxall (2011) argues that public funds should only be used for the most clinically and cost-effective interventions. While the evidence base for Tier 1 and 2 interventions has been small, it continues to grow (e.g. Dietrichson et al., 2020; Lowe et al., 2018; Starling et al., 2012). Further, there is growing awareness of the right of children with disabilities to an inclusive education (Gallagher et al., 2018). SLPs are now in a position to advocate for increased services for the adolescent population as a priority, by ensuring policy is evidence-based (Speech Pathology Australia, 2020).

In states with limited or no government provision for SLPs in public schools, families are funnelled into paying for the services of private practitioners. For

people in low SES areas, SLP services may be financially inaccessible. Added to this, there are inadequate services in socio-economically disadvantaged areas (Speech Pathology Australia, 2018b). This suggests a need for standard government provision regarding SLP services in public (primary and secondary) schools to ensure consistency in access.

We also found that SLPs perceived the purpose of their assessments as typically impairment-focussed. Activity level assessment tools were primarily used, and while 81.4% of respondents used interviews and 62.9% utilised discourse sampling, it is not known whether these types of assessments gathered information about a young person at the Participation level, compared to tools such as the Participant and Environment Measure-Children and Youth version (PEM-CY; Coster et al., 2012). Relying on assessment tools that focus on impairment rather than participation may lead to insufficient data about a young person's functioning, which can impact planning decisions, in particular where to focus goals. It also raises concerns about the adequacy of existing SLP assessments for assessing specific domains of language, such as young people's pragmatic/social communication, particularly at the Participation level. This is significant, as research with young people with Acquired Brain Injury, another paediatric population with long-term negative outcomes, has found that goals focussed on Participation were crucial for adolescents' well-being, and enabled them to fulfil their personal goals (McCarron et al., 2019).

Given the diversity of the clinical population that SLPs serve, as evidenced by the numbers of SLPs with clients who identified as CALD, Aboriginal and/or Torres Strait Islander, and/or LGBTQI, it is perhaps surprising that service delivery models remain traditional. The last Australian survey investigating service provision to adolescents found that the traditional impairment model (i.e. assessments conducted to identify a problem, then providing therapy to address that issue) persisted (Hollands et al., 2005). Over a decade later, this appears to remain the case. While this seems to be in keeping with the situation in the United States (Egeland, 2019), it stands in contrast to the changing situation in the UK (Dockrell et al., 2006; Pring et al., 2012).

The survey results indicated that SLPs provided face-to-face services; less than 10% offered therapy via telehealth. With three-quarters of SLPs located in metropolitan areas (Health Workforce Australia, 2014), this has implications for access to SLP services in regional/remote communities. Given the recent COVID-19 pandemic, however, telehealth use may have increased; though sustained provision of services via telehealth is unknown.

Finally, it is noteworthy that SLPs reported collaborating with a range of other professionals in order to provide SLP services. This may reflect SLPs addressing students' curriculum needs or advocating for

accommodations/supports for their clients, rather than being indicative of truly multidisciplinary/interdisciplinary practice.

Encouragingly, the overwhelming majority (95.5%, $n = 67$) of the survey respondents reported taking into account a young person's preferences when deciding on the goals of intervention. A collaborative approach to SLP practice can promote inclusion and independence for people with communication disability by focussing on strengths and abilities, rather than deficits (Murphy et al., 2018). This collaborative goal setting, however, occurs in the context of primarily impairment-focussed assessments that assess a young person's capacity, rather than their communicative functioning in naturalistic contexts. Therefore, it is unclear to what extent the goals of 12-16 year olds are participation-focussed, and to what extent young people have been influenced by the assessment process when expressing their goal preferences. Further, while SLPs remain impairment-focussed, it is unclear whether this is at the expense of young people and their communication partners' learning skills to manage the impact of the communication disability (for example, self-advocacy skills or communication partner training).

Limitations and future research

As the results of the survey are based on a convenience sample, they should be interpreted with caution. While every effort was made to recruit respondents, the sample size remains small and does not include any SLPs practising in the NT. Further, the number of SLPs practising in ACT, SA, TAS, and WA was small, which may have biased the sample. Although survey length is not associated with response rates (Cook et al., 2000), the length of the survey may have introduced respondent fatigue resulting in early survey termination. Despite this, online surveys remain effective tools to canvass Australian SLPs about their service delivery, for both cost and geographical reasons (Wright, 2006). To date, this is the largest sample of Australian SLPs surveyed for this clinical population.

This research highlighted concerns regarding the equitable provision of SLP services. Future research could investigate the reasons why some providers are unable to offer particular tiers of intervention and how to remove barriers to providing such services. Regarding clinical practices, future research could investigate why SLPs remain impairment-focussed, rather than considering young people's functioning and participation. Research into how young people are involved in decisions regarding their therapy goals, and the barriers and facilitators to their inclusion, is also warranted. In particular, research is needed into whether or not SLPs adopt a strengths-based approach (Doell & Clendon, 2018) by focusing on abilities and achievements of young people

during their assessment process. Alternative research methods, such as interviews, may shed light on some of these issues.

Conclusion

This research aimed to identify what services SLPs offer to young people aged 12–16 years, how these services differ across states/territories in Australia, and the assessment and intervention practices SLPs use when working with this group. We found that SLPs continue to provide a range of services to young people with communication disabilities. These services remain traditional in nature, using an impairment/diagnostic model, rather than an approach informed by social participation concerns. Despite evidence supporting the effectiveness of Tier 1 intervention (e.g. Starling et al., 2012), access to universal and small group services seems dependent upon government provision of SLP services, which are inequitably provided across Australian states/territories. Standard government provision could address inequitable SLP service provision.

Notes

1. This data is derived from the Survey of Disability, Ageing and Carers (SDAC, Australian Bureau of Statistics, 2016), which defines the activity of communication as “understanding and being understood by family and friends or strangers”.
2. While we acknowledge that RTI is a means by which to progress children through intervention services, we used the tiered categories solely as a means to frame survey questions, rather than whole school progress monitoring.
3. By the end of 2019, Speech Pathology Australia had 9,862 members (Speech Pathology Australia, 2019).

Declaration of interest

The authors have no conflicts of interest in relation to the research presented in this manuscript.

ORCID

Nichola Shelton  <http://orcid.org/0000-0003-3162-8338>
 Natalie Munro  <http://orcid.org/0000-0002-5870-6378>
 Melanie Keep  <http://orcid.org/0000-0001-9516-0303>
 Julia Starling  <http://orcid.org/0000-0001-7909-6102>
 Lyn Tieu  <http://orcid.org/0000-0003-2794-7977>

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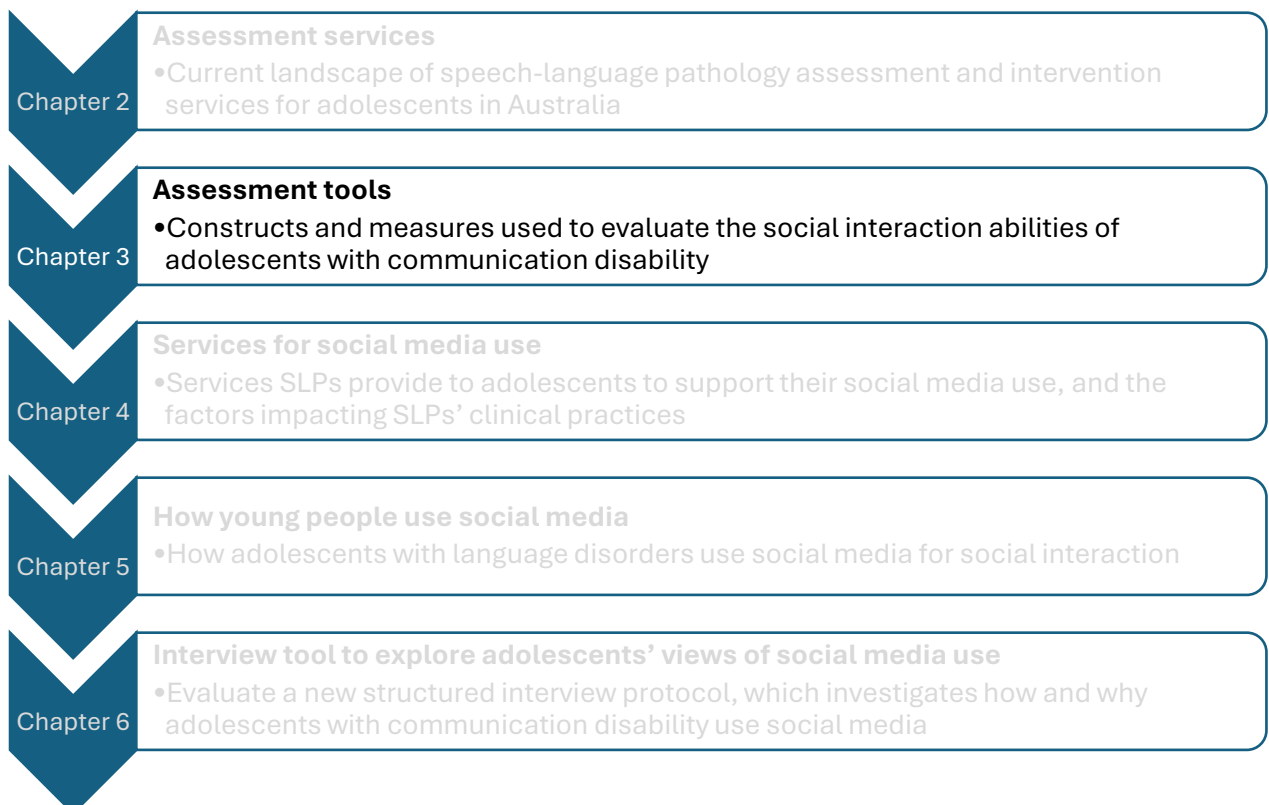
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Chapter 3 (Paper 2)

Constructs and Measures Used to Evaluate the Social Interaction Abilities of Young People with Communication Disability



This chapter presents a scoping review of assessment practices used to evaluate the social interaction abilities of adolescents with communication disability, offering a comprehensive synthesis of constructs, instruments, and frameworks employed across disciplines. Despite the centrality of social interaction to adolescent development and the increasing relevance of digital communication contexts, this review revealed that current assessment tools overwhelmingly focus on decontextualised, static measures of capacity rather than real-world performance. This highlights a critical gap in the literature: a lack of participation-focused assessments that capture how young people with communication disability engage in social interactions across diverse settings, including online environments. By applying the International Classification of Functioning, Disability and Health (ICF) alongside complementary taxonomies, this study highlighted the need for dynamic, context-sensitive tools that reflect adolescents' social participation.

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Author Attribution Statement

As co-author of the above paper and primary supervisor, I confirm that Nichola Shelton made the following contributions, in collaboration with co-authors:

- Conceptualisation

- Formal analysis
- Investigation
- Methodology
- Project administration
- Visualisation
- Writing – original draft
- Writing – review & editing

Name: Melanie Keep

Date: 28/11/2025

Title: Assessment of the social interaction abilities of adolescents with communication disability: A scoping review

Authors: Nichola Shelton¹, Natalie Munro^{2, 1}, Julia Starling¹, Lyn Tieu^{3, 4, 5}, and Melanie Keep¹

Affiliations: ¹Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia; ²Faculty of Health, Southern Cross University, Gold Coast, QLD, Australia; ³Faculty of Arts and Science, University of Toronto, Toronto, ON, Canada; ⁴MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Penrith, NSW, Australia; ⁵Faculty of Medicine, Health and Human Sciences, Macquarie University, NSW, Australia

Corresponding author: Nichola Shelton, Level 6, Susan Wakil Health Building, D18 Western Avenue, The University of Sydney, NSW 2141, Australia. E-mail: Nichola.Shelton@sydney.edu.au Phone: +61 2 8015 6011

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Abstract

Purpose: We sought to identify the constructs and measures used to evaluate the social interaction abilities of young people (12–17 years) with communication disability, drawing from three frameworks: a taxonomy of paediatric cognitive-communication disorders, a taxonomy to describe language assessments of school-aged children, and the framework of the International Classification of Functioning, Disability and Health (ICF).

Method: A scoping review was conducted, guided by the five-stage methodological framework outlined by Arksey and O'Malley (2005). Ten databases were searched (CENTRAL, CINAHL, ERIC, LLBA, Medline, PsychINFO, Scopus, speechBITE, Web of Science, and ProQuest Dissertations & Theses Global).

Results: In total, 173 peer-reviewed publications were identified and included in this review. Most papers measured the construct of pragmatics/social communication and behavior using standardized, norm referenced, static, and decontextualised instruments that focused on the ICF's Activity component, with fewer papers evaluating young people's social interaction skills at the Participation level.

Conclusions: There is an urgent need for more Participation-focused measures. Such measures could enable speech-language pathologists to support young people's development and participation in ways that are meaningful to them.

Keywords: adolescent; communication disability; social interaction; ICF; Participation

Social interaction involves people adjusting their behavior in response to one another (Hoppler et al., 2022), while pragmatics is the framework for navigating communication complexities (Airenti, 2017). Turkstra et al. (2017) argue that pragmatics comprises three components: the use of verbal and non-verbal communication for social functions, the ability to adjust communication based on the listener and context, and the ability to use verbal and non-verbal context cues to support comprehension. Social interaction necessitates linguistic and social competencies (Snow & Powell, 2008), while successful pragmatic communication combines competence in structural language and social cognition (Andrés-Roqueta & Katsos, 2017). For the purposes of this article, pragmatic communication is considered to be the intersection between social, cognitive, and communicative development (Rollins, 2017).

Digital technologies have transformed how adolescents interact (Benvenuti et al., 2023), with social media now critically important in their lives (Nesi et al., 2018). In 2021, 84% of U.S. teens used social media, spending an average of 87 minutes per day on these platforms (Rideout et al., 2022). Social media enables various forms of communication, such as: (a) messaging; (b) emailing; (c) video chatting; (d) participating in online communities; and (e) commenting on, reacting to, and/or sharing posts (Pew Research Center, 2018). As such, using social media implicates both reading and writing skills (Alvermann, 2008), as well as pragmatic skills (Shelton et al., 2023). For young people, especially those with communication disability, engaging with social media may be crucial for their social participation and overall well-being (Shelton et al., 2023).

Speech-language pathologists (SLPs) need to understand the pragmatic and social interaction skills of a young person with a communication disability in order to support their effective communication and social participation (Parsons et al., 2017), meaning participation-level

pragmatic assessments are critical. However, there is an apparent lack of tools available for clinical practice with this population (Norbury, 2014). This review aimed to address this gap by identifying relevant constructs and measures used to evaluate the social interaction abilities of young people (12–17 years) with communication disability, following the official endorsement of the International Classification of Functioning, Disability, and Health (ICF; World Health Organization, 2001).

Talking About Communication Disability

The CATALISE consortium (Bishop et al., 2016, 2017) recommends using the term *developmental language disorder* (DLD) for language difficulties without a clear biomedical etiology, which are severe enough to interfere with daily life, and have a poor prognosis. When language difficulties are part of a broader pattern of impairments, they are termed *language disorder associated with X*, where X is the differentiating condition (e.g., autism or intellectual disability). The use of these terms does not assume a mismatch between verbal and nonverbal abilities.

In line with these recommendations, this review focuses on certain biomedical conditions where young people use verbal communication (i.e., not augmentative and alternative communication [AAC] or signed language) for social interaction and where the nature of the condition reflects well-known difficulties with social interaction. This broad approach means that this review is unconstrained by the boundaries of diagnostic criteria, which limit the scope of what is essentially an omnipresent and transdiagnostic communication skill. Accordingly, this paper uses the term *communication disability* to refer to young people with a disability that includes language difficulties.

Communication disability involves challenges receiving and producing communicative messages in one's home language(s) (McLeod, 2018), with the interaction between a person's impairments and personal and environmental contextual factors resulting in limitations on a person's activities and/or their participation (Threats, 2008). This includes difficulties with speaking, listening, reading, and/or writing, which are key communication skills needed for effective offline and online social interactions by adolescents.

There is a strong relationship between pragmatic skills and literacy skills (Troia et al., 2023). Pragmatic difficulties that may impact the writing abilities of young people with language disorders include difficulty understanding and using nonliteral (e.g., abstract, figurative) written language, perspective-taking (e.g., making inferences, presupposition ability), and discourse regulation (e.g., knowledge of genre structure and topic, including organisation and maintenance; Troia, 2011). Similarly, reading comprehension is a complex cognitive-linguistic process that implicates all components of language, including pragmatics, particularly as texts become longer (Vandewalle et al., 2012). Pragmatic challenges that may impact the reading abilities of young people with language disorders include difficulties with nonliteral language, ambiguity, and sensitivity to context (Freed et al., 2011; Nation & Norbury, 2005).

A young person's unique profile of linguistic difficulties impacts both their oral and written communication in online and offline environments. Research into young people with language disorder, social (pragmatic) communication disorder, and autism indicates that their communication and social profiles reflect a continuum of impairment, rather than discrete differences that can be easily categorized (Timler & Moss, 2021). Consequently, young people with communication disability may have difficulties understanding and using

grammar, vocabulary, phonology, and/or difficulties with higher-order language, including pragmatics (Baird, 2008).

Current Literature on Assessment of Pragmatics/Social Interaction

A series of systematic and scoping reviews have explored various aspects of pragmatic language difficulties and their assessment. Narayanan et al. (2021) identified the pragmatic language difficulties in children (under 12 years) with DLD as issues with turn-taking, maintaining a topic, unusual content and use of language, and comprehending context. Alduais et al. (2022) classified assessment tools for preschoolers with pragmatic language impairment into formal, informal, and mixed measures. They advocate for a combination of direct and indirect assessments to identify factors contributing to preschoolers' difficulties, such as neurological, linguistic, and cognitive challenges. Similarly, Santhanam and Hewitt (2015) recommended combining norm- and criterion-referenced tests with observation, caregiver reports, and language sampling for assessing communication in autistic people. Therefore, the existing literature underscores the importance of using a multifaceted approach to assess factors contributing to pragmatic language difficulties.

Optimal assessment of pragmatic skills in adolescence includes observation and language sampling during different activities with a variety of communication partners (Turkstra et al., 2017). However, language assessments designed to be used with adolescents are mostly standardized tests (Spencer et al., 2010). Standardized assessments, including those of pragmatic and discourse skills, assess discrete behaviors out of context, that is., the cognitive knowledge of pragmatic rules rather than the ability to use these rules (Westby, 2020), and thus do not differentiate between capacity and performance of a skill (see the Overview of the

ICF section, below). Further, the psychometric properties of assessment tools restrict their effectiveness.

The need for further development and refinement of assessment tools, as well as the necessity of ensuring that these tools are both valid and reliable for the intended population, has been identified in several reviews. For example, Timler and Covey (2021) found that none of the 10 pragmatic or social communication measures reviewed met all standards for test accuracy. Pereira and Lousada (2023) found limited validity and reliability in seven measures of pragmatic intervention effects in children with DLD, with none reporting responsiveness (i.e., the ability of an instrument to detect changes over time). Lastly, Poll et al. (2021) showed that just five out of 13 reviewed social communication assessments for adolescents demonstrated sufficient evidence of content validity and internal consistency. Such limitations of measures impact the ability of SLPs to make accurate judgements about young people's pragmatic and social interaction abilities.

A survey of Portuguese SLPs working with preschool-age children with pragmatic impairment found that 80% desired more knowledge and skills regarding the assessment of pragmatics, as well as more validated and reliable assessment instruments (Pereira et al., 2024). Similarly, school-based SLPs in the United States identified a lack of evidence on social communication/pragmatic disorders and expressed a need for more research to better apply best practices in school settings (Heilmann & Bertone, 2021). This raises the question of SLPs' clinical practices with respect to the assessment of young people's pragmatic language and social interaction skills.

Clinical Use of Assessments: SLPs' Practices

A survey of U.S. school-based SLPs found they ranked standardized testing as the most important tool in terms of methods of assessing children with potential language disorders (Fulcher-Rood & Castilla-Earls, 2023). Further, a survey of the clinical practices of SLPs working with 12- to 16-year-olds in Australia found that 95.8% used an omnibus, standardized assessment, while classroom observation was used by 52.9%, and observation at home or during other day-to-day activities was used by 24.3% (Shelton et al., 2021). This survey identified that SLPs' top three purposes of assessment were, firstly, to select an intervention approach or goals/targets; secondly, to make a diagnosis or determine if functioning is different to that of peers; and, joint third, (a) to predict either the need for intervention or risk of poor future outcomes, and (b) to describe a particular aspect of a young person's functioning, that is, their profile of strengths and weaknesses (Shelton et al., 2019). The common use of standardized measures to guide clinical decision-making may explain why Denman et al. (2023) found that one-quarter of SLPs reported using the Clinical Evaluation of Language Fundamentals (Semel et al., 2017) Core or Language Index subtests and the Renfrew Action Picture Test (Renfrew, 2010) to assess the social abilities and discourse of school-aged children. This is despite these measures not having been designed to assess discourse abilities or for language abilities to be observed in a natural social context. The use of such tools may limit the ability of SLPs to make accurate judgements of young people's social abilities and discourse, particularly in terms of their Activities and Participation.

Overview of the ICF

The ICF¹ (World Health Organization, 2001) is a classification of health and health-related domains. In the context of speech-language pathology, it provides a framework for considering health, disability, and functioning that can be used in clinical practice for both setting goals and evaluating treatment outcomes (World Health Organization, 2013). Use of the ICF as a framework for assessment and intervention in speech-language pathology is endorsed by professional organizations including the American Speech-Language-Hearing Association (American Speech-Language-Hearing Association, 2016) and Speech Pathology Australia (Speech Pathology Australia, 2022).

As a biopsychosocial model comprised of two parts, the ICF incorporates biological, individual, and social perspectives of health (World Health Organization, 2013). Part 1 (Functioning and Disability) is comprised of two components: “Body Functions and Structures” and “Activities and Participation.” Part 2 (Contextual Factors) consists of two further components: “Environmental Factors” and “Personal Factors”. As per ICF definitions (World Health Organization, 2001), Part 1 is concerned with the anatomical parts of the body and their physiological functions (Body Structures and Functions, respectively), and the execution of tasks/actions by an individual and their involvement in a life situation (Activities and Participation, respectively). Part 2 is concerned with the physical, social, and attitudinal environment in which people live (Environmental Factors), and personal factors such as gender, age, habits, and education.

¹ This review uses the ICF, rather than the International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY), as the ICF-CY has been fully merged back into the ICF as per a 2012 resolution by the World Health Organization’s Family of International Classifications Council (World Health Organization, 2012).

An important implication of the distinction between the ICF's Activity and Participation components can be conceptualized as the difference between a young person's capacity for and their performance of a skill. Westby and Washington (2017) argue that a young person's capacity to perform a skill in a structured context is represented by the Activity component of the ICF, while a young person's actual performance of that same skill in naturalistic contexts reflects their Participation.

Recent reviews have examined the applicability of the ICF to populations such as preschoolers (Alduais et al., 2022; Cunningham et al., 2017; Karem et al., 2019) and autistic young people (Askari et al., 2014). These, however, have focused on younger populations and only Part 2 of the ICF. For example, Jensen de López et al. (2022) reviewed pragmatic interventions for children aged 3–18 years with developmental language disorder and Singer et al. (2023) reviewed the contextual (Environmental and Personal) factors that impact their communicative participation. There is limited understanding around Part 1 of the ICF (i.e., Body Functions and Structures, and Activities and Participation) and how this may be applied to assessment of older children with communication disability. However, while the ICF taxonomy enables understanding of a person's functioning and disability, it does not capture an administrator's purpose for using a given assessment or detail the form of an assessment tool.

Other Taxonomies Applicable to Speech-Language Pathology Assessment

Two additional taxonomies can assist in identifying and describing the constructs and details of the assessment measures used for social interactional skills in young people with communication disability. First, the taxonomy of Crumlish et al. (2022) was used in a scoping review of measurement instruments used in research into pediatric cognitive-

communication disorders in traumatic brain injury. This taxonomy may be useful to identify the constructs being measured (i.e., the authors' purpose for using the measurement instrument) in research with other pediatric populations where the communication disability is developmental in nature. Second, the taxonomy of Denman et al. (2019) enables the form of assessments to be described, as it includes components on administration procedures (standardized or nonstandardized), type of data collected (norm-referenced, criterion-referenced, or descriptive), whether the assessment is static or dynamic, and task type (discrete skill tasks vs. contextualized or performance-based tasks).

Purpose of the Scoping Review

We aimed to synthesize the literature to identify the assessment measures that have been used to describe the social interaction skills of adolescents with communication disability since the ICF was officially endorsed by the World Health Organization (2001). We chose to apply elements of three frameworks to better understand what is being assessed (constructs relevant to social interaction and Part 1 of the ICF) and how it is being assessed. We considered social interaction as broadly encompassing oral and written language in online and offline interactions, as adolescent communication is deeply embedded within these modalities. The unique contribution of this study is the application of the ICF (World Health Organization, 2001) taxonomy, in addition to taxonomies by Crumlish et al. (2022) and Denman et al. (2019), to measures of pragmatics/social interaction that are used with an adolescent population.

Method

A scoping review methodology was selected for this review, as we aimed to broadly examine the extent, range, and nature of research activity in the field (Arksey & O'Malley, 2005). This

review was conducted according to Arksey and O'Malley's (2005) five-stage framework, as outlined below.

Stage 1: Identifying the Research Question

The main research question was: How are social interaction skills measured in research on adolescents with communication disability? To answer this, several sub-questions were identified:

1. What constructs have been measured to describe the social interaction abilities of adolescents with communication disability?
2. What instruments have been used to measure the social interaction abilities of adolescents with communication disability?
3. Which components of the ICF are these measures addressing for adolescents with communication disability?
4. What form do the measurement instruments take?

Stage 2: Identifying Relevant Studies

In consultation with a University of Sydney research librarian, search terms relating to three key concepts (adolescent, social interaction, and language disorder) were identified (see Table 1). The following databases were searched in February 2019, October 2019, and December 2023: CENTRAL, CINAHL, ERIC, LLBA, Medline, PsychINFO, Scopus, speechBITE, Web of Science, and ProQuest Dissertations & Theses Global. A large number of databases were used to ensure a comprehensive search that incorporated relevant literature from a range of disciplines, including education and psychology, in addition to speech-language pathology. We chose to include disciplines beyond speech-language pathology to ensure measures commonly used by both SLPs and non-SLPs (such as the Autism Diagnostic

Observation Schedule [ADOS]; Lord et al., 2012) were captured. Further, we chose to include measures of reading and writing as written language is a “unique and complex social event ... [that] is a transaction between writer and reader” (Dudley-Marling & Rhodes, 1987, p. 41). This more inclusive approach allowed the research team to encapsulate the breadth of tools used with adolescents with a communication disability. The search was limited to results written in English and published from 2001 onwards, which was when the ICF was officially endorsed by the World Health Organization (World Health Organization, 2001).

Table 1. Sample search terms for each identified concept.

Adolescent		Social interaction		Language disorder
Adolescen* OR Teen* OR Young person OR Youth	AND	Interpersonal relations OR Social behavior?r OR Social participation	AND	Language Disorder* OR Language Development Disorder* OR Specific Language Impairment

Stage 3: Study Selection

Prior to the search being conducted, inclusion and exclusion criteria were determined.

Inclusionary criteria were: (a) peer-reviewed publications (e.g., not a book chapter or invited commentary); (b) all or some participants aged 12–17 years; (c) studies focused on the social interaction/pragmatic skills of young people with communication disability; and (d)

participants with a developmental language disorder (DLD), social (pragmatic)

communication disorder, or a language disorder associated with autism, attention-

deficit/hyperactivity disorder (ADHD), acquired/traumatic brain injury, intellectual disability, and/or who were deaf/hard of hearing. Studies with multilingual participants were included.

Exclusionary criteria were: (a) participants who were AAC users; (b) participants who were hearing impaired and solely used sign language; (c) participants who had a diagnosed

syndrome; (d) studies focused on the experiences/perspectives of a parent, sibling, or teacher of a young person with communication disability (although proxy-report measures from other

studies were included); (e) therapy-focused articles, where assessments were used to track changes, rather than for descriptive or diagnostic purposes; and (f) review articles. With respect to grey literature, theses were included in the review, but conference papers were excluded.

Using Covidence (a web-based systematic review software), a two-phase approach was applied to search results: an initial title and abstract screen, followed by a full-text review of papers identified after screening (see Figure 1). At each stage of the screening process, the inclusion and exclusion criteria were applied by the first two authors.

Stage 4: Charting the Data

A data-charting form to extract data from the included studies was created in Microsoft Excel by the first and second authors, based on the research question. The data extracted included: general study characteristics (publication year, document type [i.e., journal article or thesis], country, purpose of study, study design, population focus, participants); name and abbreviation of the measurement instrument(s); and the authors' purpose for using the measurement instrument. On this final point, the Crumlish et al. (2022) taxonomy was used by the first and second authors to assign semantic codes to each paper (i.e., 'The ... was used to measure ...' as outlined by Crumlish et al., 2022, p. 1210). For example, the ADOS (Lord et al., 2012) was used by Adams et al. (2002) to measure "communication and social interaction" (p. 681). This measure was assigned the codes Dialogic Discourse (co-present/situated language use) and Social Participation/Interaction/Integration according to the Crumlish et al. (2022) taxonomy. Any instances of coding ambiguity/uncertainty were discussed between the first and second authors until consensus was reached. Therefore, the Crumlish et al. (2022) codes used here represent the explicit meanings of the data and all

relevant codes under the taxonomy were used, as applicable. Additional information about the codes applied and not applied is available in Supplemental Material, S1, Table 6.

The next step was to assign ICF codes to assessments in accordance with the aim stated by the research article being examined. This meant that the same assessment measure could be assigned different codes. For example, while the Test of Language Competence-Expanded (Wiig & Secord, 1989) may be used to assess both listening comprehension and oral expression, if the research article only used it to examine expressive language, it was coded only as an expressive tool. Finally, details of the form of the assessment measure, as per the taxonomy of Denman et al. (2019), were recorded. This step typically required additional information to be sought from other sources (such as a published assessment manual).

It can be difficult to assign individual ICF component codes to assessments, as individual measures may address overlapping codes (Cunningham et al., 2017). While Cieza et al. (2005) have developed rules for linking outcome measures to the ICF, noting that defining the aim with which the corresponding measure is used can facilitate the linking of outcomes and outcome measures, this was not always possible. Many of the aims for using an assessment as stated in the papers included in this review were very broad, such as confirming a diagnosis (e.g., of autism or ADHD). Therefore, any measures that were used solely to confirm a diagnosis and/or symptom severity, typically of autism/ADHD, were not assigned an ICF code. However, studies that used a measure to confirm the presence and/or severity of social impairment were categorized according to ICF codes.

Stage 5: Collating, Summarizing, and Reporting the Results

A quantitative and descriptive summary of our findings is presented in the following section.

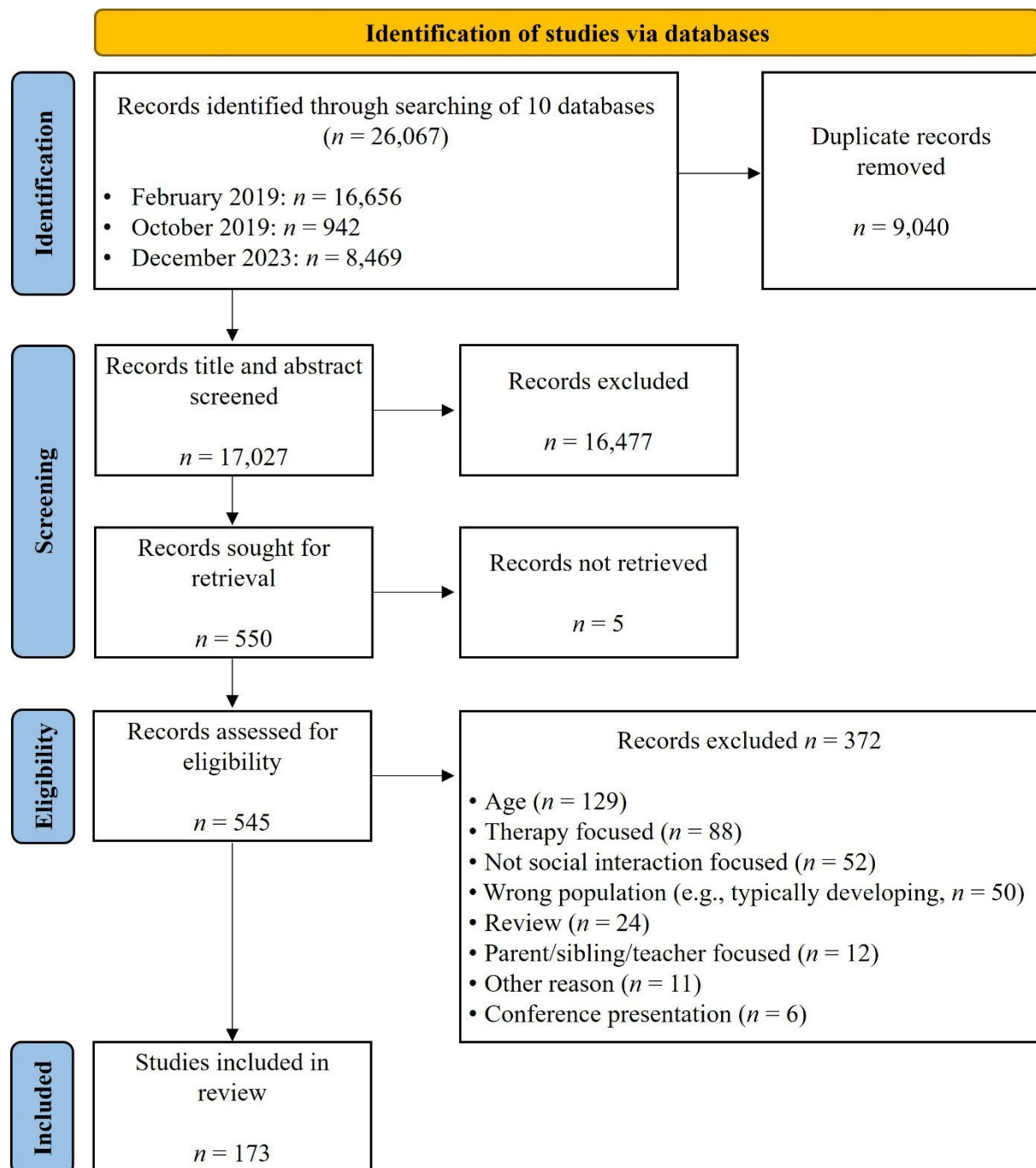
The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for scoping reviews (Tricco et al., 2018) informed reporting of results and a PRISMA for Scoping Reviews checklist is included in Supplemental Material S3.

Results

We located a total of 26,067 records, of which 9,040 were duplicates and subsequently removed; this resulted in 17,027 unique records. The first and second authors reviewed the titles and abstracts of these records, and 370 conflicts were identified at this stage, indicating an interrater agreement of 97.8%. The first two authors together reviewed these conflicts, resulting in 550 articles being identified as eligible for the full text screening phase of the review. Five records could not be retrieved.

The first and second authors examined the full text of each of the 545 articles independently and together for inclusion eligibility. This process resulted in 173 studies that met all inclusion criteria. The PRISMA flow diagram (see Figure 1) outlines the study identification and inclusion process; reasons for exclusion at the full text phase are outlined.

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram of study selection.



Study Characteristics

Of the 173 papers, nearly one-third ($n = 56$) were published since 2021, and almost 90% were journal articles (see Supplemental Material S1, Table S1). Three-quarters of the papers ($n = 129$) originated from just five countries: United States, United Kingdom, Australia, Canada, and the Netherlands. Cross-sectional research accounted for the majority of the papers ($n = 83$), but there were also experimental ($n = 38$), longitudinal ($n = 19$), qualitative ($n = 16$), and secondary analyses ($n = 9$) amongst the designs.² The clinical populations of the participants in the studies included autistic young people, those with a DLD/language disorder, young people with acquired/traumatic brain injury, a mixed population, and young people with ADHD. The mean number of instruments used to measure social interaction was 2.62. A detailed summary of the characteristics of the papers included in the review is included in Supplemental Material S2.

Research Question 1: Constructs Measured

The framework of Crumlish et al. (2022), described above (see the Other Taxonomies Applicable to Speech-Language Pathology Assessment section), was used to standardize authors' descriptions of how the social interactions of young people with communication disability have been measured. Results (see Table 2) showed that the most frequently measured constructs across domains were (a) pragmatics/social communication and behavior (language domain), (b) social-emotional abilities (cognition domain), (c) social behavior/adjustment/adaptive/judgment/processing/inferencing (behavior domain), and (d) both dialogic discourse and functional communication (communication domain).

² The research design categories are used with the assumption that they are mutually exclusive. This was to simplify classification and avoid ambiguity. Here, *cross-sectional* is used to refer to a study that examines a population (based on their characteristics) at a point in time.

Table 2. Constructs measured according to the framework by Crumlish et al. (2022).

Measured constructs	Count
Global outcomes	
Quality of life/satisfaction	2
*Autism	43
* Attention-deficit/hyperactivity disorder (ADHD)	10
*Symptoms	50
Cognition	
Cognitive-communication/linguistic/higher level language ability	2
(Non)Literal/inferential/intentional/abstract comprehension	8
Humor and figurative language comprehension	6
Verbal ability/knowledge/reasoning	1
Theory of mind	17
Empathy	1
(Emotional expression and) emotive communication	4
Sociomoral reasoning	2
Social-emotional (abilities)	44
Affect	7
Social prediction, framing and problem solving	4
Social cognition	5
Facial recognition	1
Auditory and visual perception	1
Language	
Expressive language	9
Narrative discourse (retell)	8
Narrative discourse (generation)	12
Narrative comprehension	5
Expository discourse	6
*Personal narrative	3
Language content and form	15
Auditory comprehension and processing	2
Sentence comprehension	2
Pragmatics/social communication and behavior	68
Reading ability/comprehension	17
*Writing ability	12
Broad impacts to participation	
Home/family environment	1
Contextual functioning	19
Adaptive functioning	5
Social participation/interaction/integration	24
Classroom learning and performance/academic achievement	4
Community functioning/integration	1
Contextual participation/functioning	15

Activities of/changes in daily living	1
Behavior	
(Psycho) Social and behavioral functioning	7
Social behavior/adjustment/adaptive/judgment/processing/inferencing	29
Social skills and functioning	13
Social competence	7
Peer acceptance and friendship quality	22
Self-esteem and functioning in social environment	1
Aggressive/antisocial behavior/peer victimization/*peer problems	12
Communication	
Dialogic discourse (co-present/situated language use)	27
Functional communication	27
Total	582

Note. Totals exceed the number of measures ($n = 454$) across the number of papers ($n = 173$) included in this review, as some papers used a measure for more than one purpose (e.g., to measure structural and pragmatic language).

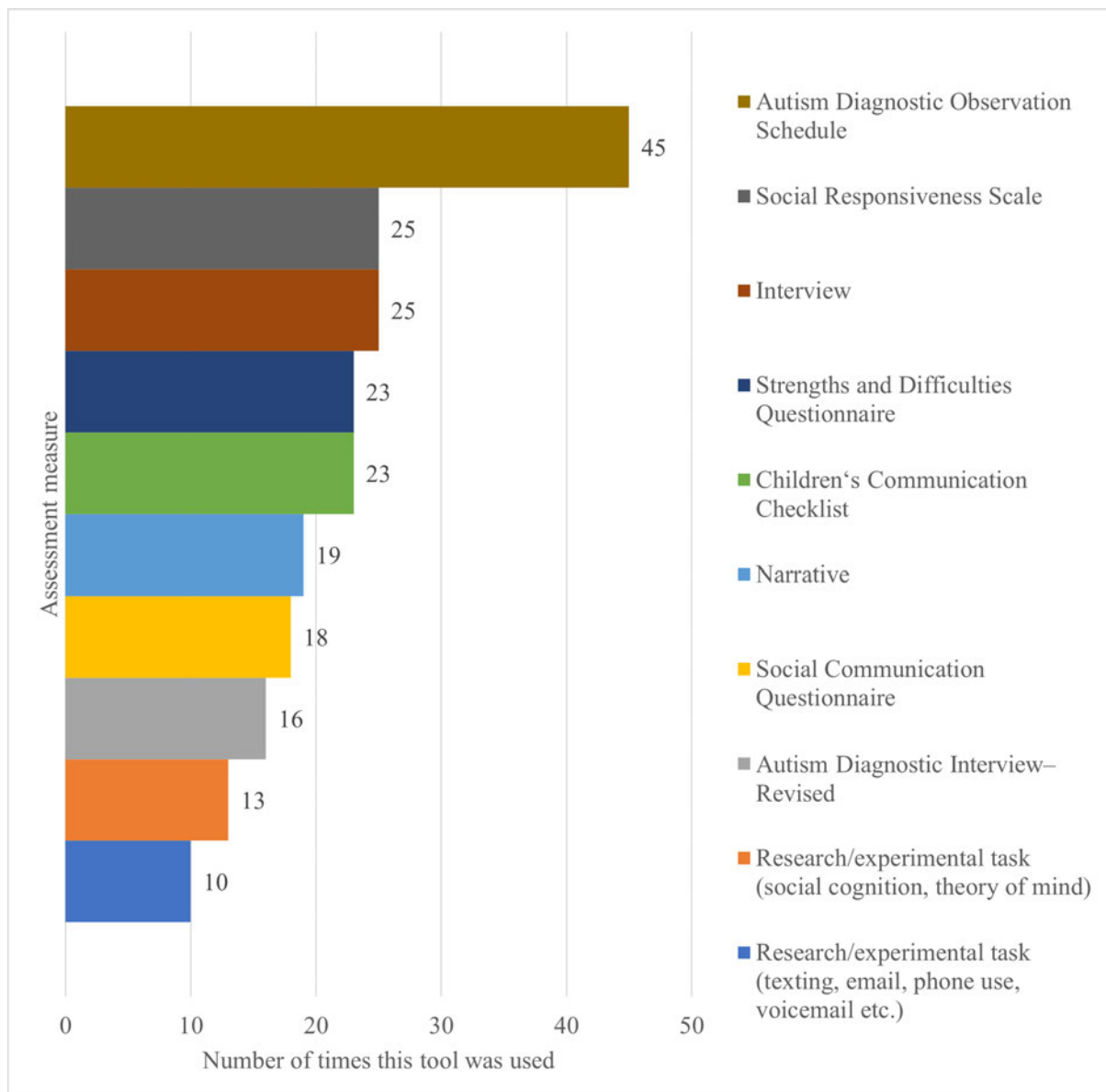
* Indicates our addition to this framework.

Research Question 2: Instruments Used

The total number of measures reported across the 173 included papers was 454, although there were only 162 unique measures. Several of the reported instruments, such as the ADOS (Lord et al., 2012), were used in many studies and were therefore counted more than once.

As shown in Figure 2, the ADOS (Lord et al., 2012) was the most frequently used assessment measure of social interaction across the papers included in this review. It is interesting to note that of the assessment measures included, several are omnibus assessments of functioning/behaviors, rather than specific measures of social interaction or pragmatics. Specific measures of social interaction include assessments of areas such as social cognition, higher order language skills (e.g., inferencing), and emotion recognition.

Figure 2³. Top 10 assessment tools used to measure social interaction.



Research Question 3: Components of the ICF

As previously mentioned (see the Stage 4: Charting the Data section), any measures that were used solely to confirm a diagnosis and/or symptom severity were not assigned an ICF code (*n*

³ Unless specified, a unique measure is any edition of that tool. Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2012); Social Responsiveness Scale (SRS; Constantino & Gruber, 2005); Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997); Children's Communication Checklist (CCC; Bishop, 2003); Social Communication Questionnaire (SCQ; Rutter, Bailey, et al., 2003); Autism Diagnostic Interview-Revised (ADI-R; Rutter, LeCouteur, et al., 2003).

= 97; see Supplemental Material S1, Table S5 for details of these). Therefore, of the 454 assessment instruments, 357 were coded according to the ICF. As multiple codes could be applied to an assessment tool, depending on the authors' purpose for using the tool, there were 464 codes applied to the 357 assessments and 16 unique codes in total (see Table 3). An overwhelming majority of these codes were at the Activity level ($n = 392$; 84.5%), followed by Participation ($n = 43$; 9.3%), and Body Functions ($n = 29$; 6.3%). Supplemental Material Tables S2–S4 detail the unique instruments that were used to evaluate changes in the different ICF components.

Table 3. International Classification of Functioning, Disability and Health (ICF) codes assigned to the assessment instruments ($n = 357$).

ICF code	Number of times this code was applied
b122 Global psychosocial functions	27
b164 Higher-level cognitive functions	2
d310 Communicating with - receiving - spoken messages	65
d315 Communicating with - receiving - nonverbal messages	25
d325 Communicating with - receiving - written messages	18
d330 Speaking	81
d335 Producing nonverbal messages	8
d345 Writing messages	16
d350 Conversation	27
d360 Using communication devices and techniques	9
d6 Domestic life	1
d7 Interpersonal interactions and relationships	1
d710 Basic interpersonal interactions	131
d720 Complex interpersonal interactions	46
d820 School education	5
d920 Recreation and leisure	2
Total	464

There were 12 unique measures that were used to evaluate changes at the level of Body Functions, which fell under the broad category of mental functions. Authors' reasons for using these tools included measuring social cognition skills such as social problem solving, perspective taking/theory of mind, social reasoning, and mental states.

The 93 unique measures that were used to evaluate changes at the level of Activity included assessments of both expressive and receptive oral and written language, structural and pragmatic language (words and sentences, including at the discourse level), verbal and nonverbal communication, and interpersonal interactions (basic and complex).

There were 11 unique measures that were used to evaluate changes at the level of Participation. These typically included more functional communicative skills, such as conversation and narratives, and had a greater focus on social interaction, such as being concerned with how young people interact with peers. Many of the instruments can be considered contextual assessments, as they employed methods such as observation or co-present/situated language use.

Research Question 4: Form of the Instruments

As shown in Table 4, assessments to measure the social interaction abilities of young people with communication disability are typically standardized, norm referenced, static, and decontextualized measures.

Table 4. Form of assessments included in the review ($n = 454$) according to the taxonomy of Denman et al. (2019).

Assessment form	<i>n</i>	Percentage
Administration procedure		
Standardized	314	69.2
Non-standardized	140	30.8
Type of data collected		
Norm referenced	220	48.5
Criterion referenced	101	22.2
Descriptive	133	29.3
Static or dynamic		
Static	454	100.0
Dynamic	0	0.0
Task type		
Decontextualized	421	92.7
Contextualized	31	6.8
Activity focused	2	0.4

Discussion

This review aimed to synthesize the literature regarding how social interaction skills are measured in research on adolescents with communication disability. Specifically, we sought to identify what constructs have been measured to describe the social interaction abilities of this group, which components of Part 1 of the ICF these measures were addressing, what instruments have been used, and the form of these measurement instruments.

After applying authors' descriptions using the framework of Crumlish et al. (2022), this review found that the most frequently measured constructs were (a) pragmatics/social communication and behavior (language domain), (b) social-emotional abilities (cognition domain), (c) social behavior/adjustment/adaptive/judgment/processing/inferencing (behavior domain), and (d) dialogic discourse and functional communication (communication domain). We found that 16 unique ICF codes could be applied to the assessment instruments identified. Over 80% of these codes were at the Activity level (applied to 93 unique measures), close to 10% were at the Participation level (applied to 11 unique measures), and 6% were at the

Body Functions level (applied to 12 unique measures). Assessments at the Activity level included measures of structural (expressive and receptive oral and written) and pragmatic language, verbal and nonverbal communication, and interpersonal interactions. Assessments at the Participation level included measures of more functional communication (such as conversation and narratives), with a greater focus on social interaction. They also employed methods such as observation or co-present/situated language use.

Of the 162 unique instruments identified as measuring social interaction, the ADOS (Lord et al., 2012) was the most frequently used assessment tool of social interaction across the papers included in this review. While many of the assessment measures included omnibus assessments of functioning/behaviors, assessments of specific elements of social interaction, such as social cognition, higher order language skills, and emotion recognition, were also included. Using the taxonomy of Denman et al. (2019), standardized, norm referenced, static, and decontextualized instruments were identified as typically being used to measure the social interaction abilities of young people with communication disability.

A Gap in the Literature: Participation-Level Measures

Use of the ICF (World Health Organization, 2001) framework identified that assessment tools primarily measured the level of Activity, rather than being Participation focused. Although being activity (i.e. capacity) focused may be preferable to a focus on impairment (i.e. Body Function), this still means that most assessments do not consider a young person's performance of skills in naturalistic contexts (i.e. their Participation). Westby and Washington (2017) argue that nearly all the language assessment tools used by SLPs in their work with school-aged children assess capacity at the Activity level. This review has found that the same applies to assessments of the social interaction abilities of adolescents with

communication disability, suggesting limited changes in approach or assumptions around approaches from working with children to working with adolescents. For instance, there is the principle of being client or student centered, yet the instruments identified seem to question whether this principle would be evident in assessment practices.

We acknowledge that some participation assessments, such as observations of interactions with peers, may be impractical for and/or discouraged by young people with communication disability. However, a shift toward assessing participation in functional communication could provide a more accurate picture of young people's social interaction abilities in their natural contexts. For example, for some neurodivergent young people, such as those with language disorders, text-based media that allow for asynchronous, editable forms of interaction may be preferable to, and valued over, face-to-face spoken forms of social interaction (Conti-Ramsden et al., 2010).

Assessment of Pragmatics and Social Interaction

Current assessments prioritize oral language abilities. Of the 159 language constructs coded, 18.2% related to literacy (reading ability/comprehension, $n = 17$, and writing ability, $n = 12$) and 21.4% ($n = 34$) related to discourse, including narrative (e.g., narrative retell, narrative generation, and personal narrative) and expository measures. Discourse assessment is recommended for young people with communication disability (Dipper & Pritchard, 2017), with genre having a significant influence on adolescents' abilities. Hill et al. (2021) found that oral expository discourse may be particularly challenging for adolescents. This suggests that language beyond isolated skills (such as vocabulary or syntax) at the word and utterance level is critical for a comprehensive evaluation of adolescents' language abilities. Expository discourse is important for explaining, describing, and sharing information; being skilled in

articulating concepts or ideas is important for young people to be able to share their insights and understanding in educational, social, and vocational contexts (Nippold et al., 2008).

Therefore, comprehensive language evaluations should include various text types, especially expository discourse. Examining expository data enables a functional, curriculum-based assessment of various aspects of language (Heilmann & Malone, 2014).

With respect to literacy, assessment of written discourse-level skills may provide insights into a young person's pragmatic abilities (Scott & Windsor, 2000). For example, writing tasks may evaluate a young person's ability to write for specific audiences and for specific purposes (Nippold & Ward-Lonergan, 2005), while reading comprehension tests may shed light on an adolescent's ability to understand context, infer meaning, and interpret nonliteral figurative language (Cain et al., 2005). However, solely assessing a young person's literacy skills will not fully capture the complexity of their pragmatic abilities and such assessments must be complemented by oral language assessments for a more comprehensive picture of language performance and participation.

Social interaction skills involve cognitive and linguistic elements (Soto-Icaza et al., 2015), which necessitates pragmatic competence in both structural language and social cognition (Andrés-Roqueta & Katsos, 2017). Despite the importance of cognitive abilities, such as perspective taking and emotion recognition, for social interactions in real-world situations, they accounted for only 17.7% ($n = 103$) of the constructs identified. This suggests that cognitive abilities (including perception, attention, learning, memory, and inhibitory control; Wascher et al., 2018) are not routinely considered in the context of the social interaction skills of young people with communication disability. This oversight risks perpetuating social

difficulties for young people with communication disability, with implications for a young person's wellbeing.

Reimagining Assessment: Capturing Real-World Social Skills

A large proportion of the unique assessment measures (35.2%, $n = 54$) identified in this review are researcher-designed tasks. Therefore, regardless of the purpose of the assessment (e.g., to track changes or for descriptive or diagnostic purposes), researchers are using non-standardized tools and these may lack validity and reliability, as well as normative data (Timler & Covey, 2021). This aligns with reports from the literature that SLPs use standardized measures to assess domains that they are not designed for and for purposes that they are not suited to assessing (Denman et al., 2023). For SLPs, this means that the clinical utility of these tools may be limited. It is important to acknowledge that we make no claims about the clinical utility of an assessment tool in terms of whether it has been used according to its original intended purpose, or for an alternative contrary or supplemental purpose. Instead, we offer three suggestions for how assessment of pragmatics/social interaction may be reconsidered.

First, very few patient-reported outcome measures (Cohen & Hula, 2020) were identified in the review. Adolescents' perspectives are crucial in understanding their social interaction preferences, experiences, challenges, and needs. SLPs' use of measures such as self-assessment rating scales and interviews could enhance person-centered practice and enable a deeper understanding of the adolescent's viewpoint with respect to both the nature and impact of their communication disability.

Second, current assessments may not fully capture the range of skills that young people possess, nor reflect the purposes for which they use these skills or the contexts within which they are used. For example, Shelton et al. (2024) found that young people with a language disorder want to participate in social media, and do so for social connection; however, the current review identified that existing measures may not support assessment of language skills, including writing, in this context. This raises the question of whether an assessment reflects the skills and the contexts that truly matter to young people, which is essential to consider for SLPs' assessment practices to be truly participation-focused.

Third, all the assessment tools identified in this review are static and thus dynamic assessment measures are lacking. Dynamic assessments are procedures that assess a child's performance under varied conditions or investigate response to intervention (Denman et al., 2019). SLPs' use of tools that measure a young person's learning potential or identify successful supports, employed alongside teaching techniques, could ensure a more comprehensive understanding of an adolescent's social interaction abilities.

Implications For Clinical Practice

The review identified that Participation-level pragmatic assessment measures that capture a young person's social interaction abilities in the contexts within which they occur are critically needed to improve SLPs' ability to serve individuals with communication disability. Here, we identify five key implications of this review for clinical practice. First, SLPs' assessments should focus on the Participation, not just the Activity and impairment (i.e. Body Function), of young people with communication disability. Second, assessment should be client-focused and make use of measures such as interviews and self-rating scales to best understand how a young person perceives the nature and impact of their communication

disability. Third, assessment practices should consider a young person's discourse ability at their challenge point. Specifically, expository discourse may be a particularly useful task for young people to demonstrate their language skills. Fourth, it is recommended that SLPs include assessment of a young person's social communication abilities as an essential component of a language and literacy evaluation. Possible methods of literacy assessment identified via this review include: the use of a standardized measure, such as the Test of Written Language, Gray Oral Reading Tests, or Wechsler Individual Achievement Test; artefact analysis of texts produced by a young person, such as a piece of persuasive writing, for elements such as cohesion and coherence; and the use of measures such as an interview or self-rating scale to gain a young person's insights into their self-perceived strengths and weaknesses. To promote social participation in literacy tasks, SLPs could use strategies such as collaborative peer-group reasoning and writing tasks, story retelling tasks, role playing, or encouraging young people to consider a specific audience in their communication (Antonio & Guthrie, 2007). Finally, SLPs' assessments should account for young people's skills beyond language: Considering their cognitive abilities is also essential. Social interaction is multifaceted and so holistic consideration of neuropsychological abilities is essential to enable accurate assessment (Tomas & Vissers, 2019).

Limitations of the Current Review

A strength of the review is the identification of 162 unique measures used to assess the social interaction skills of adolescents with communication disability, as well as the classification of these instruments using three established taxonomies. However, the use of these taxonomies revealed several limitations in their application. First, the ICF (World Health Organization, 2001) was sometimes difficult to apply, particularly to omnibus tools, as multiple constructs could be incorporated into one tool. Second, application of the Crumlish et al. (2022)

taxonomy was occasionally challenging due to the lack of operational detail, which challenged us to determine between constructs in the taxonomy (for instance between social participation/interaction/integration and contextual participation/functioning; in these instances, we used joint consensus but acknowledge the somewhat arbitrary nature of doing so). Finally, use of the taxonomy by Denman et al. (2019) meant other sources, such as assessment manuals, had to be consulted in order to identify some of the constructs measured (for example, whether an assessment was standardized and/or norm referenced). These limitations may make it difficult for SLPs to classify and describe their clients' functioning and disability and suggest that clearer guidelines and additional resources may be necessary to ensure accurate interpretation and application of these taxonomies. It was also beyond the scope of this review to investigate the psychometric properties of standardized instruments.

Reflecting our search criteria, this review is limited by the identification of assessments primarily for English speakers. As such, the findings may not generalize to speakers of English as an additional language given the cultural specificity of social interaction.

Furthermore, while every effort was made to find relevant records to enable the identification of assessment tools e.g., by searching 10 databases and including gray literature in the form of theses), we did not include conference presentations/posters, therapy-focused articles, or review articles in this study. Therefore, it is possible that relevant assessment measures were excluded.

Future Research

This review highlights several possible avenues for future research. First, there is a lack of practical Participation-based measures. Given that adolescents are engaged in a variety of

activities, both in and out of the home and school, focusing on how well they interact in different real-life contexts would provide a better understanding of their social interaction abilities. Second, integrating technology into these assessments, for example by consideration of artefacts such as messages on social networking sites, could be a means by which to avoid tools such as observations, which a young person may consider intrusive or which may not be feasible for this age group. Finally, clinician-researcher partnerships that collaborate with young people to create engaging, co-designed assessments that consider diverse perspectives would increase the relevance of such tools by capturing adolescents' unique experiences and possibly by reducing bias. The development of such assessment measures is important because social outcomes and social inclusion for children with communication disability have been identified as clinical research priorities (Royal College of Speech and Language Therapists, 2020).

Conclusion

This scoping review aimed to explore how social interaction skills are measured in research involving adolescents with communication disability. We identified 162 unique instruments that are commonly used to measure language, cognition, behavior, and communication domains, with most tools being standardized, norm-referenced, static, and decontextualized. While 16 unique ICF codes were applied to these instruments, 84.5% were at the Activity level. Future research should focus on the development of co-designed, practical Participation-based assessments, particularly those that are dynamic in nature and focus on patient-reported outcomes. Such innovative assessment approaches would help capture the multifaceted nature of social communication in this population and would help SLPs to support young people's participation in ways that are meaningful to them.

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Supplemental Material S1. Characteristics of the studies, ICF codes, exclusions, and the taxonomy of Crumlish et al. (2022).

Table S1. Characteristics of the studies ($n = 173$) included in the review.

	<i>n</i>	Percentage
<i>Publication year</i>		
2001-2005	13	7.5
2006-2010	27	15.6
2011-2015	30	17.3
2016-2020	47	27.2
2021-2024	56	32.4
<i>Publication type</i>		
Journal article	153	88.4
Thesis	20	11.6
<i>Country</i>		
Australia	10	5.8
Belgium	2	1.2
Brazil	2	1.2
Canada	10	5.8
Denmark	3	1.7
France	2	1.2
Germany	2	1.2
Ireland	2	1.2
Israel	3	1.7
Italy	1	0.6
Japan	2	1.2
Netherlands	5	2.9
Nigeria	1	0.6
Norway	5	2.9
Poland	1	0.6
Saudi Arabia	1	0.6
Spain	4	2.3
Sweden	5	2.9
Switzerland*	1	0.6
Turkey	2	1.2
UK	47	27.2
USA	57	32.9
Multiple	5	2.9
<i>Study design</i>		
Case series	1	0.6
Case study	5	2.9
Cross sectional	83	48.0
Experimental	38	22.0
Longitudinal	19	11.0

Mixed methods	2	1.2
Qualitative	16	9.2
Secondary analysis	9	5.2
Population		
Acquired brain injury/traumatic brain injury	11	6.4
Attention-deficit/hyperactivity disorder (ADHD)	5	2.9
Autism	78	45.1
Behavioral difficulties (behavioral and emotional problems; externalizing behaviors; sexually abusive behaviors)	3	1.7
Cerebral palsy	1	0.6
Deaf and hard of hearing	5	2.9
Developmental language disorder/specific language impairment/language disorder	38	22.0
Dyslexia	2	1.2
Epilepsy	2	1.2
Learning disabilities	3	1.7
Mental health	3	1.7
Mixed	11	6.4
Other	3	1.7
Social pragmatic communication disorder	1	0.6
Young offenders	7	4.0

Note. The research design categories are used with the assumption that they are mutually exclusive. This was to simplify classification and avoid ambiguity. Here, cross sectional is used to mean a study that examines a population (based on their characteristics) at a point in time.

* = As advised by email correspondence with the author of the paper.

Table S2. ICF body function codes, unique assessment measures, and papers.

ICF code (<i>n</i> = 2)		b122 Global psychosocial functions b164 Higher-level cognitive functions
ID	Unique assessment measure (<i>n</i> = 12)	Paper (<i>n</i> = 21)
28	Dewey Story Test	Aguilar et al. (2020) ³¹
31	Dodge Social Information Processing	Bailey (2021) ^{45, 91}
38	Faux-Pas Test	Bailey & Im-Bolter (2020) ⁹¹
45	Interpersonal Negotiation Strategies Interview	Barendse et al. (2018) ⁷⁵
48	Interpersonal Reactivity Index	Botting & Conti-Ramsden (2008) ⁹¹
44	Ironic Criticism and Empathetic Praise Task	Callenmark et al. (2014) ²⁸
78	Reading the Mind in the Eyes Test	Çiray et al. (2022) ^{38, 78, 106}
75	Research/experimental task (social cognition, theory of mind)	Figueiredo et al. (2022) ⁴⁵
85	Stories from Everyday Life–Mental Inference	Forrest et al. (2023) ⁷⁵
91	Strange stories task	Genova et al. (2019) ⁴⁴
102	ToMotion	Im-Bolter et al. (2013) ⁴⁵
106	Unexpected Outcomes Test	Kaland et al. (2011) ⁷⁵
		Keifer et al. (2020) ^{75, 85}
		Komeda et al. (2016) ⁷⁵
		Norbury (2004) ⁷⁵
		Norbury (2005) ⁷⁵
		Öztürk et al. (2023) ^{38, 106}
		Parke et al. (2021) ^{48, 78, 91}
		Polyanskaya et al. (2022) ⁷⁵
		Smit et al. (2022) ¹⁰²
		Yeates et al. (2004) ⁴⁵

Note. The number(s) after the reference indicate the assessment used and coded and correspond to the unique identifier (ID) in the lefthand column. For example, Çiray et al. (2022) used the Faux-Pas Test, the Reading the Mind in the Eyes Test, and the Unexpected Outcomes Test.

Table S3. ICF activity codes, unique assessment measures, and papers.

ICF code (n = 14)		d310 Communicating with - receiving - spoken messages d315 Communicating with - receiving - nonverbal messages d325 Communicating with - receiving - written messages d330 Speaking d335 Producing nonverbal messages d345 Writing messages d350 Conversation d360 Using communication devices and techniques d6 Domestic life d7 Interpersonal interactions and relationships d710 Basic interpersonal interactions d720 Complex interpersonal interactions d820 School education d920 Recreation and leisure
ID	Unique assessment measure* (n = 93)	Paper (n = 148)
1	Adaptive Behaviour Assessment System-II	Adams et al. (2002) ^{2, 84}
2	Autism Diagnostic Interview-Revised	Aguilar et al. (2020) ^{10, 13, 42, 54}
3	Autism Diagnostic Observation Schedule	Almehmadi et al. (2020) ⁶³
6	Behavior Assessment System for Children-Second Edition	Alon-Tirosh & Meir (2023) ⁴⁶
7	Best Friend Index	Baghdadli et al. (2012) ^{12, 107}
8	Benton Facial Recognition Test	Barendse et al. (2018) ^{3, 16, 70, 87, 114}
9	Children's Assertive Behavior Scale	Baribeau et al. (2015) ^{78, 81}
10	Child and Adolescent Functional Assessment Scale	Bellon-Harn & Harn (2006) ²⁵
11	Children Alexithymia Measure	Ben-Itzhak & Zachor (2020) ¹⁰⁷
12	Childhood Autism Rating Scale	Bergman & Hallin (2021) ⁵⁴
13	Comprehensive Assessment of Spoken Language	Bishop & Baird (2001) ¹⁸
14	Child and Adolescent Social Perception Measure	Blom et al. (2017) ⁷⁷
16	Child Behavior Checklist	Bölte et al. (2011) ⁸¹
17	Cheek and Buss Sociability Scale	Botting & Conti-Ramsden (2008) ^{46, 78, 82}
18	Children's Communication Checklist	Bower (2015) ⁴⁶
20	Communication Checklist Self-Report	Boyes et al. (2020) ^{76, 108}
21	Clinical Evaluation of Language Fundamentals	Braddock et al. (2015) ¹⁸
22	Communication Function Classification System	Breland et al. (2022) ⁵⁴
23	Classroom Life Instrument	Brewster & Coleyshaw (2011) ⁴⁰
24	Conners Rating Scale	Buckeridge et al. (2020) ⁴⁶
25	Conversation	Burgess & Turkstra (2010) ^{13, 67}
26	Children's Social Behaviors Questionnaire Revised	Burton et al. (2020) ^{18, 103, 107}

27	Diagnostic Analysis of Nonverbal Accuracy-2	Capriola-Hall et al. (2018) ⁸⁸
32	ELMS social difficulties questionnaire	Chandler et al. (2022) ¹
33	Emotion Expression Questionnaire	Çiray et al. (2022) ^{18, 37, 75, 78, 88}
34	Empathy Quotient	Cleinmark et al. (2020) ⁸⁸
35	Expression Reception and Recall of Narratives Instrument	Clore (2006) ^{46, 90}
36	Expository	Cohen et al. (2013) ^{100, 108}
37	Faces Test	Collins et al. (2021) ^{36, 54}
40	Focus groups	Conti-Ramsden et al. (2010) ^{46, 77}
41	Gray Oral Reading Tests, Fifth Edition	Conti-Ramsden et al. (2013) ⁸²
42	Home and Community Social and Behavior Scales	Crutcher et al. (2023) ^{21, 100, 105}
43	Inventory of Adolescent Problems-Short Form	Day et al. (2024) ^{3, 27}
44	Ironic Criticism and Empathetic Praise Task	de la Torre Carril et al. (2021) ¹⁸
46	Interview	de Marchena & Eigsti (2016) ^{54, 88}
47	Index of Peer Relations	Dennis et al. (2001) ⁴⁴
49	Karolinska Directed Emotional Faces	Dockrell & Lindsay (2007) ^{46, 76, 110}
51	La Trobe Communication Questionnaire	Dolata et al. (2022) ^{18, 88}
52	Language and Pragmatics Questionnaire	Douglas (2010) ⁵¹
53	MacArthur Health and Behavior Questionnaire	Durkin & Conti-Ramsden (2007) ^{82, 84, 111}
54	Narrative	Durkin et al. (2011) ⁴⁶
55	Developmental Neuropsychological Assessment, Second Edition	Durkin et al. (2010) ^{46, 77}
57	Oral and Written Language Scales	Ekström et al. (2023) ⁴⁶
58	Pediatric Evaluation Disability Inventory – Computer Adaptive Test	Ellis Weismer et al. (2021) ¹⁸
59	Pediatric Quality of Life Inventory	Ezeh et al. (2021) ⁷¹
63	Pragmatics Profile of Everyday Communication Skills	Forrest et al. (2021) ^{20, 66, 74, 82}
64	Batería de evaluación de los procesos lectores, Revisada (Evaluation of Reading Processes for Children—Revised)	Forrest et al. (2020) ⁸²
65	Pragmatic Rating Scale	Forrest et al. (2023) ^{20, 82}
66	Perceived Social Support—Friendship	Genova et al. (2019) ^{6, 80}
67	Quality of Communication Life Scale	Gómez-Merino et al. (2022) ^{64, 73}
68	Qualitative Reading Inventory	Gough Kenyon (2021) ^{17, 70, 108}
69	Research measure (communication/pragmatics)	Granieri et al. (2020) ⁶⁹
70	Research/experimental task (emotional prosody, emotion recognition)	Greenlee et al. (2020) ^{79, 88}
71	Research/experimental task (gesture, facial expression, body language)	Grossman et al. (2013) ^{54, 109}
72	Research/experimental task (higher order language)	Hadjikhani et al. (2023) ^{34, 78}
73	Research/experimental task (oral/written language)	Haukedal et al. (2022) ^{18, 59}
74	Research/experimental task (pro-/antisocial behavior)	Helland & Helland (2017) ^{18, 82}

75	Research/experimental task (social cognition, theory of mind)	Helland et al. (2022) ^{73, 82}
76	Research/experimental task (social functioning, social interaction)	Helland et al. (2014) ^{18, 82}
77	Research/experimental task (texting, phone use, voicemail, email, computer use)	Holzinger & Fellingner (2022) ^{25, 82}
78	Reading the Mind in the Eyes Test	Hopkins et al. (2016) ⁴⁶
79	Revised Peer Experiences Questionnaire	Hopkins (2014) ^{21, 36, 46, 108}
80	Social Communication Disorders Checklist	Hopkins et al. (2018) ³⁶
81	Social Communication Questionnaire	Im-Bolter et al. (2013) ^{16, 100, 114}
82	Strengths and Difficulties Questionnaire	James et al. (2020) ^{24, 35, 83, 101}
83	Social Emotional Evaluation	Jiang et al. (2023) ⁵⁴
84	Social-Emotional Functioning Interview	Jostes (2012) ^{46, 73}
85	Stories from Everyday Life	Kaland et al. (2011) ⁸⁵
86	Student Functional Assessment of Verbal Reasoning and Executive Strategies	Kang, Gadow, et al. (2020) ⁶⁹
87	Self-Perception Profile for Children	Kang, Lerner, et al. (2020) ⁶⁹
88	Social Responsiveness Scale	Karasinski & Ellis (2010) ^{54, 68}
89	School Social Behavior Scales	Karner (2016) ¹³
90	Social Skills Improvement System (SSIS) Rating Scales	Keifer et al. (2020) ^{9, 27, 81, 85}
92	Social Vulnerability Questionnaire	Kelly et al. (2018) ⁴⁶
93	Test of Auditory Processing, 3rd Edition	Ketcheson et al. (2021) ⁸¹
94	Toronto Alexithymia Scale	Knox & Conti-Ramsden (2007) ^{74, 82, 84, 111}
95	The Awareness of Social Inference Test	Ko (2014) ⁴⁶
96	Test Begrijpend Lezen voor het 1ste tot het 4de middelbaar [Test Reading Comprehension (TRC) for grade 7 till grade 11 of secondary education]	Koning & Magill-Evans (2001) ^{14, 90}
97	TerraNova scores	Kuru et al. (2021) ⁸²
98	Test of Integrated Language and Literacy Skills	Larkin et al. (2017) ^{18, 57}
99	Teenage Inventory of Social Skills	Lassen et al. (2022) ^{1, 3, 76}
100	Test of Language Competence-Expanded	Lawley et al. (2023) ^{3, 18}
101	Test of Adolescent and Adult Language	Le Sourn-Bissaoui et al. (2013) ⁷⁰
103	Test of Pragmatic Language	Leader et al. (2022) ^{16, 81, 107}
104	Test of Problem Solving	Leipold et al. (2023) ^{27, 70, 88, 108}
105	Test of Written Language	Lindsay et al. (2008) ^{18, 74, 82, 87}
107	Vineland Adaptive Behavior Scales	Lundine & Barron (2019) ^{36, 54}
108	Wechsler Individual Achievement Test	Lygnegård et al. (2019) ⁷⁶
109	Woodcock-Johnson III Diagnostic Reading Battery	Maltman et al. (2023) ⁶⁵
110	Wechsler Objective Language Dimensions	McDonald et al. (2013) ^{8, 69, 95}
111	Wechsler Objective Reading Dimensions	McGregor & Hadden (2020) ^{36, 81}
112	Wide Range Assessment of Memory and Learning, 2nd Edition	Mealings & Douglas (2010) ⁴⁶
114	Youth Self Report	Meyer-Lindenberg et al. (2022) ^{49, 70, 78, 107} Miranda et al. (2023) ^{89, 107} Mok et al. (2014) ⁸² Nadig et al. (2009) ^{75, 107} Nelson et al. (2022) ⁹⁸

		Norbury (2004)^{18, 72} Norbury (2005)⁷² O'Shea et al. (2023)⁵² Oakley et al. (2022)^{88, 94} O'Connor et al. (2022)⁷ O'Hagan (2020)⁴⁶ Orinstein et al. (2015)^{21, 100, 107} Öztürk et al. (2023)^{18, 37, 46, 75, 78, 88} Parke et al. (2021)^{6, 18, 55, 78} Pascoe et al. (2023)¹ Paul et al. (2009)⁶⁵ Pender et al. (2023)⁸² Polyanskaya et al. (2022)⁸⁸ Poth (2020)^{18, 21, 86, 90} Qualls et al. (2004)^{72, 97} Reed & Brammall (2006)⁶⁹ Reed et al. (2007)⁵⁴ Reindal et al. (2023)^{18, 88} Reynolds (2017)^{3, 46} Ridley et al. (2020)^{76, 92} Rinaldo & Perry (2023)⁸⁸ Robinson (2012)^{46, 74, 87} Russell et al. (2012)^{80, 82} Ryan et al. (2021)⁴⁰ Sanger et al. (2003)^{13, 46} Sanger et al. (2001)¹³ Scancarella (2010)⁷² Scott (2016)^{3, 6, 18, 26} Shattuck et al. (2011)⁴⁶ Silva & Lourenço (2022)^{22, 58} Snow & Powell (2008)^{43, 54, 100} Snow & Powell (2004)^{54, 100} Snowling et al. (2006)^{32, 111} Sorensen et al. (2019)⁷¹ Spencer et al. (2010)^{21, 35, 46} St Clair et al. (2011)⁸² Stringer (2004)^{72, 103, 104} Sturrock et al. (2022)⁴⁶ Tierney (2014)⁴⁶ van den Bedem et al. (2020)^{11, 18, 33} Van Vreckem et al. (2023)⁹⁶ Wadman et al. (2011)^{87, 99} Wadman (2008)^{17, 47, 76, 82, 87, 99} Wellnitz et al. (2021)^{18, 88} Wetherell (2005)⁵⁴ Wetherell et al. (2007a)⁵⁴ Wetherell et al. (2007b)⁵⁴ Yeates et al. (2004)^{16, 100, 107} Zaidman-Zait & Most (2020)^{18, 23, 53, 82} Zajic et al. (2020)^{41, 93, 105, 112} Zwerlein (2016)³⁶

* Unless specified, a unique measure is any edition of that tool. For example, the Children's Communication Checklist includes both the CCC and CCC-2.

Note. The number(s) after the reference indicate the assessment used and coded and correspond to the unique identifier (ID) in the lefthand column. For example, Adams et al. (2002) used the Social-Emotional Functioning Interview and the Autism Diagnostic Interview–Revised.

Table S4. ICF participation codes, unique assessment measures, and papers.

ICF code (<i>n</i> = 6)		d310 Communicating with - receiving - spoken messages d330 Speaking d345 Writing messages d350 Conversation d710 Basic interpersonal interactions d720 Complex interpersonal interactions
Ref	Unique assessment measure* (<i>n</i> = 11)	Paper (<i>n</i> = 30)
3	Autism Diagnostic Observation Schedule	Adams et al. (2002) ³
15	Contextual Assessment of Social Skills	Almehmadi et al. (2020) ¹¹³
19	Collaborative Competence in Dialogue Rating Scale	Banney et al. (2015) ³
25	Conversation	Bellon-Harn & Harn (2006) ²⁵
39	Friendship Description Rating Scale	Ben-Itzhak & Zachor (2020) ³
54	Narrative	Bower (2015) ⁷⁷
56	Observation	Breland et al. (2022) ⁵⁴
61	Pragmatic Language Scale	Canfield et al. (2016) ³
62	Pragmatic Protocol	Clore (2006) ⁵⁶
77	Research/experimental task (texting, phone use, voicemail, email, computer use)	Cola et al. (2022) ¹⁵
113	Yale in vivo Pragmatic Protocol	Conti-Ramsden et al. (2012) ⁷⁷ Crutcher et al. (2023) ⁶¹ de Villiers et al. (2007) ⁶¹ Durkin et al. (2011) ⁷⁷ Friedman et al. (2020) ³ Fyrberg et al. (2007) ⁶² Gizzo (2001) ²⁵ Humphrey & Symes (2011) ⁵⁶ Karner (2016) ²⁵ Keifer et al. (2020) ⁵⁶ Larkin et al. (2017) ^{3, 19} Maltman et al. (2022) ²⁵ Maltman et al. (2023) ²⁵ Orinstein et al. (2015) ³⁹ Paul et al. (2009) ³ Robinson (2012) ⁵⁶ Simmons et al. (2014) ¹¹³ Wetherell (2005) ⁵⁴ Wetherell et al. (2007a) ⁵⁴ Wetherell et al. (2007b) ⁵⁴

* Unless specified, a unique measure is any edition of that tool. For example, the Autism Diagnostic Observation Schedule includes both the ADOS and ADOS-2.

Note. The number(s) after the reference indicate the assessment used and coded and correspond to the unique identifier (ID) in the lefthand column. For example, Larkin et al. (2017) used the Autism Diagnostic Observation Schedule and the Collaborative Competence in Dialogue Rating Scale.

Table S5. Exclusions.

As per the Results (Research Question 3: Components of the ICF) section, any instances of measures being used solely to confirm a diagnosis and/or symptom severity were not assigned an ICF code ($n = 97$).

Crumlish category ($n = 6$)		**Autism **Attention-deficit/hyperactivity disorder (ADHD) **Symptoms Social-emotional (abilities) (Psycho) Social and Behavioral Functioning Social behavior/adjustment/adaptive/judgment/processing/inferencing
Ref	Unique assessment measure* ($n = 17$)	Paper ($n = 61$)
2	Autism Diagnostic Interview–Revised	Baribeau et al. (2015) ^{2, 3, 60}
3	Autism Diagnostic Observation Schedule	Barnard-Brak et al. (2016) ³
4	Autism Spectrum Quotient	Ben-Itzhak & Zachor (2020) ⁸⁸
5	Autism Spectrum Rating Scale	Bergman & Hallin (2021) ⁸²
16	Child Behavior Checklist	Bishop & Baird (2001) ^{2, 24, 82}
18	Children's Communication Checklist	Bölte et al. (2011) ^{2, 3, 80, 88}
24	Conners Rating Scale	Braddock et al. (2015) ⁸⁸
115	Developmental, Dimensional and Diagnostic Interview	Burgess & Turkstra (2010) ³
30	Diagnostic Interview for Social and Communication Disorders	Burton et al. (2020) ³
29	Diagnostic Interview Schedule for Children, Version 4	Callenmark et al. (2014) ³
60	Parent Interview for Child Symptoms	Canfield et al. (2016) ^{3, 81}
50	Schedule for Affective Disorders and Schizophrenia for School-Age Children–Present and Lifetime Version	Chandler et al. (2022) ⁸¹
80	Social and Communication Disorders Checklist	Çiray et al. (2022) ²⁴
81	Social Communication Questionnaire	Cola et al. (2022) ^{3, 81}
88	Social Responsiveness Scale	Crutcher et al. (2023) ^{3, 81}
82	Strengths and Difficulties Questionnaire	Day et al. (2024) ^{81, 88}
107	Vineland Adaptive Behavior Scale	de Marchena & Eigsti (2016) ³
		Dolata et al. (2022) ^{3, 24}
		Evers et al. (2020) ^{115, 30}
		Figueiredo et al. (2022) ²⁴
		Forrest et al. (2021) ⁴
		Forrest et al. (2023) ⁴
		Friedman et al. (2020) ^{2, 3}
		Gizzo (2001) ^{16, 29}
		Granieri et al. (2020) ³
		Grasso et al. (2022) ⁸²
		Grossman et al. (2013) ^{2, 3}
		Kang, Gadow, et al. (2020) ^{3, 81}
		Kang, Lerner, et al. (2020) ^{3, 81}
		Keifer et al. (2020) ³
		Komeda et al. (2016) ³⁰
		Kuru et al. (2021) ^{30, 80, 88}
		Larkin et al. (2017) ^{3, 81}

	Lassen et al. (2022) ^{2, 5}
	Lawley et al. (2023) ³
	Lei & Russell (2021) ⁸⁸
	Leipold et al. (2023) ^{2, 3}
	Maltman et al. (2022) ³
	Maltman et al. (2023) ^{2, 3}
	McGregor & Hadden (2020) ³
	Meyer-Lindenberg et al. (2022) ^{2, 88}
	Mok et al. (2014) ^{2, 3}
	Nadig et al. (2009) ^{3, 82}
	Norbury (2005) ¹⁸
	O'Shea et al. (2023) ⁴
	Oakley et al. (2021) ⁸⁸
	O'Connor et al. (2022) ⁸⁸
	Orinstein et al. (2015) ³
	Parke et al. (2021) ⁵⁰
	Pascoe et al. (2023) ^{2, 3}
	Paul et al. (2009) ^{2, 107}
	Pender et al. (2023) ⁸⁰
	Reindal et al. (2023) ⁸¹
	Reynolds (2017) ⁸⁸
	Rynkiewicz et al. (2021) ⁸¹
	Simmons et al. (2014) ^{2, 3}
	Simonoff et al. (2020) ⁸⁸
	Sorensen et al. (2019) ^{3, 4, 81}
	Wallace et al. (2017) ^{2, 3, 88}
	Wellnitz et al. (2021) ^{2, 3, 81}
	Zajic et al. (2020) ³

* Unless specified, a unique measure is any edition of that tool. For example, the Autism Diagnostic Observation Schedule includes both the ADOS and ADOS-2.

** Indicates our addition to this framework.

Note. The number(s) after the reference indicate the assessment used and coded and correspond to the unique identifier (ID) in the lefthand column. For example, Cola et al. (2022) used the Autism Diagnostic Observation Schedule and the Social Communication Questionnaire.

Table S6. The taxonomy of Crumlish et al. (2022). "Exploring the measurement of pediatric cognitive-communication disorders in traumatic brain injury research: A scoping review." *Brain Injury*. Reprinted by permission of Informa UK Limited, trading Taylor & Francis Group, <https://www.tandfonline.com>.

As per the Method (Stage 4: Charting the Data) section, we applied the taxonomy of Crumlish et al. (2022) to the papers identified in the review. This taxonomy is presented below.

Theme (6)

Categories (27)

Subcategories (77)

Highlighting indicates themes, categories, and subcategories identified in the review

1. Global Outcomes/ Recovery

1.1. (Overall) Intelligence/Functioning

- 1.1.1. (General) [Neuro] Cognitive/Mental Function
- 1.1.2. Neuropsychological (functioning)
- 1.1.3. Verbal Intellectual Ability
- 1.1.4. Overall/Global Cognitive Status/Ability

1.2. Quality of Life/ Satisfaction

- 1.2.1. Health-Related Quality of Life
- 1.2.2. Life Satisfaction
- 1.2.3. Social Satisfaction

1.3. (Global) Functioning/Disability

- 1.3.1. Functional Status/Outcome

1.4. (Acute) Neurological outcomes

- 1.4.1. Post-Concussive & Health Symptomology
- 1.4.2. Progress & [Functional] Recovery
- 1.4.3. Clinical/Health Outcome/Status
- 1.4.4. Early Outcome Consciousness/Responsiveness
- 1.4.5. Neurologic Outcome/Functioning

1.5 Diagnostic Groups

- 1.5.1 Aphasia
- 1.5.2. Right Hemisphere Disorder
- 1.5.3. Frontal Lobe

1.6 Subjective Experiences

2. Cognition

2.1. Memory

- 2.1.1. (immediate) Verbal/Episodic/Semantic/ Declarative Memory
- 2.1.2. Verbal Memory/Learning/Rehearsal
- 2.1.3. Memory & (new) Learning

2.2. Cognitive-Communication /Linguistic/Higher Level Language Ability

- 2.2.1. Verbal Fluency/ Fast Mapping
- 2.2.2. Verbal Executive Functions
- 2.2.3. (non)Literal/inferential/intentional/abstract comprehension
- 2.2.4. Verbal Recall
- 2.2.5. Humor & Figurative Language Comprehension
- 2.2.6. Verbal Ability/Knowledge/Reasoning

2.3. Theory of Mind

- 2.3.1 Conative/Cognitive/Affective Theory of Mind
- 2.3.2 Mentalization & Mental Imagery

2.4. Emotional Understanding

- 2.4.1. Empathy
- 2.4.2. (Emotional Expression and) Emotive Communication

2.4.3. Sociomoral reasoning

2.4.4. Social-emotional (abilities)

2.4.5. Affect

2.5. Cognitive Skills

2.5.1. Social Prediction, Framing & Problem Solving

2.5.2. Social Cognition

2.5.3. Facial Recognition

2.5.4. Auditory & Visual Perception

2.6. Metacognitive Skills

2.6.1. Metacognitive Abilities/Problem solving/Information processing

2.6.2. Mental Flexibility

2.7. Organization

3. Language

3.1. Expressive Language

3.1.1. Word Retrieval/Naming

3.1.2. (Automatic) Speech Acts

3.1.3. Expressive Syntax

3.2 Monologic Discourse (non-situated language use)

3.2.1. Narrative Discourse (Retell)

3.2.2. Narrative Discourse (Generation)

3.2.3. Narrative Comprehension

3.2.4. Expository Discourse

3.2.5. Procedural Discourse

3.2.6. Persuasive Discourse

3.3 Language Content and Form

3.3.1. Vocabulary

3.3.2. Sentence Planning & Ability

3.3.3. Semantic Knowledge & Categorization

3.4 Auditory Comprehension & Processing

3.4.1. Receptive Vocabulary

3.4.2. Sentence Comprehension

3.5. Pragmatics/Social Communication and Behaviour

3.6. Reading Ability/Comprehension

4. Broad Impacts to Participation

4.1. (Child) Family Functioning

4.1.1. Family Stress/Burden

4.1.2. Home/Family Environment

4.1.3. Parental/Caregiver Psychological Distress/adjustment

4.1.4. Parenting Characteristics/Style

4.1.5. Family Conflict/Interactions

4.2. Contextual Functioning

4.2.1. Adaptive Functioning

4.2.2. Social Participation/Interaction/Integration

4.2.3. Classroom Learning & Performance/Academic Achievement

4.2.4. Community Functioning/Integration

4.2.5. Contextual participation/functioning

4.2.6. Activity Limitation

4.2.7. Activities of/Changes in Daily Living

4.2.8. Environmental Impact

4.3. Disability/Handicap

4.4. Personal Functioning

4.4.1. Independence/ Social Autonomy

4.4.2. Access to Services/support

4.4.3. Resilience & Coping Style

5. Behavior

5.1. (Psycho) Social and Behavioral Functioning

5.1.1. Social behaviour/adjustment/adaptive/judgment/processing/inferencing

5.1.2. Social Skills & Functioning

5.1.3. Social Competence

5.1.4. Psychosocial Status/Functioning/Adjustment

5.1.5. Peer Acceptance & Friendship Quality

5.1.6. Self-esteem + Functioning in Social Environment

5.1.7. Psychosocial Adversity/Stress

5.2. [Neuro] Behaviour

5.2.1. Aggressive/Antisocial Behavior/ Peer Victimization

5.2.2. Pre-morbid behavior & psychosocial adjustment

6. Communication

6.1. Dialogic Discourse (Co-present/situated language use)

6.2. Functional Communication

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Supplemental Material S7

A detailed summary of the characteristics of the papers included in the review is available in Supplemental Material S7. This Excel file, sized at 105.35 KB, contains 173 rows and 22 columns of data. Due to the volume and layout of the information, presenting it on A4 paper requires substantial text scaling, which may compromise readability. Nonetheless, a scaled-down version is included for reference. For optimal clarity and ease of use, accessing the online version is strongly recommended and available at:

https://doi.org/10.1044/2025_LSHSS-24-00081

(file: s2_lshss-24-00081shelton.xlsx).

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ax tools
Adams, C.; Green, J.; Gilchrist, A.; Cox, A.	Conversational behaviour of children with Asperger syndrome and conduct disorder	2002	Journal of Child Psychology & Psychiatry & Allied Disciplines	43	5	679-90	Journal article	UK	English	To conduct a discourse analysis of two types of conversations (social-emotional and non-routine) of children and adolescents with Asperger's syndrome produced during administration of the ADOS compared to conversations produced by peers with conduct disorder.	Cross sectional	Asperger's group: mean age 13.81 (SD 2.58). Conduct disorder group: mean age 14.52 (SD 1.60). Range 11 to 19 (whole sample).	38	100	19	100	Asperger's syndrome	19	100	Severe conduct disorder	ADOS; SEF-I; ADI-R
Aguiar, J. M.; Elleman, C. B.; Cassey, A. E.; Mercuri Minich, N.; Zhang, N.; Owen Yeates, K.; Taylor, H. G.; Wade, S. L.	Long term effects of early childhood traumatic brain injury on narrative discourse gist and psychosocial functioning	2020	Disability and Rehabilitation	42	17	2383-2392	Journal article	USA	English	To examine the long-term consequences of early childhood traumatic brain injury (TBI), approximately 6.8 years post injury, on narrative discourse measures.	Longitudinal	Severe TBI group: mean age 11.89. Moderate TBI group: mean age 11.98. (Averaged an average of 6.8 years after early childhood injury)	118	55.9	54	59.3	Moderate or severe traumatic brain injury - average of 6.8 years post-injury	64	53.1	Orthopedic injury	Narrative task; CASI; SIP; HCBS; CAFAS
Almejadi, W., Tenbrink, T., & Sanoudaki, E.	Pragmatic and Conversational Features of Arabic-Speaking Adolescents With Autism Spectrum Disorder: Examining Performance and Caregivers' Perceptions	2020	Journal of Speech, Language and Hearing Research (Online)	63	7	2308-2321	Journal article	Saudi Arabia	Arabic	To investigate the features of pragmatic and conversational skills in adolescents with ASD compared to typically developing peers.	Cross sectional	ASD group: mean = 173.89 months (SD = 19.10). TD group: mean =150.73 (SD = 22.01). Range 10-17 years.	30	66.70%	15	66.70%	Autism spectrum disorder	15	66.70%	Typically developing	YIPP; PPECS (adapted)
Alon-Tirosh, M.; Mei, N.	Use of social network sites among adolescents with autism spectrum disorder: a qualitative study	2023	Frontiers in Psychology	14		10	Journal article	Israel	Hebrew	To examine the communication strategies of adolescents with ASD in using social networking sites.	Qualitative	Mean age 18.6 years, range 15-21 years.	10	70%	10	70%	Autism spectrum disorder	N/A	N/A	N/A	Semi-structured interview
Baghdadi, A.; Assouline, B.; SoniAD, S.; Pernon, E.; Darrou, C.; Michelon, C.; Picot, M. C.; Aussilhou, C.; Pry, R.	Developmental trajectories of adaptive behaviors from early childhood to adolescence in a cohort of 152 children with autism spectrum disorders	2012	Journal of Autism and Developmental Disorders	42	7	1314-1325	Journal article	France	French	To examine change in children with ASD over an almost 10-year period, and to identify distinct developmental trajectories.	Longitudinal	Time 1: mean age 4.9 (±SD 1.3) years. Time 2: mean age 8.1 (±SD 1.3) years. Time 3: mean age 15 (±SD 1.6) years.	152	82.2%	152	82.2%	Autism spectrum disorder	N/A	N/A	N/A	VABS; CARS
Bailey, Katharine Mary	What? I don't get what you mean: Understanding language in childhood epilepsy	2022	N/A	N/A	N/A	N/A	Thesis	Canada	English	To understand language and its association with social cognition in pediatric epilepsy.	Cross sectional	Study 1: Epilepsy group mean age 9.92 (SD = 2.34). TD group mean age = 10.05 (SD = 2.08). Range 6-12 years. Study 2: Epilepsy group mean age: 9.81 (SD = 2.23). Language problems group: mean age = 9.84 (SD = 2.23). TD group mean age = 9.93 (SD = 1.88). Range 6-12 years.	Study 1: 30. Study 2: 35.	Study 1: 60%. Study 2: 60%	Study 1: 10. Study 2: 6.	Study 1: 70%. Study 2: 66.7%.	Children with epilepsy	Study 1: 20. Study 2: 29 (LP = 14, TD = 15).	Study 1: 55%. Study 2: 64.3%. TD group = 53.3%.	Study 1 and 2: Typically developing. Study 2 also included a comparison group with language problems.	SST; INSI
Bailey, Katharine; Im-Bolter, Nancie	Theory of Mind and Language in Childhood Epilepsy	2020	Mind, Brain, and Education	14	2	146-154	Journal article	Canada	English	To understand theory of mind and language in pediatric epilepsy.	Cross sectional	Epilepsy group mean age 9.92 (SD = 2.34). TD group mean age = 10.05 (SD = 2.08). Range 6-12 years.	30	60%	10	70%	Children with epilepsy	20	55%	Typically developing	SST
Banney, R. M.; Harper-Hill, K.; Arnott, W. L.	The Autism Diagnostic Observation Schedule and narrative assessment: Evidence for specific narrative impairments in autism spectrum disorders	2015	International Journal of Speech-Language Pathology	17	2	159-171	Journal article	Australia	English	To examine narratives of children and adolescents with ASD produced during administration of the ADOS to narratives produced by language-matched typically-developing peers.	Cross sectional	ASD group: mean age 11.6 (9.0 to 15.0). TD group: mean age 11.0 (9.0 to 15.2)	28	64.3	11	72.7	Autism spectrum disorder	17	58.8	Typically developing	ADOS
Barendse, E. M.; Hendriks, M. P. H.; Thoenen, G.; Aldenkamp, A. P.; Kessels, R. P. C.	Social behaviour and social cognition in high-functioning adolescents with autism spectrum disorder (ASD): two sides of the same coin?	2018	Cognitive Processing	19	4	545-555	Journal article	Netherlands	Dutch	To compare the mentalizing skills and emotion recognition abilities of high-functioning adolescents with ASD and matched controls.	Experimental	HFASD group mean age: 14.5. TD group mean age: 14.2.	42	88.1	21	95.2	High functioning autism spectrum disorder (HFASD)	21	81	Typically developing	ERT; Director task; CBCL; YSR; SPPA; ADOS
Baribeau, D. A.; Doyle-Thomas, K. A.; Dupuis, A.; Iatoni, A.; Crosbie, J.; McGinn, H.; Arnold, P. D.; Brian, J.; Kushki, A.; Nicolson, R.; Schachar, R. J.; Soreni, N.; Szatmari, P.; Anagnostou, E.	Examining and comparing social perception abilities across childhood-onset neurodevelopmental disorders	2015	Journal of the American Academy of Child & Adolescent Psychiatry	54	6	479-86.e1	Journal article	Canada	English	To compare patterns of social perception abilities between diagnostic groups (ASD, ADHD, OCD) of children and adolescents, and typically developing children and adolescents.	Experimental	Control group: mean age=12.5 (SD=2.9, range=8.0-18.0). OCD group: mean age=13.7 (SD=3.0, range=6.1-18.3). ADHD group: mean age=9.3 (SD=1.9, range=6.5-15.0). ASD group: mean age 11.6 (SD=3.1, range=6.2-19.6)	265	70.2	231	72.3	Obsessive-compulsive disorder (n = 42), attention-deficit/hyperactivity disorder (n = 71), autism spectrum disorder (n = 118)	34	55.9	Typically developing	RMET; SCQ; ADOS; ADI-R; PICS
Barnard-Brak, L.; Richman, D. M.; Chesnut, S. R.; Little, T. D.	Social Communication Questionnaire scoring procedures for autism spectrum disorder and the prevalence of potential social communication disorder in ASD	2016	School Psychology Quarterly	31	4	522-533	Journal article	USA	English	To perform a secondary analysis of data from the National Database for Autism Research and, utilising Mokken scaling techniques, to create a screening procedure for ASD via the SCQ.	Secondary analysis	Mean = 103.45 months (SD=70.19). (Mean=8.7; SD=5.10). 29.4% (n=306) of the sample was under the age of four years old.	1040	79.5%	1040	79.5%	Individuals for whom SCQ item-level data were available (autism spectrum disorder diagnosis: 71.9%, n = 748. No ASD diagnosis: 28.4%, n = 295). Approximately 16% of the cases contained missing or incomplete data.	N/A	N/A	N/A	ADOS
Bellon-Harn, Monica L.; Harn, William E.	Profiles of social communicative competence in middle school children with Asperger syndrome: Two case studies	2006	Child Language Teaching and Therapy	22	1	1-26	Journal article	USA	English	To describe the social communicative competence of two adolescents with AS participating in three conversational contexts.	Case study	Participant 1 (P1): 13.2 years. Participant 2 (P2): 12.11 years.	2	100	2	100	Asperger's syndrome	N/A	N/A	N/A	Conversations in three different situational contexts
Ben-Itzhak, E.; Zachor, D. A.	Toddlers to teenagers: Long-term follow-up study of outcomes in autism spectrum disorder	2020	Autism	24	1	41-50	Journal article	Israel	Hebrew	To examine the developmental changes over time of adolescents with ASD and to identify characteristics that predict outcomes.	Longitudinal	Mean age = 13.8 (SD = ±1.10). Range 10:5-18:5.	65	92.30%	65	92.30%	Autism spectrum disorder	N/A	N/A	N/A	ADOS-2; VABS; SRS-2
Bergman, Anna; Hallin, Anna Eva	The effect of picture support on narrative retells in Swedish adolescents with ADHD	2021	Clinical Linguistics & Phonetics	35	7	690-705	Journal article	Sweden	Swedish	To compare narrative retells in adolescents with and without ADHD	Cross sectional	ADHD group mean age = 163.87 months (SD = 15.91), range 140-194. TD group mean age = 164.90 (SD = 14.42), range 142-188.	46	37%	15	46.70%	Attention-deficit/hyperactivity disorder	31	32.30%	Typically developing	SDQ; narrative
Bishop, D.; Baird, G.	Parent and teacher report of pragmatic aspects of communication: Use of the Children's Communication Checklist in a clinical setting	2001	Developmental Medicine & Child Neurology	43	12	809-818	Journal article	UK	English	To evaluate the usefulness of the CCC for assessing children with a broad range of ages and diagnoses, and to determine whether the checklist provides valid and reliable information when completed by parents.	Cross sectional	ASD: mean=8.04 (SD=±1.85). Asperger: mean=8.49 (SD=3.19). PDDNOS: mean=8.02 (SD=2.44). ADHD: mean=8.78 (SD=2.18). SLD: mean=9.78 (SD=2.42). Range for all clinical groups=5-17 years. TD group: mean=9.75 (SD=3.47), range 6.3-16.7.	182	Not reported	151	80.8%	Autism spectrum disorder, Asperger syndrome, pervasive developmental disorder not otherwise specified, attention-deficit/hyperactivity disorder, specific learning disability (including dyslexia and specific language impairment)	31	Not reported	Typically developing	CCC; ADI-R; SDQ; Conners
Blom, Elma; van Dijk, Chantal; Vasiuk, Nada; van Wittenloostuijn, Mirek; Avrutin, Sergey	Textuse and use of texting by children with typical language development and Specific Language Impairment	2017	Computers in Human Behavior	66		42-51	Journal article	Netherlands	Dutch	To compare texting and textese (the register used for texting) in children with SLI and typically developing children.	Experimental	TD group: mean age 11;7 (SD=0.69), range 10-13. SLI group: mean age 12;1 (SD=0.83), range 10-13.	70	50	15	46.7	Y5 and Y6 children diagnosed with specific language impairment	55	50.1	Typically developing	Three elicitation tasks (two of testing, one of spoken language) and two study-specific questionnaires
Bolte, S.; Westerwald, E.; Holtmann, M.; Freitag, C.; Poustka, F.	Autistic traits and autism spectrum disorders: the clinical validity of two measures presuming a continuum of social communication skills	2011	Journal of Autism & Developmental Disorders	41	1	66-72	Journal article	Germany	German	To compare the convergent and diagnostic validity of the German adaptations of the Social Responsiveness Scale (SRS) and the Social and Communication Disorders Checklist (SCDC).	Cross sectional	ASD group: means 11.2 (SD=4.1). Clinical control group: mean=9.9 (SD=3.7). TD group: mean=9.3 (SD=3.2). Range (all groups): 4 to 18 years.	480	72.3	148	81.8	Autism spectrum disorder	332	68.1%	SRS; SCDC; ADI-R; ADOS; SCQ	

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ax tools
Botting, Nicola; Conti-Ramsden, Gina	The role of language, social cognition, and social skill in the functional social outcomes of young adolescents with and without a history of SLU Talk to text: An application of discourse analysis to text messaging in adolescents with Social Communication Disorders	2008	British Journal of Developmental Psychology	26	2	281-300	Journal article	UK	English	To assess the language, social cognition, social skills, and functional social outcomes (friendships and levels of social activity) in a cohort of young people with a history of SLU at age 16 years.	Cross sectional	SLU group mean age: 15:10 (SD=0.5). TD group mean age: 15:11 (SD=0.4).	263	66.2	139	69.8	Young people with a history of specific language impairment	124	62.1	Typically developing	RMET-Revised; SST; SDQ; semi-structured interview
Bower, Wendy K.		2016	N/A	N/A	N/A	N/A	Thesis	USA	English	To identify how adolescents with social pragmatic communication disorder use text messaging to establish and maintain friendship networks	Qualitative	Mean age: 16.8, range 15-17.5 years	6	83.3	6	83.3	Adolescents diagnosed with social pragmatic communication disorder	N/A	N/A	N/A	Texts; semi-structured interview
Boyes, Mark E.; Leitão, Suzie; Claessen, Mary; Badcock, Nicholas A.; Nayton, Mandy	Correlates of externalising and internalising problems in children with dyslexia: An analysis of data from clinical caseloads	2020	Australian Psychologist	55	1	62-72	Journal article	Australia	English	To investigate factors associated with externalising and internalising problems in children with dyslexia, using a secondary analysis of data collected by the Dyslexia-SPELD Foundation in Western Australia	Secondary analysis	Mean age 12.32 (SD = 3.07), range 6-17 years.	454	57.70%	262	57.70%	Dyslexia	N/A	N/A	N/A	WIAT-II questionnaire
Braddock, B. A.; Twyman, K. A.; Garrity, M. R.; Wang, T.; Neary, M. K.; Ezzelgot, J.; Heilhaus, J. L.	A few close friends: The pediatrician's role in the management of social skills deficits in adolescent children	2015	Clinical Pediatrics	54	12	1192-1199	Journal article	USA	English	To describe a group of adolescent children at the time of enrollment into social skills treatment	Cross sectional	Mean=13.89 (SD=1.80). Range: 11-18 years.	90	82.2%	90	82.2%	Neurodevelopmental weaknesses or disorders: autism spectrum disorder (n = 27), Asperger's syndrome (n = 36), pervasive developmental disorder not otherwise specified (n = 10), attention-deficit/hyperactivity disorder (n = 9), cerebral palsy (n = 2), specific language impairment (n = 3), or learning disability (n = 2)	N/A	N/A	N/A	CCC-2; SRS
Breland, Luke; Lowenstein, Joanna H.; Nittrouer, Susan	Disparate Oral and Written Language Abilities in Adolescents With Cochlear Implants: Evidence From Narrative Samples	2022	Language, Speech & Hearing Services in Schools (Online)	53	1	193-212	Journal article	USA	English	To assess differences in the spoken and written language produced by adolescents with normal hearing and those with cochlear implants	Cross sectional	G group mean age = 14;7 (SD = 5 months). NH group mean age = 14;4 (SD = 5 months).	98	46.90%	46	39.10%	Children with cochlear implants	52	53.80%	Children with normal hearing	Oral and written narrative tasks
Brewster, S.; Coleyshaw, L.	Participation or exclusion? Perspectives of pupils with autistic spectrum disorders on their participation in leisure activities	2011	British Journal of Learning Disabilities International Journal of Language & Communication Disorders	39	4	284-291	Journal article	UK	English	To explore the perceptions of school-aged children with ASD about how they spend their leisure time, what they would like to do in future, and barriers to accessing leisure opportunities.	Qualitative	Age range of 8 to 17 years	20	70.0%	20	70.0%	All children had a diagnosis of autism spectrum disorder, some with an additional diagnosis of attention-deficit/hyperactivity disorder.	N/A	N/A	N/A	Focus groups
Buckridge, K.; Clarke, C.; Sellers, D.	Adolescents' experiences of communication following acquired brain injury	2020	Language, Speech & Hearing Services in the Schools	55	1	97-109	Journal article	UK	English	To explore adolescents' everyday experiences of communication following acquired brain injury	Qualitative	One was 11, two were 13, one was 14, and two were 18.	6	66.70%	6	66.70%	Acquired brain injury	N/A	N/A	N/A	Semi-structured interview
Burgess, S.; Turkstra, L. S.	Quality of communication life in adolescents with high-functioning autism and Asperger syndrome: a feasibility study	2010	Language, Speech & Hearing Services in the Schools	41	4	474-87	Journal article	USA	English	To evaluate use of the Quality of Communication Life Scale (QCL; Paul et al., 2004) in the quality of communication life (QoCL) perceptions of adolescents with high-functioning autism/Asperger syndrome (HFA/AS).	Cross sectional	HFA/AS group: mean age 16.87 (SD=1.93). TD group: mean age 15.88 (SD=2.06).	29	100.0%	14	100.0%	Adolescents diagnosed with high-functioning autism/Asperger syndrome (HFA/AS)	15	100	Typically developing	QCL; CASL; ADOS
Burton, Jenny M.; Craghead, Nancy A.; Silbert, Noah; Breit-Smith, Allison; Durcan, Amie W.; Grether, Sandra M.	Social Communication and Structural Language of Girls With High-Functioning Autism Spectrum Disorder	2020	Language, Speech & Hearing Services in Schools (Online)	51	4	1130-1155	Journal article	USA	English	To characterize the social communication and structural language of girls with high-functioning autism spectrum disorder (HFA-ASD) compared to typically developing girls	Cross sectional	ASD group mean age = 11;1 (SD = 2;6). TD group mean age = 11;6 (SD = 2;8). ASD group: mean age = 15;1 years (SD = 1;6 years), range = 13-18 years. TD group: mean age = 15;3 years (SD = 1;7 years), range = 13-18 years.	37	0.00%	18	0.00%	High-functioning autism spectrum disorder	19	0	Typically developing	ADOS; CCC2; TOPL; VABS-II
Callenmark, B.; Kjellin, L.; Åkénqvist, L.; Bååth, S.	Explicit versus implicit social cognition testing in autism spectrum disorder	2014	Autism	18	6	684-693	Journal article	Sweden	Swedish	To examine explicit (i.e. prompted) and implicit (i.e. spontaneous) variants of social cognition testing in ASD.	Experimental	Study 1: HFA group mean age 15.0 (SD=1.5), range 12.4 to 17.3. TD group mean age 15.0 (SD=1.5), range 12.8 to 17.6. Study 2: HFA group mean age 13.0 (SD=1.6), range 10.5 to 15.7. OOI group mean age 13.0 (SD=2.15), range 9.3 to 17.1. TD group mean age 12.9 (SD=1.5), range 9.9 to 15.6.	38	68.4%	19	68.4%	Autism spectrum disorder	19	68.4%	Typically developing	Dewey; ADOS
Canfield, Allison R.; Eigsti, Inge-Marie; de Marchena, Ashley; Fein, Deborah	Story Goodness in Adolescents With Autism Spectrum Disorder (ASD) and in Optimal Outcomes From ASD	2016	Journal of Speech, Language and Hearing Research (Online)	59	3	533-545	Journal article	USA	English	To examine the narrative quality of adolescents with ASD using a well-studied "story goodness" coding system via two studies. Study 1 involved adolescents with HFA and TD. Study 2 involved adolescents with optimal outcomes in ASD, HFA, and TD.	Experimental	Study 1: 15. Study 2: 19. Study 1: 86.7%. Study 2: 86.2%. Study 1: high-functioning autism spectrum disorder. Study 2: one group with high-functioning ASD and one group with optimal outcomes in ASD.	Study 1: 30 Study 2: 44	Study 1: 90%. Study 2: 88.6%	Study 1: 15. Study 2: 19 (14 ASD and 5 OOI).	Study 1: 86.7%. Study 2: 86.2% (92.9% ASD and 80% OOI).	Study 1 and 2: 15	Study 1 and 2: 93.3%	Study 1 and 2: Typically developing	ADOS; SCQ	
Capriola-Hall, N. N.; Wiekowski, A. T.; Offendick, T. H.; White, S. W.	The Influence of Social Communication Impairments on Gaze in Adolescents with Social Anxiety Disorder	2018	Child Psychiatry and Human Development	49	4	672-679	Journal article	USA	English	To investigate whether social communication impairment uniquely contributes to diminished or heightened attention to social stimuli	Experimental	Mean age 14.54 (SD=1.19), range 12-16 years.	41	31.7%	41	31.7%	Adolescents with social anxiety disorder	N/A	N/A	N/A	SRS-2
Chandler, S.; Carter Leno, V.; White, P.; Yorkie, L.; Hollocks, M. J.; Baird, G.; Pickles, A.; Simonoff, E.; Charman, T.	Pathways to adaptive functioning in autism from early childhood to adolescence	2022	Autism research	15	10	1883-1893	Journal article	UK	English	To examine longitudinal associations of adaptive functioning in autistic youth	Longitudinal	Time 1: mean age = 6.8 (SD = 1.2). Time 2: mean age = 13.5 (SD = 1.2).	179	80.50%	179	80.50%	Children formally diagnosed with autism spectrum disorder	N/A	N/A	N/A	SCQ; ABAS-II
Ciray, R. O.; Ozyurt, G.; Turan, S.; Karagoz, E.; Ermiş, C.; Ozturk, Y.; Akay, A.	The association between pragmatic language impairment, social cognition and emotion regulation skills in adolescents with ADHD	2022	Nordic Journal of Psychiatry	76	2	89-95	Journal article	Turkey	Turkish	To investigate pragmatic language impairment, theory of mind, and emotion regulation in adolescents with ADHD	Cross sectional	ADHD group mean age = 14.41 (SD = 1.64). TD group mean age = 14.77 (SD = 1.58).	134	72.40%	70	72.90%	Attention-deficit/hyperactivity disorder	64	71.90%	Typically developing	Conners; CCC-2; SRS; RMET; Faces Test; Faux-Pas Test; Comprehension Test; UO Test
Cleimark, Patricia D.; Freeman, Ashley N. M.; Mckenney, Elizabeth L. W.; Keh, LeAnna; Hupp, Stephen D. A.; Jewell, Jeremy D.	Social Communication Symptoms in Children With Autism Spectrum Disorder: Predicting Comorbid Anxiety Disorder	2020	Journal of Psychoeducational Assessment	38	8	942-953	Journal article	USA	English	To examine the relationship between ASD symptoms and comorbid clinical anxiety using data from the from the Interactive Autism Network database	Secondary analysis	Mean age 9.45 (SD = 3.94), range 5-23 years.	2,435	Not reported	2,435	Not reported	Autism spectrum disorder	N/A	N/A	N/A	SRS
Clone, Christine W.; Tunks, Jeanne L.; Wilhelm, Ron W.	Social skills use of adolescents with learning disabilities: An application of Bandura's theory of reciprocal interaction	2006	N/A	N/A	N/A	N/A	Thesis	USA	English	To determine the social competency of adolescents with learning disabilities (a heterogeneous group of disorders characterised by difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities).	Mixed methods	Students entering the 7th grade of a private school for children with learning disabilities (78 incoming 7th graders)	26	50.0%	26	50.0%	7th graders with learning disabilities but with average/above average intelligence on the WISC - III	N/A	N/A	N/A	SSRS; observation; structured interview
Cohen, Nancy J.; Farnia, Fataneh; Im-Bolter, Nancie	Higher Order Language Competence and Adolescent Mental Health	2013	Journal of Child Psychology and Psychiatry	54	7	733-744	Journal article	Canada	English	To examine the association between difficulties in higher order language skills, reading, cognition, and social-emotional adjustment in adolescents.	Cross sectional	Clinic-referred group mean age 14.7 (SD = 1.44), range 12 years to 17;11. TD group mean age 15.36 (SD = 1.34), range 12 years to 17;11.	330	52.1%	144	53.5%	Youth referred for mental health services (clinic referred)	186	51.1%	Typically developing (no Hx of mental health services use)	TLC-E; WIAT-II

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ass tools
Cola, M.; Zampella, C. J.; Yankowitz, L. D.; Plate, S.; Petrucci, V.; Tena, K.; Russell, A.; Pandey, L.; Schultz, R. T.; Parish-Morris, J.	Conversational adaptation in children and teens with autism: Differences in talkativeness across contexts	2022	Autism research	15	6	1090-1108	Journal article	USA	English	To examine whether reduced conversational adaptation (talkativeness) differentiates young people with ASD from neurotypical peers	Experimental	ASD group mean age = 11.03 (SD = 2.67); TD group mean age = 10.82 (SD = 2.35).	98	57.10%	48	58.30%	Autism spectrum disorder	50	56.00%	Typically developing	ADOS; SCQ; CASS
Collins, Gavin; Lundine, Jennifer P.; Kaizer, Eloise	Bayesian Generalized Linear Mixed-Model Analysis of Language Samples: Detecting Patterns in Expository and Narrative Discourse of Adolescents With Traumatic Brain Injury	2021	Journal of Speech, Language and Hearing Research (Online)	64	4	1256-1270	Journal article	USA	English	To examine discourse patterns of children with a traumatic brain injury compared to typically developing peers	Cross sectional	Mean age = 15.5, range 13-18 years	55	48%	5	Not reported	Children with a moderate-to-severe closed head injury	50	Not reported	Typically developing	Expository; narrative
Conti-Ramsden, G.; Durkin, K.; Simkin, Z.	Language and social factors in the use of cell phone technology by adolescents with and without specific language impairment (SLI)	2010	Journal of Speech Language & Hearing Research	53	1	196-208	Journal article	UK	English	To compare oral and text-based cell phone use by adolescents with and without specific language impairment (SLI) and investigate the extent to which language and social factors impact use.	Cross sectional	SLI group mean age = 17;1 (range 16;2 to 18;2); TD group mean age 16;10 (range 16;0 to 17;10).	104	76.0%	52	75.0%	Specific language impairment	52	76.9	Typically developing	Structured interview; self-report diary
Conti-Ramsden, G.; Durkin, K.; Walker, A. J.	The messages they send: e-mail use by adolescents with and without a history of specific language impairment (SLI)	2012	International Journal of Language & Communication Disorders	47	2	217-28	Journal article	UK	English	To examine the structure and form of e-mail messages sent by adolescents with and without history of SLI	Experimental	SLI group mean age 17;1, range 16;2-17;11. TD group mean age 16;11, range 16;2-17;10.	94	61.7	38	65.8	Specific language impairment	56	58.9	Typically developing	Email reply task
Conti-Ramsden, G.; Mok, P. L.; Pickles, A.; Durkin, K.	Adolescents with a history of specific language impairment (SLI): strengths and difficulties in social, emotional and behavioral functioning	2013	Research in Developmental Disabilities	34	11	4161-9	Journal article	UK	English	To examine the self-reported social, emotional and behavioral functioning of adolescents with a history of SLI.	Cross sectional	SLI group mean age: 15;10 (SD = 0.40), range 15;2 to 16;10. TD group mean age: 15;11 (SD = 0.34), range 15;2 to 16;7.	263	65.8%	139	69.8%	Adolescents with a history of specific language impairment	124	61.3	Typically developing	SDQ
Crutcher, J.; Butler, E.; Burke, J. D.; Nigles, L.; Fein, D. A.; Eigsti, I. M.	Pragmatic language and associations with externalizing behaviors in autistic individuals and those who have lost the autism diagnosis	2023	Research in autism spectrum disorders	108		102252	Journal article	USA	English	To investigate the relationship between pragmatic language and externalizing behaviours in three groups of youth: those with ASD, those with typical development, and those with a former diagnosis of ASD.	Cross sectional	ASD group mean age = 13.4 (SD = 2.8). TD group mean age = 14.0 (SD = 2.6). Loss of ASD Dx group mean age = 13.0 (SD = 3.5).	98	86.70%	33	90.90%	Youth diagnosed with autism spectrum disorder	TD group = 34. Loss of ASD Dx group = 31.	TD group = 91.2%. Loss of ASD Dx group = 77.4%.	Typically developing and those with a former diagnosis of ASD	ADOS; SCQ; CELF-4; conversation scale; TLC-E; TOWL-3
Day, T. C.; Malik, I.; Boateng, S.; Hauschild, K. M.; Lerner, M. D.	Vocal Emotion Recognition in Autism: Behavioral Performance and Event-Related Potential (ERP) Response	2023	Journal of Autism and Developmental Disorders	Early online			Journal article	USA	English	To examine behavioral and neural indices of vocal emotion recognition in autistic and non-autistic youth	Experimental	ASD group mean age = 14.5 (SD = 2.14). TD group mean age = 13.8 (SD = 1.78).	164	53.70%	49	85.70%	Autism spectrum disorder	77	59.70%	Typically developing	ADOS-2, SCQ, SRS-2, DANVA-2
De la Torre Carril, A., Durán-Rouza, M., & Pérez-Pereira, M.	Capacity of the CCC-2 to Discriminate ASD from Other Neurodevelopmental Disorders	2021	Children	8	8	640	Journal article	Spain	Galician	To test the capacity of the Galician version of the CCC-2 to discriminate the linguistic profiles of children with different disorders at different ages.	Cross sectional	ASD group mean age = 12.27 (SD = 3.26). ADHD group mean age = 11.55 (SD = 2.73). DLD group mean age = 10.10 (SD = 2.93). DS group mean age = 12.11 (SD = 3.37).	56	55.40%	41	74.20%	Autism spectrum disorder (n = 11), attention-deficit/hyperactivity disorder (n = 11), developmental language disorder (n = 10), Down syndrome (n = 9)	15	53.30%	Typically developing	CCC-2
De Marchena, Ashley; Eggit, Inge-Marie	The art of common ground: emergence of a complex pragmatic language skill in adolescents with autism spectrum disorders	2016	Journal of Child Language	43	1	43-80	Journal article	USA	English	To investigate use of common ground (a pragmatic language skill whereby speakers adjust their speech based on their interlocutor's perceived knowledge) in adolescents with ASD.	Experimental	ASD group mean age: 14;10 (SD=15), range 12;7 to 16;11. TD group mean age: 15;4 (SD=15), range 12;2 to 17;11.	36	88.9%	18	94.4%	Adolescents diagnosed with autism spectrum disorder	18	83.3	Typically developing	Narrative generation task; ADOS, SRS
de Villiers, Jessica; Fine, Jonathan; Ginsberg, Gary; Vaccarello, Ileana; Satalmar, Peter	Brief report: A scale for rating conversational impairment in autism spectrum disorder	2007	Journal of Autism and Developmental Disorders	37	7	1375-1380	Journal article	Canada	English	To develop a scale for measuring pragmatic impairments in conversations of individuals with ASD (i.e. to measure variation within an ASD population, not for diagnostic purposes).	Experimental	Mean age 11;10 (SD=10.7 months). Range: 10;4 to 13;8.	46	Not reported	46	Not reported	Autism spectrum disorder (n=32) and Asperger's syndrome (n=14)	No comparison group	N/A	N/A	Conversation Scale
Dennis, Maureen; Purvis, Karen; Barnes, Marcia A.; Wilkinson, Margaret; Winmer, Ellen	Understanding of literal truth, ironic criticism, and deceptive praise following childhood head injury	2001	Brain and Language	78	1	1-16	Journal article	Canada	English	To investigate how children with closed head injury interpret scenarios involving literal truth, ironic criticism, and deceptive praise.	Experimental	Mild CHI group mean age: 11.6 (SD=2.3). Severe CHI group mean age: 11.3 (SD=3.0). Control group mean age: 11.5 (SD=2.4). Range 6-15 years.	42	61.9	13 mild, 13 severe	76.9% mild, 53.8% severe, 65.4% total.	Children who had sustained a closed head injury requiring a hospital visit, divided into two injury severity groups based on Glasgow Coma Scale ratings (mild=13-15 or severe=3-8)	16	56.3	Typically developing	ICEPT
Dockrell, J. E.; Lindsay, G.	Identifying the educational and social needs of children with specific speech and language difficulties on entry to secondary school	2007	Educational and Child Psychology	24		101-115	Journal article	UK	English	To examine the ways in which parents, pupils and teachers appraise the transition to secondary school prior to secondary transfer (Year 6) and during the first year of secondary school (Y7) for children with specific speech and language difficulties (SSLD).	Longitudinal	SSLD group mean age in Year 6: 10;8, range 10;2-11;4.	143	Not reported	SSLD group = 69. SEF group = 32.	75.4%	1) Children with specific speech and language difficulties. 2) Children with a special educational need (SEN - general learning difficulties, not speech and language needs)	42	Not reported	Typically developing	WOLD; interview; study-specific questionnaire
Dolata, J. K.; Suarez, S.; Calamand, B.; Fombonne, E.	Pragmatic language markers of autism diagnosis and severity	2022	Research in autism spectrum disorders	94		101970	Journal article	USA	English	To evaluate the performance of a parent-completed language scale in differentiating autism from typical development and ADHD.	Cross sectional	ASD group mean age = 11.29 (SD = 2.27); TD group mean age = 11.61 (SD = 1.73). ADHD group mean age = 11.46 (SD = 1.61).	174	73.60%	101	84.20%	Autism spectrum disorder	73	60.30%	TD group (n = 28), ADHD group (n = 45)	ADOS; Conners-3; SRS; CCC-2
Douglas, Jacinta M.	Using the La Trobe Communication Questionnaire to measure perceived social communication ability in adolescents with traumatic brain injury	2010	Brain Impairment	11	2	171-182	Journal article	Australia	English	To gauge the ability of the La Trobe Communication Questionnaire to distinguish between a group of adolescents with a severe TBI and a typically developing matched control group of adolescents.	Cross sectional	TBI group: mean age time of injury: 16.33 years (SD=1.67), range 13.42-18.97 years. Mean age time of assessment: 17.11 years (SD=1.90), range 13.92-19.92 years. TD group mean age 17.12 (SD=1.71), range 14.00-19.83.	38 (plus relatives)	78.9	19	78.9	Traumatic brain injury dyads (TBI adolescents and adult family member). Mean post-traumatic amnesia duration = 33.76 days (SD=18.13). Severe TBI due to moving vehicle-related trauma.	19	78.9	Typically developing dyads (TD adolescent and adult family member)	LCQ
Durkin, K.; Conti-Ramsden, G.	Language, social behavior, and the quality of friendships in adolescents with and without a history of specific language impairment	2007	Child Development	78	5	1441-57	Journal article	UK	English	To compare friendship quality in 15-year-old adolescents with and without specific language impairment (SLI) and determine the extent to which social behaviors and language ability predict differences.	Longitudinal	SLI group mean age: 15;9, range 15;2 to 16;5. TD group mean age: 15;1, range 15;2 to 16;7.	238	68.1%	120	72.5%	Adolescents with a history of specific language impairment	118	64%	Typically developing	SDQ; WORD; SEF-I
Durkin, K.; Conti-Ramsden, G.; Walker, A. J.	Txt lang: Texting, textism use and literacy abilities in adolescents with and without specific language impairment	2011	Journal of Computer Assisted Learning	27	1	49-57	Journal article	UK	English	To examine the relationships among textism use, language and literacy skills in adolescents.	Experimental	SLI group mean age = 17;1. TD group mean age = 17;0.	94	74.5	47	74.5	Adolescents with a history of specific language impairment	47	74.5	Typically developing	Interview; texting task
Durkin, Kevin; Conti-Ramsden, Gina; Walker, Allan J.	Computer-mediated communication in adolescents with and without a history of specific language impairment (SLI)	2010	Computers in Human Behavior	26	2	176-185	Journal article	UK	English	To investigate use of computer-mediated communication in young people with a history of SLI.	Cross sectional	SLI group mean age 17;1, range 16;2 to 18;2. TD group mean 16;10, range 15;11 to 17;10.	176	65.3	86	70.9	Adolescents with a history of specific language impairment	90	60	Typically developing	Self-report diary; interview
Eklund, Anna; Sandgren, Olof; Sahlin, Birgitta; Samuelsson, Christina	It depends on who I'm with: How young people with developmental language disorder describe their experiences of language and communication in school	2023	International Journal of Language & Communication Disorders	58	4	1168-1181	Journal article	Sweden	Swedish	To understand the lived experiences of young people with DLD, particularly in a school context.	Qualitative	Young people aged 13-19 years	23	56.50%	23	56.50%	Developmental language disorder	N/A	N/A	N/A	Semi-structured interview

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ax tools
Ellis Weismer, S.; Tomblin, J. B.; Durkin, M. S.; Bolt, D.; Palta, M.	A preliminary epidemiologic study of social (pragmatic) communication disorder in the context of developmental language disorder	2021	International Journal of Language & Communication Disorders	56	6	1235-1248	Journal article	USA	English	To estimate the prevalence of social (pragmatic) communication disorder and identify risk factors of the SCD phenotype relative to developmental language disorder using data from the EpiSLI database	Secondary analysis	Children in the 8th grade (13–14 years)	393	56%	393	56%	Children with and without a history of developmental language disorder	N/A	N/A	N/A	CCC-2
Evers, Kris; Debbaut, Edward; Majjaers, Jarymkie; Steyaert, Jean; Noens, Ilse	Do parental interviews for ASD converge with clinical diagnoses? An empirical comparison of the 3di and the DISCO in children with ASD, a clinically-referred group, and typically developing children	2020	Journal of Autism and Developmental Disorders	50	4	1324-1336	Journal article	Belgium	Dutch	To examine the agreement between the 3di and the DISCO-11, and their convergence with a clinical diagnosis.	Cross sectional	ASD group mean age = 117.04 (SD = 40.34). Youth referred for ADHD assessment mean age = 106.21(SD = 28.80). TD group mean age = 104.37 (SD = 40.57).	68	75%	25	80%	Autism spectrum disorder	43	72.10%	Youth referred for ADHD assessment (n = 24), TD group (n = 19)	3di; DISCO-11
Ezeh, Nnenna Gertrude; Anidi, Ojel Clara; Nwokolo, Basil Okwudili	Body Language as a Communicative Aid amongst Language Impaired Students: Managing Disabilities	2021	English Language Teaching	14	6	125-134	Journal article	Nigeria	ESL	To assess the role of body language as a learning tool amongst language/speech impaired students	Case series	70% of the sample were aged 10-14, while 30% were aged 15 and over.	45	Not reported	45	Not reported	Young people with language and speech impairments	N/A	N/A	N/A	Questionnaire
Figueiredo, T.; Sudo, F.; Serra-Pinheiro, M. A.; Trippi, G.; Mattos, P.	Interpersonal negotiati skills in ADHD	2022	Social Neuroscience	17	1	86-93	Journal article	Brazil	Brazilian Portuguese	To investigate the social problem-solving skills of children and adolescents with and without ADHD	Cross sectional	ADHD group mean age = 10.68 (SD = 2.7). Control group mean age = 10.77 (SD = 2.35).	70	61.40%	43	69.70%	Attention-deficit/hyperactivity disorder	27	48.10%	Young people who did not meet criteria for ADHD, regardless of other diagnoses	IN5; Conners
Forrest, C. L.; Gibson, J. L.; St Clair, M. C.	Social Functioning as a Mediator between Developmental Language Disorder (DLD) and Emotional Problems in Adolescents	2021	International Journal of Environmental Research & Public Health [Electronic Resource]	18	3	29	Journal article	UK	English	To examine social functioning as a mediator of emotional problems in adolescents with DLD and typically-developing peers	Cross sectional	DLD group mean age = 13.6 (SD = 16.06 months). TD group mean age = 13.6 (SD = 17.13 months).	53	64.20%	26	61.60%	Developmental language disorder	27	66.70%	Typically developing	SDQ; AQ; CCSR; rating scale; PSS-F
Forrest, Claire L.; Gibson, Jenny L.; Halligan, Sarah L.; St Clair, Michelle C.	A Cross-Lagged Analysis of Emotion Regulation, Peer Problems, and Emotional Problems in Children with and without Early Language Difficulties: Evidence from the Millennium Cohort Study	2020	Journal of speech, language, and hearing research	63	4	1227-1239	Journal article	UK	English	To examine the effect of parent-reported emotion regulation difficulties in early childhood on parent-reported peer problems and emotional problems at ages 3, 5, 7, 11, and 14 years using data from the Millennium Cohort Study	Secondary analysis	Children assessed at ages 3, 5, 7, 11, and 14 years	14262	53.20%	891	70.60%	At risk of developmental language disorder	13371	51.50%	General population	SDQ
Forrest, Claire L.; Lloyd-Esenkaya, Vanessa; Gibson, Jenny L.; St Clair, Michelle C.	Social Cognition in Adolescents with Developmental Language Disorder (DLD): Evidence from the Social Attribution Task	2023	Journal of Autism and Developmental Disorders	53	11	4243-4257	Journal article	UK	English	To examine the association between social cognition impairments and social, emotional and behavioural difficulties (SEBD) in individuals with DLD	Cross sectional	DLD group mean age = 13.6 (SD = 3.15). TD group mean age = 13.6 (SD = 3.30).	53	61.20%	26	65.40%	Developmental language disorder	27	63%	Typically developing	SDQ; AQ; CCSR; SAT
Friedman, Laura; Lorang, Emily; Hilvert, Elizabeth; Sterling, Audra	"Are We Done Yet?" Question-Asking in Boys with Fragile X Syndrome and Idiopathic Autism Spectrum Disorder	2020	Journal of speech, language, and hearing research	63	6	1822-1834	Journal article	USA	English	To examine question asking in school-age boys with idiopathic ASD and fragile X syndrome (FXS) + ASD	Cross sectional	ASD group mean age = 13.41 (SD = 1.96). FXS+ASD group mean age = 12.51 (SD = 2.10).	46	100.00%	21	100.00%	Autism spectrum disorder	25	100.00%	Fragile X syndrome + ASD	ADOS; ADI-R
Fyberg, A.; Marchioni, M.; Emanuelson, I.	Severe acquired brain injury: rehabilitation of communicative skills in children and adolescents	2007	International Journal of Rehabilitation Research	30	2	153-7	Journal article	Sweden	Swedish	To examine the use of the Pragmatic Protocol with brain-injured children and adolescents in a rehabilitation setting	Case study	Mean age = 13.43 years (SD=2.19), range 9.3–16.1.	8	50	8	50	Children and adolescents with an acquired brain injury (six had been involved in traffic accidents, one had been injured in a fall and one had suffered a stroke). The time between trauma and assessment was a mean of 9.80 months (SD=2.40, range 6–14 months).	N/A	N/A	N/A	PP
Grove, H. M.; Haight, A.; Natseh, J. Y.; DeLuca, J.; Lengenfelder, J.	The relationship between social communication and social functioning in pediatric TBI: A pilot study	2019	Frontiers in Neurology	10		Article ID: 850	Journal article	USA	English	To examine the ability of the Social Communication Disorders Checklist (SCDC) to detect social communication difficulties in pediatric TBI.	Cross sectional	TBI group mean age: 11.56 (SD=3.69). TD group mean age: 11.05 (SD=3.11).	36	55.6	16	68.8	Children with a diagnosis of moderate (Glasgow Coma Scale = 8–12) to severe (GCS = <8) traumatic brain injury. Participants were at least 1 year post-injury.	20	45	Typically developing	SCDC; ICEPT; BASC-
Gizzo, Daniel Patrick, Jr.; Foster, Sharon L.	Conversation skills and peer rejection among ADHD and comparison boys	2001	N/A	N/A	N/A	N/A	Thesis	USA	English	To examine whether boys with ADHD have deficient conversation skills compared to TD peers.	Experimental	ADHD group (n=20, mean age 11.85). TD conversation partner ADHD group (n=20, mean age 11.85). TD control group (n=20, mean age 12.10). TD conversation partner TD group (n=20, mean age 12.0). Range 11 to 13 (whole sample).	80	100	40	100	20 dyads comprising attention-deficit/hyperactivity disorder (n=20) and typically developing peers (n=20)	20 TD dyads (n=40)	100	Typically developing	Conversation tasks; CBCL; DISC-IV
Gómez-Merino, Nadina; Fajardo, Inmaculada; Ferrer, Antonio; Joseph, Holly	Eye Movements of Deaf Students in Expository Versus Narrative Texts	2022	American Annals of the Deaf	167	3	313-333	Journal article	Spain	Spanish	To examine comprehension accuracy and eye movements during reading in children and adolescents who were deaf/hard of hearing (DHH) compared to peers with typical hearing (TH).	Experimental	DHH group mean age = 12.4 (SD = 1.73). TH group mean age = 11.8 (SD = 1.77).	38	42.10%	19	42.10%	Deaf/hard of hearing	19	42.10%	Typically hearing	PROLEC-R; eye gaze task
Gough Kenyon, Sheila Maria	The Impact of the Transition from Primary to Secondary School on the Psychosocial and Literacy Development of Adolescents with Developmental Language Disorder: Adolescents with Low Language Ability, and Their Typically Developing Peers	2021	N/A	N/A	N/A	N/A	Thesis	UK	English	To investigate the impact of the transition from primary to secondary school on adolescents with DLD compared to peers with low language ability and those who are typically developing.	Longitudinal	Age at recruitment: DLD group mean age = 10.82 (SD = 0.26). Low language group mean age = 10.86 (SD = .23). TD group mean age = 10.84 (SD = 0.23). Participants were restested 12 months later.	107	45.80%	30	40%	Developmental language disorder	Low language group = 29. TD group = 48.	Low language group = 37.9%. TD group = 54.2%	Low language and typically developing	WIAT-II; CBSS; E-Prime task
Granieri, J. E.; McNair, M. L.; Gerber, A. H.; Reiffers, R. F.; Lerner, M. D.	Atypical social communication is associated with positive initial impressions among peers with autism spectrum disorder	2020	Autism	24	7	1841-1848	Journal article	USA	English	To investigate the relationship between social communication patterns and first impression ratings by peers in groups of youth with ASD	Cross sectional	Mean age = 12.00 (SD = 2.94)	55	72.70%	55	72.70%	Autism spectrum disorder	N/A	N/A	N/A	ADOS-2; sociometric ratings
Grasso, M.; Lazzaro, G.; Demaria, F.; Menghini, D.; Vicari, S.	The Strengths and Difficulties Questionnaire as a Valuable Screening Tool for Identifying Core Symptoms and Behavioural and Emotional Problems in Children with Neuropsychiatric Disorders	2022	International journal of environmental research and public health	19	13	7731	Journal article	Italy	Italian	To investigate the usefulness of the SDQ for assessing children with a broad range of diagnoses and to test whether it is sensitive to changes in symptomatology with age.	Cross sectional	Mean age = 8.9 (SD = 4.8 years)	952	63.70%	952	63.70%	Global developmental delay, n = 113; intellectual disability, n = 45; language disorder, n = 72; specific learning disorder, n = 187; autism spectrum disorder, n = 69; attention deficit/hyperactivity disorder, n = 131; mood disorder, n = 51; anxiety disorder, n = 151; eating disorders, n = 33.	N/A	N/A	N/A	SDQ

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ax tools
Greentee, J. L.; Winter, M. A.; Johnson, M.	Depression symptoms in adolescents with autism spectrum disorder: A contextual approach to mental health comorbidities	2020	Journal of Adolescence	85		120-125	Journal article	USA	English	To explore whether social-communication impairment and peer and family contexts impact depression symptoms in youth with ASD	Cross sectional	Aged 13-17	176	72.70%	176	72.70%	Autism spectrum disorder	N/A	N/A	N/A	SRS-2; PEQ-R
Grossman, R. B.; Edelson, L. R.; Tager-Flusberg, H.	Emotional facial and vocal expressions during story retelling by children and adolescents with high-functioning autism	2013	Journal of Speech Language & Hearing Research	56	3	1035-44	Journal article	USA	English	To examine prosody (via acoustic analysis) and facial expression (via perceptual coding analysis) productions in children and adolescents with high functioning autism	Experimental	Due to difficulties with recording equipment, not all analyses were conducted for all participants. Ages are provided for the two sets of analyses conducted. Acoustic analysis: HFA group mean age 13:10 (SD=3.4). TD group mean age 15 (SD=3.6). Perceptual coding analysis: HFA group mean age 14 (SD=2.7). TD group mean age 14 (SD=2.6).	40	97.5	22	100	Children and adolescents with high functioning autism	18	94.4	Typically developing	Narrative retell task; W/II DBQ; ADOS; ADI-R
Hadjikhani, N.; Galazka, M.; Kenet, T.; Joseph, R.; Ålsberg, Johnels, J.	Discrepancy between high non-verbal intelligence and low accuracy at reading emotional expressions in the eyes reflects the magnitude of social-cognitive difficulties in autism	2023	European Archives of Psychiatry and Clinical Neuroscience	273	3	755-759	Journal article	Switzerland	French	To investigate whether the discrepancy between non-verbal intelligence and accuracy at reading emotional expressions predicts self-perceived social-emotional difficulties in youth with ASD and typically developing peers	Cross sectional	ASD group mean age = 22.3 (SD = 7.91). TD group mean age = 22.9 (SD = 6.77).	107	85%	33	90.90%	Autism spectrum disorder	74	82.40%	No history of psychiatric or neurological disorders	RIMET; EQ
Haukeda, C. L.; Wis, O. B.; Schaubert, S. K.; Iyefli, B.; Fitzpatrick, E. M.; Torkildsen, J. V.	Social communication and quality of life in children using hearing aids	2022	International Journal of Pediatric Otorhinolaryngology	152		111000	Journal article	Norway	Norwegian	To compare the structural language and social communication skills of children who use hearing aids (HAs) and their typical-hearing (TH) peers	Cross sectional	HA group mean age = 105.5 (SD = 24.7) months. TH group mean age = 111.4 (SD = 29.3) months.	88	46.60%	45	46.70%	Children who use hearing aids	43	46.50%	Typical-hearing peers	CCC-2; PedsQL
Helland, W. A.; Helland, T.	Emotional and behavioural needs in children with specific language impairment and in children with autism spectrum disorder: The importance of pragmatic language impairment	2017	Research in Developmental Disabilities	70		33-39	Journal article	Norway	Norwegian	To compare emotional and behavioural profiles in children with SLI and ASD, and to explore to what extent pragmatic language problems contribute to their emotional and behavioural needs.	Cross sectional	ASD group mean age: 11:0 years (SD= 2.4). SLI group mean age: 8:9 years (SD=2.4). Range 6-15.	43	86	23	82.6	Diagnosed with Asperger syndrome	20	90	SLI	CCC-2; SDQ
Helland, Wenche A.; Posserud, Maj-Britt; Lundervold, Astri J.	Emotional and Behavioural Function in Children with Language Problems-A Longitudinal, Population-Based Study	2022	European Journal of Special Needs Education	37	2	177-190	Journal article	Norway	Norwegian	To investigate associations between language problems (LP) and emotional and behavioural difficulties	Longitudinal	Time 1: 7-9 years. Time 2: 11-13 years.	3,510	47.40%	311	68.80%	Children with language problems	3199	45.30%	Children without language problems	Questionnaire; SDQ
Helland, Wenche Andersen; Lundervold, Astri J.; Heimann, Mikael; Posserud, Maj-Britt	Stable associations between behavioral problems and language impairments across childhood-The importance of pragmatic language problems	2014	Research in Developmental Disabilities	35	5	943-951	Journal article	Norway	Norwegian	To investigate language function, particularly pragmatics, associated with behavior problems.	Longitudinal	BP group mean age 13.47 (SD = 0.82, range 12-15 years. TD group mean age 13.54 (SD = 1.14)	77	64.9	40	80	Children with externalizing behavioral problems (BP), defined by one or more definite symptoms of attention-deficit/hyperactivity disorder, oppositional deficit disorder (ODD), or conduct disorder (CD)	37	48.6	Typically developing	CCC-2; SDQ
Holzinger, D.; Fellingner, J.	Conversation difficulties rather than language deficits are linked to emotional problems in school children with hearing loss	2022	Frontiers in Education	7		944814	Journal article	Spain	Spanish	To investigate conversation difficulties in predicting mental health difficulties in children with hearing loss	Cross sectional	Mean age 10.6 (SD = 1.6)	53	47.20%	53	47.20%	Children with hearing loss	N/A	N/A	N/A	SDQ; checklist
Hopkins, T.; Clegg, J.; Stackhouse, J.	Young offenders' perspectives on their literacy and communication skills	2016	International Journal of Language & Communication Disorders	51	1	95-109	Journal article	UK	English	To investigate the perceptions and experiences of YO's in terms of their own literacy skills, communication skills, and their communicative interactions with others.	Qualitative	Mean age 16 years (SD=1.1). Range 13 to 18 years.	31	90.3%	31	90.3%	Young offenders on court orders	N/A	N/A	N/A	Semi-structured interview
Hopkins, Thomas	The language, literacy and communication skills of young offenders and non-offenders: a mixed methods study	2014	N/A	N/A	N/A	N/A	Thesis	UK	English	To investigate the association between language, communication, literacy, and behaviour in young offenders on court orders	Mixed methods	YO group: mean age: 16.6, range 12-18 years. TD group: range 13.1-14.9.	82	78.0%	57	87.7%	Young offenders on court orders who reside in the community	25	56	Typically developing non-offenders	Expository task; CELF-4; WIAT; semi-structured interview
Hopkins, Thomas; Clegg, Judy; Stackhouse, Joy	Examining the Association between Language, Expository Discourse and Offending Behaviour: An Investigation of Direction, Strength and Independence	2018	International Journal of Language and Communication Disorders	53	1	113-129	Journal article	UK	English	To examine the relationship between language and offending behaviour by comparing the expository discourse abilities of youth offenders and non-offenders.	Cross sectional	YO group: mean age 16 (13-18 years). Non-offender group: mean age not reported (13-14 years).	77	77.9	52	88.5	Youth offenders	25	56	Typically developing	Expository task
Humphrey, Neil; Symes, Wendy	Peer Interaction Patterns among Adolescents with Autistic Spectrum Disorders (ASDs) in Mainstream School Settings	2011	Autism: The International Journal of Research and Practice	15	4	397-419	Journal article	UK	English	To investigate the type, duration, and frequency of peer interaction behaviours among students with ASD compared to typically developing students and students with dyslexia	Experimental	ASD group mean age: 13.8 (SD=1.54). Dyslexia group mean age: 13.9 (SD=1.57). TD group mean age: 13.8 (SD=1.33).	111	90.1	38	90	Adolescents with autistic spectrum disorders	73	Dyslexia group = 92%. TD group = 90%.	Typically developing (n=38) and dyslexia (n=35)	PIOS
Im-Bolter, N.; Cohen, N. J.; Fania, F.	The Spoken Language and Social Communication Characteristics of Adolescents in Behavioral Schools: A Controlled Comparison Study	2013	Journal of Child Psychology & Psychiatry & Allied Disciplines	54	7	724-32	Journal article	Canada	English	To examine the association between language and social cognition in adolescents who present for mental health services compared to those who do not	Cross sectional	Clinic group: mean age = 14.69 (SD = 1.46), range 12-17. Nonclinical group: mean age = 15.35 (SD = 1.34), range 12-17.	324	51.5	138	52.2	12-17 year olds referred for mental health services (symptoms associated with depression, hyperactivity, oppositional defiant disorder, and conduct disorder)	186	51.1	Typically developing	CBCL and YSR; TILC-E; INS
James, Karen; Munro, Natalie; Togher, Leanne; Cordier, Renie	Preferred argument structure in the oral narratives of adolescents with and without SLI	2020	Language, Speech & Hearing Services in Schools (Online)	51	1	115-127	Journal article	Australia	English	To profile the language and social communication characteristics of adolescents in specialised school settings	Cross sectional	Behavioral group mean age = 13.03. Mainstream group mean age = 13.08	54	83.30%	27	85.20%	Children with behavioural difficulties	27	81.50%	Children in mainstream education	EBRNI; TOAL-4; SEE; SDQ; Connors-3
Jiang, Xiangyu; Zhang, Fen; Ruixia, Yan; Chen, Liang	Self-perceptions of reading, writing, and social abilities in middle school children with language impairment	2023	Clinical Linguistics & Phonetics	37	4-6	513-529	Journal article	UK	English	To compare the preferred argument structure of adolescents with SLI to TD peers using CHILDES data	Secondary analysis	SLI group mean age = 14.3 (SD = 0.64). TD group mean age = 14.5 (SD = 0.84)	38	Not reported	19	Not reported	Specific language impairment	19	Not reported	Typically developing	Narrative Study-specific self-rating scale; semi-structured interview
Jostes, Melissa S.; Steele, Sara C.	Social communication impairments in children and adolescents with Asperger syndrome: Slow response time and the impact of prompting	2012	N/A	N/A	N/A	N/A	Thesis	USA	English	To investigate the perceived academic and social abilities of adolescents with language impairment.	Case study	Mean age 12:7, range 12:4-12:9 years	4	75	4	75	Adolescents with a diagnosis of language impairment	N/A	N/A	N/A	
Kaland, Nils; Mortensen, Erik Lykke; Smith, Lars	To investigate the social communication abilities (ie, ability to interpret non-literal, contextual communication) of young people with Asperger syndrome.	2011	Research in Autism Spectrum Disorders	5	3	1129-1137	Journal article	Denmark	Danish	To investigate the social communication abilities (ie, ability to interpret non-literal, contextual communication) of young people with Asperger syndrome.	Cross sectional	ASD group mean age: 16.4 (SD=2.8). TD group mean age: 15.6 (SD=3.1).	26	100	13	100	Young people with Asperger syndrome	13	100	Typically developing	Stories from Everyday Life; TOM tasks

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ass tools
Kang, Erin; Gadow, Kenneth D.; Lerner, Matthew D.	Atypical communication characteristics, differential diagnosis, and the autism spectrum disorder phenotype in youth	2020	Journal of clinical child and adolescent psychology	49	2	251-263	Journal article	USA	English	To compare atypical communication characteristics in clinic-referred youth with and without autism spectrum disorder	Cross sectional	Mean age 11.41 years (SD = 3.67)	947	72%	223	Not reported	Autism spectrum disorder	724	Not reported	Non-ASD psychiatry referrals	Parent Questionnaire; SCQ; ADOS
Kang, Erin; Lerner, Matthew D.; Gadow, Kenneth D.	Atypical communication characteristics among clinic-referred youth with and without autism spectrum disorder: Stability and associations with clinical correlates	2020	Development and Psychopathology	32	4	1240-1253	Journal article	USA	English	To understand the relation and stability of atypical communication characteristics with a broad range of psychiatric symptoms	Cross sectional	ASD group mean age = 10.45 (SD = 3.28). Non-ASD group mean age = 11.79 (SD = 3.77)	1,007	71.90%	283	82.30%	Autism spectrum disorder	724	67.80%	Non-ASD psychiatry referrals	Parent Questionnaire; SCQ; ADOS
Karasinski, Courtney; Weismer, Susan Ellis	Comprehension of Inferences in Discourse Processing by Adolescents With and Without Language Impairment	2010	Journal of Speech, Language and Hearing Research (Online)	53	5	1268-1279A	Journal article	USA	English	To investigate inference construction within spoken narratives in adolescents with SLI.	Cross sectional	NLI group mean age: not reported. SLI group mean age: 13.93 (SD=0.40). LC group mean age: 13.95 (SD=0.38). NLI group mean age: 13.92 (SD=0.37). (All students were in Grade 8.)	527	55.6	59	64.4	Specific language impairment	468	NLI group: 48.8. LC group: 52.8. NLI group: 48.8.	Normal language (NL): n=316. Low cognitive (LC): n=72. Nonspecific language impairment (NLI): n=80.	Narrative task; QRI
Karner, Karen	Speech act use by adolescents diagnosed with higher functioning forms of autism when interacting with typical peers in a semi-structured conversational context	2016	N/A	N/A	N/A	N/A	Thesis	USA	English	To investigate speech act use by adolescents diagnosed with high-functioning ASD (i.e. without language impairment) as they interacted with typical developing peers while engaged in a LEGO® building task.	Experimental	ASD group: mean age 13.5 (12.7 to 14.3); TD group: mean age 13.8 (12.3 to 15.6)	18	66.7	6	83.3	6 triads comprising autism spectrum disorder (n=6) and typically developing peers (n=12)	12	58.3	Typically developing	CASL; conversation task
Keller, C. M.; Mikami, A. Y.; Morris, J. P.; Libback, E. J.; Lerner, M. D.	Prediction of social behavior in autism spectrum disorders: Explicit versus implicit social cognition	2020	Autism	24	7	1758-1772	Journal article	USA	English	To investigate the contributions of social cognition factors as predictors of social communication and interaction behaviors in youth with ASD	Experimental	Mean age = 13.07 (SD = 2.07)	34	76.50%	34	76.50%	Autism spectrum disorder	N/A	N/A	N/A	ADOS; CABS; SEL-MI; DANVA-2; SCT; SEL-MIRT; SCQ; SIOS
Kelly, R.; OSE™Malley, M. P.; Antonijevic, S.	AE™ Just trying to talk to people BE™ hAE™ the hardestAE™. Perspectives of adolescents with high-functioning autism spectrum disorder on their social communication skills	2018	Child Language Teaching and Therapy	34	3	319-334	Journal article	Ireland	English	To explore the perspectives of adolescents with HF-ASD about their social communication skills.	Qualitative	Two were 17, two were 16, and one was 15.	5	60	5	60	Adolescents with high-functioning autism spectrum disorder	N/A	N/A	N/A	Semi-structured interviews
Ketcheson, L. R.; Pitchford, E. A.; Wentz, C. F.	The Relationship Between Developmental Coordination Disorder and Concurrent Deficits In Social Communication and Repetitive Behaviors Among Children with Autism Spectrum Disorder	2021	Autism research	14	4	804-816	Journal article	USA	English	To examine the interrelationships between Developmental Coordination Disorder (DCD) risk, intellectual disability, and ASD core deficits using the SPARK dataset	Secondary analysis	Mean age = 8.96 (SD = 3.15)	10,234	79.50%	10,234	79.50%	Autism spectrum disorder	N/A	N/A	N/A	SCQ
Knox, Emma; Conti-Ramsden, Gina	Bullying in young people with a history of specific language impairment (SLI)	2007	Educational and Child Psychology	24	4	130-141	Journal article	UK	English	To examine bullying in young people with a history of SLI	Cross sectional	SLI group mean age: 15;10 (SD=0.5), range 15;2 to 16;10. TD group mean age: 15;11 (SD=0.4), range 15;2 to 16;7.	263	65.4	139	69.1	Young people with a history of specific language impairment	124	61	Typically developing	Study-specific questionnaire; SDQ; SEF-I; WORD
Ko, Shin Ruc; Sperry, Linda	Online experiences of adolescents with Asperger's Syndrome and high-functioning autism	2014	N/A	N/A	N/A	N/A	Thesis	USA	English	To investigate the online experiences of youth with ASD and how they perceive this to compare to offline interactions	Qualitative	Participants were aged 12-18 years (3 were 12yo, 2 were 13yo, 3 were 14yo and 2 were 18yo)	10	70	10	70	Adolescents with Asperger's Disorder	N/A	N/A	N/A	Semi-structured interview
Komeda, H.; Osanai, H.; Yanai, K.; Okamoto, Y.; Fujioka, T.; Arai, S.; Inohara, K.; Koyasu, M.; Kusumi, T.; Takiguchi, S.; Kawatani, M.; Kunaaki, H.; Horiuchi, M.; Tomoda, A.; Kosaika, H.	Decision making processes based on social conventional rules in early adolescents with and without autism spectrum disorders	2016	Scientific Reports	6	1	37875	Journal article	Japan	Japanese	To examine the information used by young people with ASD when they judge story protagonists as good or bad.	Experimental	ASD group mean age: 12.5 (SD=1.2). TD group mean age: 12.3 (SD=1.0).	39	89.7	19	89.5	Young people with autism spectrum disorders	20	90	Typically developing	Experimental tasks; DISCO
Koning, C.; Magill-Evans, J.	Social and language skills in adolescent boys with Asperger syndrome	2001	Autism	5	1	23-36	Journal article	Canada	English	To examine the social interaction deficits of boys with Asperger syndrome compared to typically developing peers.	Cross sectional	AS group mean age: 14.04 years, (SD=1.19). TD group mean age 13.82 years (SD=0.67).	42	100	21	100	Young people with Asperger syndrome	21	100	Typically developing (bu not particularly socially skilled students)	CASP; SSRS; ASSQ
Kuru, Y.; Nishiyama, T.; Sumi, S.; Suzuki, F.; Shino, T.; Kimura, T.; Hirai, K.; Kurada, M.; Kamio, Y.; Kikuchi, S.	Practical applications of brief screening questionnaires for autism spectrum disorder in Kimura, T.; Hirai, K.; Kurada, M.; Kamio, Y.; Kikuchi, S.	2021	International Journal of Methods in Psychiatric Research	30	2	e1857	Journal article	Japan	Japanese	To examine the diagnostic performance of the Social and Communication Disorders Checklist (SCDC) and Strength and Difficulties Questionnaire (SDQ) to detect autism spectrum conditions	Experimental	Mean age = 11.1 (SD = 3.1)	41	78.00%	41	78.00%	Autism spectrum disorder	N/A	N/A	N/A	DISCO; SCDC; SRS-2; SDQ
Larkin, Fionnuala; Hobson, Jessica Anne; Hobson, R.; Toimie, Andrew	Collaborative competence in dialogue: Pragmatic language impairment as a window onto the psychopathology of autism	2017	Research in Autism Spectrum Disorders	43-44		27-39	Journal article	UK	English	To evaluate the quality of collaborative cues (Continuers, Assessments, Appropriate Next Responses, Repairs, Try Markers, Gaze to Regulate, and Gaze to Coregulate) in the conversations of adolescents with ASD, and to examine whether these concepts were related to general difficulties with social engagement.	Cross sectional	ASD group: mean age 11;6 (SD=1;10). Range: 8;5-14;9. LD group: mean age 12;4 (SD=2;8). Range: 7;9-15;5.	36	88.9	18	88.9	Autism spectrum disorder	18	88.9	Moderate learning difficulties	ADOS; SCQ; OWLS; CCD; CCC-2
Lassen, J.; Aggera, A. S.; Foldager, M.; Pedersen, J.; Oranje, B.; van der Ende, J.; Arnfred, S.; Vestergaard, M.	Psychopathological symptoms associated with psychosocial functioning in children and adolescents with autism spectrum disorders and their typically developing peers	2022	Research in autism spectrum disorders	98		10240	Journal article	Denmark	Danish	To investigate how adaptive behavior, peer socialization, leisure activities, and education were related to autistic-like internalizing and externalizing symptoms in children with autism and healthy controls	Cross sectional	ASD group mean age = 11.71 (SD = 1.96). TD group mean age = 11.70 (SD = 1.98).	122	81.10%	61	82.00%	Autism spectrum disorder	61	80.30%	Typically developing	ADOS-2; ADI-R; ASRS; Questionnaire; ABAS-II
Lawley, Grace O.; Bedrick, Steven; MacFarlane, Heather; Dolata, Jill K.; Salem, Alexandra C.; Fombonne, Eric	"Um" and "Uh" Usage Patterns in Children with Autism: Associations with Measures of Structural and Pragmatic Language Ability	2023	Journal of Autism and Developmental Disorders	53	8	2986-2997	Journal article	USA	English	To investigate "um" and "uh" usage in children with ASD compared to children who are typically developing	Cross sectional	ASD group mean age = 10.03 (SD = 2.82). TD group mean age = 8.22 (SD = 2.83).	182	74.20%	117	83.80%	Autism spectrum disorder	65	56.90%	Typically developing	ADOS-2; CCC-2
Le Sourm-Bissau, Sandrine; Aguerit, Marc; Girard, Pauline; Chevrel, Claire; Laval, Virginie	Emotional speech comprehension in children and adolescents with autism spectrum disorders	2013	Journal of Communication Disorders	46	4	309-320	Journal article	France	French	To examine the role of emotional prosody in emotional speech comprehension by young people with ASD.	Experimental	ASD group mean age: 12.6 (SD=2.5), range: 9.1-17.9. TD group mean age: 12.1 (SD=2.6), range 9.2-17.8.	52	100	26	100	Young people with high-functioning autism (HFA) or Asperger syndrome (AS)	26	100	Typically developing	Emotional prosody tasks
Leader, G.; Mooney, A.; Chen, J. L.; Whelan, S.; Naughton, K.; Maher, L.; Mannion, A.	The Co-Occurrence of Autism Spectrum Disorder and Cerebral Palsy and Associated Comorbid Conditions in Children and Adolescents	2022	Developmental neurorehabilitation	25	5	289-297	Journal article	UK, Ireland, USA	English	To investigate the frequency of comorbid conditions in children and adolescents with ASD, cerebral palsy (CP), and ASD and CP	Cross sectional	Mean age = 9.67 years (SD = 3.64).	96	60.40%	38	Not reported	Autism spectrum disorder	58	Not reported	CP: n = 33. ASD and CP: n = 25	CBC1; SCQ; VABS-II

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Lei, J.; Russell, A.	I Have a Fear of Negative Evaluation, Get Me Out of Here! Examining Latent Constructs of Social Anxiety and Autistic Traits in Neurotypical and Autistic Young People	2021	Journal of Autism & Developmental Disorders	51	5	1729-1747	Journal article	UK	English	To investigate shared and unique constructs related to social communication difficulty, social anxiety, and autistic traits and symptoms	Cross sectional	ASD group mean age = 17.59 (SD = 1.1), NT group mean age = 18.28 (SD = .50).	412	37.10%	145	68.30%	Autism spectrum disorder	267	20.20%	Neurotypical	SRS
Leipold, S.; Abrams, D. A.; Karaker, S.; Phillips, J. M.; Menon, V.	Aberrant Emotional Prosody Circuits Predict Social Communication Impairments in Children With Autism	2023	Cognitive Psychiatry: Biological Neuroscience and Neuroimaging	8	5	531-541	Journal article	USA	English	To examine the neural processing of emotional prosody in children with ASD and the relationship to social communication	Experimental	ASD group mean age = 10.73 (SD = 1.66), TD group mean age = 10.71 (SD = 1.38).	43	67.40%	22	72.70%	Autism spectrum disorder	21	61.90%	Typically developing	ADOS-2; ADI-R; WAAT-II; DANVA-2; SRS-2; emotional prosody task
Lindsay, Geoff; Dockrell, Julie E.; Mackie, Clare	Vulnerability to bullying in children with a history of specific speech and language difficulties	2008	European Journal of Special Needs Education	23	1	1-16	Journal article	UK	English	To investigate the prevalence of bullying in children with SSD and to explore the effect of prosocial skills on the likelihood of being victimised.	Cross sectional	SSLD group mean age 12.1, range 11.5 to 12.7. TD group mean age: 11.4 years, range 10.5 to 11.6. SEN group mean age: 11.2 years, range 10.5 to 11.8.	141	Not reported	67	76.1	Children in Year 7 with a history of specific speech and language difficulties (SSLD)	TD group: 42. SEN group: 32.	Not reported	Typically developing (TD) and children with general (non-language) learning difficulties (SEN)	LIS; SPPC; SDQ; CCC
Lundine, J. P.; Barron, H. D.	Microstructural and Fluency Characteristics of Narrative and Expository Discourse in Adolescents With Traumatic Brain Injury	2019	American Journal of speech-language pathology	28	4	1638-1648	Journal article	USA	English	To compare the expository and narrative summaries produced by students with a traumatic brain injury (TBI) compared to typically developing students	Cross sectional	TBI group mean age = 16.0 (SD = 1.6), TD group mean age = 16.0 (SD = 1.7).	10	Not reported	5	40%	Traumatic brain injury	5	40%	Typically developing	Narrative; expository (x2)
Lynnegård, F.; Almqvist, L.; Granlund, M.; Huus, K.	Participation profiles in domestic life and peer relations as experienced by adolescents with and without impairments and long-term health conditions	2019	Developmental Neurorehabilitation	22	1	27-38	Journal article	Sweden	Swedish	To identify how individual and family factors relate to self-reported participation cluster profiles of attendance in, and perceived importance of, domestic life and interpersonal interactions.	Cross sectional	13 years (SD = .59)	1520	49.40%	N/A	N/A	The total population of students in 6th and 7th grades (ages 12-14) in 33 schools (2,021 invited, 1,520 participated = 75.2%).	N/A	N/A	N/A	Study-specific questionnaire
Maltman, Neil; Friedman, Laura; Loring, Emily; Sterling, Audra	Brief report: Linguistic mazes and perseverations in school-age boys with fragile X syndrome and autism spectrum disorder and relationships with maternal maze use	2022	Journal of Autism and Developmental Disorders	52	2	897-907	Journal article	USA	English	To examine pragmatic difficulties in boys with ASD and fragile X syndrome+ASD	Cross sectional	ASD group mean age = 13.47 (SD = 2.27), FXS + ASD group mean age = 12.21 (SD = 2.15).	55	100%	26	100%	Autism spectrum disorder	29	100%	Fragile X syndrome+ASD	ADOS; conversation
Maltman, Neil; Willer, Rebecca; Sterling, Audra	An Exploratory Study of Pragmatic Language Use Across Contexts With the Pragmatic Rating Scales School Age Among Autistic Boys and Boys With Fragile X Syndrome Plus Autism	2023	Journal of Speech, Language & Hearing Research	66	11	4547-4557	Journal article	USA	English	To evaluate the feasibility and validity of the Pragmatic Rating Scale-School Age (PRS-SA) in a semi-structured conversational context	Cross sectional	ASD group mean age = 13.35 (SD = 1.20), FXS + ASD group mean age = 12.36 (SD = 1.94).	32	100%	16	100%	Autism spectrum disorder	16	100%	Fragile X syndrome+ASD	ADOS; ADI-R; conversation; PRS-SA
McDonald, Skye; English, Therese; Randal, Rebekah; Longman, Thea; Togher, Leanne; Tate, Robyn L.	Assessing social cognition and pragmatic language in adolescents with traumatic brain injuries	2013	Journal of the International Neuropsychological Society	19	5	528-538	Journal article	Australia	English	To examine the utility of the TASIT for assessing social cognition impairments in adolescents with TBI.	Cross sectional	TBI group mean age: 16.6 (SD=2.2), TD group mean age: 16.6 (SD=2.3), Range 13-19 years.	32	68.8	16	68.8	Adolescents with traumatic brain injury - 9 severe (Glasgow Coma Scale score of 8 or less), 7 moderate (GCS between 9 and 12).	16	68.8	Typically developing	TASIT; BFRIT; study-specific questionnaires
McGregor, Karla K.; Hadden, Rex R.	Brief Report: "Um" Fillers Distinguish Children With and Without ASD	2020	Journal of Autism & Developmental Disorders	50	5	1816-1821	Journal article	USA	English	To compare the discourse of young people with ASD to that of their typically developing peers	Cross sectional	ASD group median age = 132 months (quartile: 105, 151), TD group median age = 129 months (quartile: 106, 147).	63	71.40%	31	93.50%	Autism spectrum disorder	32	50%	Typically developing	ADOS; SCQ; expository
Meallings, Margaret; Douglas, Jacinta	"School's a big part of your life...": Adolescent perspectives of their school participation following traumatic brain injury	2010	Brain Impairment	11	1	1-16	Journal article	Australia	English	To investigate the experiences of returning to school in adolescents with TBI.	Qualitative	One participant was 13, one was 14 and one was 17.	3	100	3	100	Adolescents with severe traumatic brain injury (length of post-traumatic amnesia was greater than 1 week)	N/A	N/A	N/A	Semi-structured interview
Meyer-Lindenberg, M.; Moessnang, C.; Oakley, B.; Ahmad, I.; Mason, L.; Jones, E. J. H.; Hayward, H. L.; Cooke, J.; Crawley, D.; Holt, R.; Tilmann, J.; Charman, T.; Baron-Cohen, S.; Banaschewski, T.; Beckmann, C.; Tost, H.; Meyer-Lindenberg, A.; Bullen, J. K.; Murphy, D. G.; Brammer, M. J.; Loth, E.	Facial expression recognition is linked to clinical and neurofunctional differences in autism	2022	Molecular Autism	13	1	43	Journal article	UK, Netherlands, Germany, Italy	Multiple	To examine difficulties in facial expression recognition and how this is linked to clinical and neurofunctional differences in autism	Experimental	Four groups included: adults (18-30 years), adolescents (12-17 years), and children (6-11 years), all with IQ in the normal range. Final group was adolescents/adults (12-30 years) with mild intellectual disability.	255 to 488 participants (varies by assessment task)	Varies	Adolescent group: 48 to 89	Varies	Autism spectrum disorder	Adolescent group: 28 to 74	Varies	Controls, as previously described	ADI-R; SRS-2; VABS-II; KDEF; RMET; FET
Miranda, A.; Berenguer, C.; Baixaui, I.; Roselló, B.	Childhood language skills as predictors of social, adaptive and behavior outcomes of adolescents with autism spectrum disorder	2023	Research in autism spectrum disorders	103		102143	Journal article	Spain	Spanish	To investigate the impact of childhood language on functional outcomes of adolescents with ASD	Longitudinal	Time 1 (baseline): mean age = 8.56 (SD = 1.38). Follow up (five years after baseline): range 12 to 15 years.	52 (baseline) 45 (follow up)	92.3 % (baseline)	52 (baseline) 45 (follow up)	92.3 % (baseline)	Autism spectrum disorder	N/A	N/A	N/A	SSBS; VABS-II
Mok, P. L.; Pickles, A.; Durkin, K.; Conti-Ramsden, G.	Longitudinal trajectories of peer relations in children with specific language impairment	2014	Journal of Child Psychology & Psychiatry & Allied Disciplines	55	5	516-27	Journal article	UK	English	To investigate trajectories of peer relations over a 9-year period (from 7 to 16 years of age) in children with a history of SLI.	Longitudinal	Participants were aged between 6;6-7;9 years at original recruitment. Only participants who had peer measures for at least 3 of the 4 time points (ages 7, 8, 11 and 16) were included in this study.	171	75	171	75	Children with a history of specific language impairment	N/A	N/A	N/A	ADI-R; ADOS; SDQ
Nadig, A.; Vivanti, G.; Ozonoff, S.	Adaptation of object descriptions to a partner under increasing communicative demands: a comparison of children with and without autism	2009	Autism research : Official Journal of the International Society for Autism Research	2	6	334-47	Journal article	USA	English	To compare the object descriptions of school-age children with high-functioning autism (HFA) with those of a matched group of typically developing peers	Experimental	HFA group mean age: 11.3 (SD=1.4), range 9;6-14;6. TD group mean age: 10;8 (SD=1;10), range 8;6-14;0.	34	85.3	17	88.2	High-functioning autism	17	82.4	Typically developing	Experimental tasks; VABS; ADOS; SDQ
Nelson, Nickola Wolf; Planthe, Elena; Anderson, Michele; Applegate, E. Brooks	The Dimensionality of Language and Literacy in the School-Age Years	2022	Journal of Speech, Language and Hearing Research (Online)	65	7	2629-2647	Journal article	USA	English	To investigate the dimensionality of oral and written language in the school-age years	Cross sectional	Three age groups included. Younger (6;0-7;11): 27%. Middle (8;0-11;11): 40%. Older (12;0-18;11): 33%.	1500. 254 had language literacy disorder	47% (total) 58% (LLD)	1500. 254 had language literacy disorder	47% (total) 58% (LLD)	General population, but with a sample of language literacy disorder children	N/A	N/A	N/A	TILLS
Norbury, C.	Factors supporting idiom comprehension in children with communication disorders	2004	Journal of Speech Language and Hearing Research	47	5	1179-1193	Journal article	UK	English	To explore understanding of idioms in isolation and in context in children and adolescents with communication disorders.	Experimental	U group (n=29): mean age 11.86. PI group (n=6): mean age 11.22. ASL group (n=29): mean age 12.23. ASD group (n=29): mean age 11.75. (All children aged 8-15 years.)	132	Not reported	93	Not reported	Language Impaired (LI), Pragmatic Impaired (PI), Autism spectrum disorder + LI (ASL), Autistic Spectrum only (ASO).	39	Not reported	Typically developing	ASQ; CCC-2; ToM task; idiom task

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ax tools
Norbury, C. F.	The relationship between theory of mind and metaphor: Evidence from children with language impairment and autistic spectrum disorder	2005	British Journal of Developmental Psychology	23		383-399	Journal article	UK	English	To investigate the role of theory of mind and language ability in understanding metaphor.	Experimental	Language impaired group mean age 11.90 (SD=2.19). Autistic spectrum + LI group mean age 12.04 (SD=2.33). Autistic spectrum only group mean age 11.76 (SD=1.85). TD group mean age 10.83 (SD=1.84).	128	Not reported	94	Not reported	Children with communication impairments. Language-impaired (LI) n=28. Autistic spectrum plus language impairment (ASLI) n=31. Autistic spectrum only (ASO) n=29. Pragmatic difficulties without language impairment or autistic symptomatology n=6. (Final group only included in correlation analyses).	34	Not reported	Typically developing	ASQ; CCC-2; ToM task; metaphor task
O'Shea, A., Holmes, C. H., & Engelhardt, P. E.	A Parental Report Questionnaire for Language Abilities and Pragmatics in Children and Adolescents with Autism Spectrum Disorders	2023	Brain Sciences	13	2	196	Journal article	UK	English	To test and validate a parental-report questionnaire of language abilities and pragmatics, in children with ASD	Experimental	ASD group mean age = 10.36 (SD = 5.67). Non-ASD group mean age = 6.26 (SD = 3.96).	97	59.80%	70	67.10%	Autism spectrum disorder	27	40.70%	Non-ASD	LPQ; AQ
Oakley, B. F.; Tillmann, J.; Ahmad, J.; Crawley, D.; San Jose Caceres, A.; Hoh, R.; Charnan, T.; Baraschewski, T.; Bulteel, J.; Simonoff, E.; Murphy, D.; Loth, E.	How do core autism traits and associated symptoms relate to quality of life? Findings from the Longitudinal European Autism Project	2021	Autism	25	2	389-404	Journal article	UK, Netherlands, Germany, Italy	Multiple	To investigate how core autism traits and associated symptoms relate to subjective quality of life in autism	Cross sectional	ASD group mean age 12.82 (SD = 3.11). Non-ASD group mean age 13.08 (SD = 3.13). (66.5% of participants [n = 381] in the age range 6-17 years. Data for that group reported here.)	573	69.10%	344	71.20%	Autism spectrum disorder	229	65.90%	Non-ASD	SRS-2
Oakley, Bethany F.; Jones, Emily J.; Crawley, Daisy; Charnan, Tony; Bulteel, Jan; Tillmann, Julian; Murphy, Declan G.; Loth, Eva	Alexithymia in autism: Cross-sectional and longitudinal associations with social-communication difficulties, anxiety and depression symptoms	2022	Psychological Medicine	52	8	1458-1470	Journal article	UK, Netherlands, Germany, Italy	Multiple	To explore the role of alexithymia in explaining variability in social-communication difficulties in autism	Longitudinal	Baseline: ASD group median age 19.57 (IQR = 7.49). Non-ASD group median age 19.11 (IQR = 7.00)	337	67.40%	179	69.30%	Autism spectrum disorder	158	65.20%	Non-ASD	TAS-20; SRS-2
O'Connor, R. A. G.; van den Bedem, N.; Bijl-Hoogeweg, E. M. A.; Stockmann, L.; Rieffe, C.	Friendship quality among autistic and non-autistic (pre-) adolescents: Protective or risk factor for mental health?	2022	Autism	26	8	2041-2051	Journal article	Netherlands	Dutch	To investigate positive and negative friendship quality in autistic and non-autistic (pre-) adolescents	Cross sectional	Mean age (whole group) = 11.69 years (SD = 1.33)	306	57.80%	104	82.70%	Autism spectrum disorder	202	45%	Non-ASD	SRS; BFI
O'Hagan, Siobhan; Bond, Caroline	Autism, Anxiety and Enabling Access to Education	2020	N/A	N/A	N/A	N/A	Thesis	UK	English	To explore factors that have helped autistic girls re-engage in mainstream high school and maintain their attendance following a period of emotionally based school avoidance	Qualitative	Participants were aged 13, 14, and 15 years	3	0.00%	3	0.00%	Autism spectrum disorder	N/A	N/A	N/A	Interview
Orinstein, Alyssa; Suh, Joyce; Porter, Kaitlyn; Yee, Kaitlin; Tyson, Katherine; Troyb, Eva; Barton, Marianne; Elgisti, Inge-Marie; Stevens, Michael; Fein, Deborah	Social Function and Communication in Optimal Outcome Children and Adolescents with an Autism History on Structured Test Measure	2015	Journal of Autism & Developmental Disorders	45	8	2443-2463	Journal article	USA	English	To examine social and communication functioning in youth previously diagnosed with ASD, to determine whether children and adolescents with optimal outcomes exhibit subtle residual symptoms not apparent on summary scores.	Cross sectional	HFA group (n=44): mean age 13.9 (SD=2.7). OO group (n=34): mean age 12.8 (SD=3.5). TD group (n=34): mean age 13.9 (SD=2.6). Range 8.12-21.7 (all groups).	112	87.5	78	85.9	High-functioning autism (HFA) and optimal outcome (OO)	34	91.1	Typically developing	VABS; ADOS; TLC-E; CELF-4; FORS Interview; RMET; Faces Test; Faux-Pas Test; Comprehension Test; UO Test; CCC-2; SRS-2
Ozturk, Y.; Ozyurt, G.; Turan, S.; Tufan, A. E.; Akay, A. P.; Parke, E. M.; Becker, M. L.; Graves, S. J.; Bailly, A. R.; Paul, M. G.; Freeman, A. J.; Allen, D. N.	Emotion dysregulation and social communication problems but not ToM properties may predict obsessive-compulsive disorder symptom severity	2023	Nordic Journal of Psychiatry	77	8	778-787	Journal article	Turkey	Turkish	To investigate theory of mind abilities, social responsiveness, pragmatic language, and emotion regulation skills in children with obsessive-compulsive disorder compared them to healthy controls	Cross sectional	OCD group mean age = 14.52 (SD = 1.64). Control group mean age = 14.88 (SD = 1.59).	85	56.50%	42	57.10%	Obsessive-compulsive disorder	43	55.88	Healthy controls	K-SADS-PL; NEPSY-II; CCC-2; RMET; SST; RI; BASC-2
Pascoe, M. I.; Forbes, K.; de la Roche, L.; Derby, B.; Pasarello, L.; Anagnostou, E.; Nicolson, R.; Georgiades, S.; Kelley, E.	Social Cognition in Children With ADHD	2021	Journal of Attention Disorders	25	4	519-529	Journal article	USA	English	To investigate the relationship between social cognition and behavioral functioning in children with ADHD	Cross sectional	ADHD group mean age = 10.57 (SD = 2.09). TD group mean age = 10.07 (SD = 1.96).	50	68%	25	60%	Attention-deficit/hyperactivity disorder	25	76%	Typically developing	K-SADS-PL; NEPSY-II; CCC-2; RMET; SST; RI; BASC-2
Pascoe, M. I.; Forbes, K.; de la Roche, L.; Derby, B.; Pasarello, L.; Anagnostou, E.; Nicolson, R.; Georgiades, S.; Kelley, E.	Exploring the association between social skills struggles and social communication difficulties and depression in youth with autism spectrum disorder	2023	Autism research : Official Journal of the International Society for Autism Research	16	11	2160-2171	Journal article	Canada	English	To investigate whether there is an association between social functioning and depressive symptoms in autistic young people	Cross sectional	Mean age = 11.92 (SD = 4.32)	473	78.40%	473	78.40%	Autism spectrum disorder	N/A	N/A	N/A	ADOS; ADI-R; ABAS-II
Paul, R.; Orlovski, S. M.; Marcinko, H. C.; Volkmar, F.	Conversational behaviors in youth with high-functioning ASD and Asperger syndrome	2009	Journal of Autism & Developmental Disorders	39	1	115-25	Journal article	USA	English	To explore the conversational behaviours of adolescents with AS compared to both peers with TD and peers with ASD/PDD.	Cross sectional	AS group: mean age 14.8 (SD 2.7). ASD/PDD group: mean age 14.5 (SD 2.3). TD group: 14.9 (SD 3.2) Range: 12 to 18	55	87.3	29	89.7	Asperger's syndrome (n=15) and autism spectrum disorder/pervasive developmental disorder (n=14)	26	84.6	Typically developing	ADI-R; VABS; ADOS; PRS
Pender, R.; Fearon, P.; St Pourcain, B.; Heron, J.; Mandy, W.	Developmental trajectories of autistic social traits in the general population	2023	Psychological Medicine	53	3	814-822	Journal article	UK	English	To investigate the nature and clinical significance of autism trait chronogeneity in a general population sample	Longitudinal	Young people for whom applicable data (at least one recorded measurement of autistic social/communication traits at 7, 10, 13 and/or 16 years) were available	9,744	50.90%	9,744	50.90%	Autism spectrum disorder within the general population	N/A	N/A	N/A	SCDC; SDQ
Polyanskaya, Irina; Elgisti, Inge-Marie; Brauner, Torben; Blackburn, Patrick	Second-Order False Beliefs and Linguistic Recursion in Autism Spectrum Disorder	2022	Journal of Autism and Developmental Disorders	52	9	3991-4006	Journal article	Denmark	Danish	To investigate the role of recursive language and working memory in second-order false belief skills in children with autism	Cross sectional	ASD group mean age = 11.8 (SD = 2.5). NT group mean age = 8.4 (SD = 1.9).	103	77.70%	62	87.10%	Autism spectrum disorder	41	63.40%	Neurotypical	SRS; SOF8; RET
Poth, Lauren D.	Language and Communication Abilities in Adolescents with Fetal Alcohol Spectrum Disorders	2020	N/A	N/A	N/A	N/A	Thesis	USA	English	To explore the effects of prenatal alcohol exposure (PAE) on language and communication in adolescents with fetal alcohol spectrum disorders (FASD)	Cross sectional	PAE group mean age = 14.5 (SD = 1.71). Control group mean age = 14.6 (SD = 1.36).	60	50%	31	48.40%	Prenatal alcohol exposure (maternal intake of ≥ 4 drinks per occasion at least once per week, or >13 drinks per week)	29	51.70%	Minima/no PAE, with or without other clinical or behavioral concerns	CELF-5; CCC-2; S-FAVRES; SSIS
Qualls, C. D.; Lantz, J. M.; Pietrzyk, R. M.; Blood, G. W.; Hammer, C. S.	Methodological adaptations for investigating the perceptions of language-impaired adolescents regarding the relative importance of selected communication skills	2004	Journal of Communication Disorders	37	4	295-311	Journal article	USA	English	To examine the effects of context and familiarity on comprehension of 24 idioms in adolescents with language-based learning disabilities	Experimental	LBLD group: mean age 13.8. TD group: 13.3 years. (All participants in Grade 8.)	43	67.4	22	68.2	Language-based learning disabilities	21	66.7	Typically developing	KCT; TerraNova
Reed, V. A.; Brammall, H.	Comprehension of idioms in adolescents with language-based learning disabilities compared to their typically developing peers	2006	Clinical Linguistics & Phonetics	20	7-8	573-82	Journal article	Australia	English	To describe the processes undertaken to modify a research methodology (which obtained the opinions of adolescents about the relative importance of selected communication skills for their peer relationships) for use with language-impaired adolescents and pilot this tool	Cross sectional	Grades 9 and 10	12	Not reported	12	Not reported	Students with scores at least -1.25 SD on at least one composite receptive and one composite expressive language score on the CELF and/or the Test of Word Knowledge	N/A	N/A	N/A	Q-sort task
Reed, V. A.; Patchell, F. C.; Coggins, T. E.; Hand, L. S.	Informative-ness of the spoken narratives of younger and older adolescents with specific language impairment and their counterparts with normal language	2007	Clinical Linguistics & Phonetics	21	11-12	953-960	Journal article	Australia	English	To examine the informativeness of oral narratives produced by four groups of adolescents: younger adolescents with typical language, older adolescents with typical language, younger adolescents with SLI and older adolescents with SLI.	Cross sectional	Younger SLI group (n=18): mean age 13.2 (12.0 to 14.2). Younger TD group (n=18): mean age 13.2 (12.0 to 14.1). Older SLI group (n=12): mean age 15.9 (15.0 to 16.11). Older TD group (n=12): mean age 15.10 (14.11 to 16.9).	60	56.7	30	56.7	Specific language impairment	30	56.7	Typically developing	Narrative

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Reindal, Lise; Naerland, Terje; Weidie, Bernhard; Lydersen, Stian; Andreassen, Ole A.; Sund, Anne Mari	Structural and pragmatic language impairments in children evaluated for autism spectrum disorder (ASD)	2023	Journal of Autism and Developmental Disorders	53	2	701-719	Journal article	Norway	Norwegian	To investigate the relationship between structural language skills and pragmatic competence in children with autistic symptoms	Cross sectional	Mean age = 12.3 (SD = 3.3)	177	80.80%	148	83.20%	Autism spectrum disorder	29	82.80%	Neurodevelopmental disorder (ADHD, specific learning disorders, motor disorders)	SCQ; CCC-2; SRS
Reynolds, Vanessa L.	The Descriptions and Activities of Friendship in Adolescents with Autism Spectrum Disorders: Examining what Adolescents Say	2017	N/A	N/A	N/A	N/A	Thesis	USA	English	To investigate how adolescents with ASD experience and describe friendship, as well as the type and frequency of activities they engage in with these friends.	Qualitative	15-52 years (SD= .98)	34	76	34	76	Adolescents with a diagnosis of autism spectrum disorder	N/A	N/A	N/A	Semi-structured interview; ADOS; SRS
Ridley, E.; Ribby, D. M.; Leekam, S. R.	A cross-syndrome approach to the social phenotype of neurodevelopmental disorders: Focusing on social vulnerability and social interaction style	2020	Research in Developmental Disabilities	100		103604	Journal article	UK	English	To identify syndrome-specific differences in social vulnerability across neurodevelopmental disorder groups and explore its relationship with social interaction	Cross sectional	ASD group mean age = 127 months (SD = 28.4). Williams syndrome group mean age = 100 (SD = 36.3). ADHD group mean age = 126 (SD = 35.5). Fragile X syndrome mean age = 120 (SD = 43.7). TD group mean age = 107 (SD = 45.8).	262	59.20%	112	74.10%	Autism (n = 29); Williams Syndrome (n = 29); Attention-deficit/hyperactivity disorder (n = 36); Fragile X syndrome (n = 18).	150	48%	Neurotypical	Questionnaire (x2); SVQ
Rinaldo, E.; Perry, A.	Associations of age, anxiety, cognitive functioning, and social impairment with aggression in youth with autism	2023	Research in autism spectrum disorders	108		102246	Journal article	USA and Canada	English	To investigate how different aspects of social impairment are associated with aggressive behaviour in youth with autism using the SFARI database	Secondary analysis	Mean age = 8.74 (SD = 3.48)	1179	85.80%	1179	85.80%	Autism spectrum disorder	N/A	N/A	N/A	SRS
Robinson, Karen Josephine	The social well-being of children with specific language impairment	2012	N/A	N/A	N/A	N/A	Thesis	UK	English	To examine the social well-being of children with SLI during their transition from primary to secondary schooling.	Longitudinal	Participants were recruited at Time 1 (aged 10-11 years) and reassessed at Time 2, after transition from primary to secondary school. Chronological age in months Time 1: SLI group 131.54 (SD 3.13), TD group 133.74 (SD 3.54). SpLD group 136.33 (SD 3.64). Chronological age in months Time 2: SLI group 142.79 (SD 3.89), TD group 146.05 (SD 3.47), SpLD group N/A.	81	56.80%	35	65.70%	Children with receptive specific language impairment	46	TD group: 51.4%. SpLD group: 45.5%.	TD group (n=35) and SpLD (specific learning difficulties of observation; semi-dystonic type) group (n=11)	SPPC; study-specific questionnaire; learning difficulties of observation; semi-structured interview
Russell, Ginny; Golding, Jean; Norwich, Brahm; Emond, Alan; Ford, Tamsin; Steer, Colin	Social and behavioural outcomes in children diagnosed with autism spectrum disorders: A longitudinal cohort study	2012	Journal of Child Psychology and Psychiatry	53	7	735-744	Journal article	UK	English	To compare social and behavioural outcomes between children formally diagnosed with autism spectrum disorders (ASD) with those of children who displayed autistic traits at 3-4 years, but as teenagers remained undiagnosed	Longitudinal	Parent report measures were completed at 3, 6, 9, 11 and 13 years	213	Not reported	71	Not reported	Children formally diagnosed with autism spectrum disorder	142	Not reported	Children who displayed autistic traits at age 3-4, but without ASD diagnosis	SDQ; SCDC
Ryan, Christian; Coughlan, Maive; Maher, Jean; Vicario, Patricia; Garvey, Alison	Perceptions of friendship among girls with autism spectrum disorders	2021	European Journal of Special Needs Education	36	3	393-407	Journal article	Ireland	English	To examine the experiences of friendship from the perspective of girls with ASD	Qualitative	Mean age = 13.6	10	0	10	0	Autism spectrum disorder	N/A	N/A	N/A	Focus groups
Rynkiewicz, A.; Szura, M.; Bernacki, D.; Kozak, A.; Karowska, M.	Polish Adaptation of the Social Communication Questionnaire (SCQ) and Female Autism Phenotype: An Investigation of Potentially Sex-Biased Items in the Screening Assessment and Their Impact on Scores	2021	Brain Sciences	11	6	682	Journal article	Poland	Polish	To assess the potential gender bias in the Polish adaptation of the Social Communication Questionnaire	Experimental	Mean age females = 15.93 (SD = 11.09). Mean age males = 11.4 (SD = 5.85).	90	66.70%	90	66.70%	Autism spectrum disorder	N/A	N/A	N/A	SCQ
Sanger, D.; Moore-Brown, B. J.; Montgomery, J.; Rezac, C.; Keller, H.	Female incarcerated adolescents with language problems talk about their own communication behaviors and learning	2003	Journal of Communication Disorders	36	6	465-86	Journal article	USA	English	To explore communication behaviors of female adolescents with language impairments who are incarcerated in a correctional facility.	Qualitative	Mean=15.49 years (SD=1.46 years). Range: 13.6 to 17.7 years	13	0	13	0	Incarcerated females identified with language impairments i.e. performed more than 1.3 SD below the mean on the CELF-3 (mean=71.69, SD=8.28).	N/A	N/A	N/A	Interview; CASL
Sanger, Dixie; Moore-Brown, Barbara; Magnuson, Gina; Svoboda, Nicole	Prevalence of Language Problems among Adolescent Delinquents: A Closer Look	2001	Communication Disorders Quarterly	23	1	17-26	Journal article	USA	English	To determine the prevalence of language problems among incarcerated female adolescents residing in a correctional facility.	Cross sectional	Mean age 16.13 years (SD=1.33), range 13.5 and 18.4 years.	67	0	67	0	Incarcerated females (25 participants (37.3%) met eligibility criteria, and had received, special education services at some point during their education.)	N/A	N/A	N/A	CASL
Scancarella, Meghan	The comprehension of sarcasm in text messages by typically developing children and children with specific language impairment	2010	N/A	N/A	N/A	N/A	Thesis	USA	English	To examine the comprehension of sarcasm in both verbal utterances and text messages by children and adults with SLI and their typically developing peers.	Experimental	SLI/Li children group (n=10): mean age 12.8 (10.8-14.6). TD children group (n=16): mean age 12.4 (10.9-14.3). SLI adults group (n=5): mean age 23.4. TD adults group (n=7): mean age 23.2.	38	65.8	15	66.7	Specific language impairment/learning impaired	23	65.2	Typically developing	Sarcasm task
Scott, Selena	Social functioning in nonverbal learning disorder and high functioning autism: A pilot study	2017	N/A	N/A	N/A	N/A	Thesis	Canada	English	To investigate differences in social competence and pragmatic communication in children and adolescents in two groups (HFASD and NLD), and to provide preliminary information regarding establishing a differential diagnosis.	Experimental	NLD group: mean=12.8 (SD=2.4). HFASD group: mean=12.3 (SD=2.3). Range (all groups): 9-17 years.	22	81.8%	10	60%	Nonverbal learning disorder (NLD)	12	91.7%	High functioning ASD (HFASD)	ADOS-2; BASC-2; CCC-2; CSBQR
Shattuck, P. T.; Orsmond, G. I.; Wagner, M.; Cooper, B. P.	Participation in social activities among adolescents with an autism spectrum disorder	2011	PLoS ONE	6	11	e27176	Journal article	USA	English	To compare the prevalence of social activities between adolescents with ASD and adolescents with speech/language impairment, learning disability, and mental retardation using data from the National Longitudinal Transition Study	Secondary analysis	13-17 year olds	Not reported	Not reported	900	84.50%	Adolescents receiving special education services	Not reported	SLI group= 62.2%. LD group = 67.0%. MR group = 56.9%.	Speech-Language Impairment, Learning Disability, Mental Retardation	Interview
Silva, L. T. B., & Lourenço, G. F.	Analysis of Social Skills and Functional Characteristics of Adolescents with Cerebral Palsy	2022	Paideia	32		e3211	Journal article	Brazil	Brazilian Portuguese	To describe the communication and functional activities of adolescents with cerebral palsy in relation to social skills	Case study	Mean age = 14.8	15	66.70%	15	66.70%	Cerebral palsy	N/A	N/A	N/A	CFCs; PED-CAT
Simmons, E. S.; Paul, R.; Volkmar, F.	Assessing pragmatic language in autism spectrum disorder: The Yale in vivo pragmatic protocol	2014	Journal of Speech, Language, and Hearing Research	57	6	2162-2173	Journal article	USA	English	To investigate the psychometric properties of the YIPP in adolescents with ASD and TD	Experimental	Younger ASD group (n=47): mean age 10.69 (9-12 years). Younger TD group (n=26): mean age 11.16 (9-12 years). Older ASD group (n=30): mean age 15.22 (13-17 years). Older TD group (n=15): mean age 14.75 (13-17 years).	118	83.9	77	78	Autism spectrum disorder	41	87	Typically developing	YIPP; ADI-R; ADOS
Simsonoff, Emily; Kent, Rachel; Stringer, Dominic; Lord, Catherine; Briskman, Jackie; Lukito, Steve; Pickles, Andrew; Charman, Tony; Baird, Gillian	Trajectories in symptoms of autism and cognitive ability in autism from childhood to adult life: Findings from a longitudinal epidemiological cohort	2020	Journal of the American Academy of Child & Adolescent Psychiatry	59	12	1342-1352	Journal article	UK	English	To chart the trajectories of cognition and autism symptoms from childhood to early adulthood	Longitudinal	Time 1: 10-12 years. Time 2: 15-16 years. Time 3: 23 years.	158	83.50%	158	83.50%	Autism spectrum disorder	N/A	N/A	N/A	SRS
Smit, L.; Knoors, H.; Rabeling, Kees, I.; Verhoeven, L.; Visers, C.	Measuring Theory of Mind in Adolescents With Language and Communication Problems: An Ecological Perspective	2022	Frontiers in Psychology	13		761434	Journal article	Netherlands	Dutch	To investigate whether the ToMotion reflects a single construct and whether it is sensitive to the performance of different groups	Cross sectional	DLD group mean age = 15.7 (SD = 0.47). DHH group mean age = 15.5 (SD = 0.45). TD group mean age = 18.0 (SD = 0.29).	61	55.70%	27	59.30%	Developmental language disorder group (n = 13) and deaf or hard of hearing (DHH) group (n = 14)	34	52.90%	Typically developing	ToMotion

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Snow, P. C.; Powell, M. B.	Oral language competence, social skills and high-risk boys: what are juvenile offenders trying to tell us?	2008	Children & Society	22	1	16-28	Journal article	Australia	English	To examine the oral language abilities and social skills of male juvenile offenders.	Cross sectional	JJ group mean age: 15.8 years (SD=1.2). NO group mean age: 14.9 years (SD=1.1).	100	100	50	100	Juvenile offenders completing community-based orders	50	100	Non-offenders	TLC-E; narrative task; IAP-SF
Snow, P.; Powell, M.	Developmental language disorders and adolescent risk: A public health advocacy role for speech pathologists?	2004	International Journal of Speech-Language Pathology	6	4	221-229	Journal article	Australia	English	To examine the oral language skills of male juvenile offenders compared to non-offender peers on tests of language processing and production.	Cross sectional	JO group mean age 16.5 (SD=1.4), range 13 – 19 years. TD group mean age: 14.5 (SD= 1.1); range 13 – 19 years.	80	100	30	100	Juvenile offenders completing a community-based Juvenile Justice order (not previously identified as language-impaired)	50	100	Typically developing	TLC-E; narrative
Snowling, Margaret J.; Bishop, D.; Stothard, Susan E.; Chipchase, Barry; Kaplan, Carole	Psychosocial outcomes at 15 years of children with a preschool history of speech-language impairment	2006	Journal of Child Psychology and Psychiatry	47	8	759-765	Journal article	UK	English	To assess the psychosocial adjustment of young people with a history of speech-language impairment.	Cross sectional	15-16 years	119	79.8	70	84.3	Speech and/or language difficulties at 4 years, which persisted at 5.5 years (n=30). Low IQ (nonverbal IQ below 70, n=15). Speech and/or language difficulties at 4 years, which had resolved by 5.5 years (n=25).	49	73.5	Typically developing	ELMS; WORD
Sorensen, T.; Zane, E.; Feng, T.; Narayanan, S.; Grossman, R.	Cross-Modal Coordination of Face-Directed Gaze and Emotional Speech Production in School-Aged Children and Adolescents with ASD	2019	Scientific Reports	9	1	18301	Journal article	USA	English	To characterise the relation between speech production and facial expression in children with autism, and to establish how face-directed gaze modulates this	Experimental	ASD group mean age = 160 months (SD = 23). NT group mean age = 154 months (SD = 25).	35	80%	16	93.80%	Autism spectrum disorder	19	68.40%	Neurotypical	ADOS-2; SCQ; AQ; mimicry task
Spencer, Sarah; Clegg, Judy; Stackhouse, Joy	I don't come out with big words like other people': Interviewing adolescents as part of communication profiling	2010	Child Language Teaching and Therapy	26	2	144-162	Journal article	UK	English	To explore how interviews contribute to the assessment of adolescents' language and communication skills by presenting two case studies (Josh and Ellie).	Qualitative	15-years-old	2	50	2	50	Participants with previously undiagnosed language difficulties, who had not received SLP intervention	N/A	N/A	N/A	Interview; EERN; CELF-3
St Clair, M. C.; Pickles, A.; Durkin, K.; Conti-Ramsden, G.	A longitudinal study of behavioral, emotional and social difficulties in individuals with a history of specific language impairment (SLI)	2011	Journal of Communication Disorders	44	2	186-99	Journal article	UK	English	To investigate behavioral, emotional and social difficulties (BED) in individuals with SLI from childhood to adolescence.	Longitudinal	Assessments were conducted at ages 7 (n=234), 8 (n = 203), 11 (n = 167), and 16 (n = 103).	103 at age 16	75.6% at age 7 (not reported at age 16)	103 at age 16	75.6% at age 7 (not reported at age 16)	A random sample of all children attending Year 2 language units (which support children with primary language difficulties) across England.	N/A	N/A	N/A	SDQ
Stringer, Helen Barbara	Children and adolescents with emotional and behavioural disorders and speech and language impairment: incidence, nature and intervention	2004	N/A	N/A	N/A	N/A	Thesis	UK	English	To explore the incidence of language impairment in populations of children with behaviour difficulties.	Cross sectional	Study 1: mean age 11.6 (SD= 3.6). Study 3: mean age 16.9 (range 12-20 years).	Study 1: 129. Study 3: 11	Study 1: 58%. Study 3: 90.9%	Study 1: 129. Study 3: 11	Study 1: 58%. Study 3: 90.9%	Study 1: Half the cohort of a group of Year 7 students at one school. Study 3: Adolescents with sexually abusive behaviour.	Both studies: N/A	Both studies: N/A	Both studies: N/A	LIA; reading comprehension; TOPF; TOPS
Sturrock, Alexandra; Chilton, Helen; Foy, Katie; Freed, Jenny; Adams, Catherine	In their own words: The impact of subtle language and communication difficulties as described by autistic girls and boys without intellectual disability	2022	Autism	26	2	332-345	Journal article	UK	English	To explore how young people with ASD experience language and communication difficulties, and what impact this has on their daily lives	Qualitative	Mean age = 11.6 (SD= 1.50)	12	50%	12	50%	Autism spectrum disorder	N/A	N/A	N/A	Interview
Tierney, Siobhan	An exploration into gendered experiences in autism	2014	N/A	N/A	N/A	N/A	Thesis	UK	English	To explore whether adolescent females diagnosed with any autism spectrum condition (ASC) use masquerading strategies to fit in with peers.	Qualitative	Range 13-16 years (three were 13, one was 14, five were 15, and one was 16)	10	0	10	0	Females with a formal diagnosis of any autism spectrum condition	N/A	N/A	N/A	Semi-structured interview
van den Beldem, N. P.; Dockrell, J. E.; van Alphen, P. M.; Rieffe, C.	Emotional Competence Mediates the Relationship between Communication Problems and Reactive Externalizing Problems in Children with and without Developmental Language Disorder: A Longitudinal Study	2020	International journal of environmental research and public health	17	16	6008	Journal article	Netherlands	Dutch	To examine the development of reactive and proactive externalising problems in children with and without DLD	Longitudinal	DLD group mean age = 11.5 (SD = 1.1). Without-DLD group mean age = 11.6 (SD = 1.4).	254	45.30%	98	48.00%	Developmental language disorder	156	43.60%	Without DLD	CCC-2; CAM; EmQue
Van Vreckem, Christel; Desoete, Annelies; Simons, Delfine; Van de Vyver, Aveline; Pauwels, Jans; Van Laethem, Charlotte; Van Lierde, Kristiane	Vocabulary Diversity in Personal Narratives Produced in Response to the Global TALEs Protocol in Dutch-Speaking Students with and without Dyslexia	2023	Folia Phoniatrica et Logopaedica	75	6	470-479	Journal article	Belgium	Dutch	To examine whether the Global TALEs personal narrative protocol elicits differences in expressive vocabulary between participants with and without dyslexia	Cross sectional	Mean age (whole group) = 13.23 years (SD = 1.22)	44	36.40%	Not reported	Not reported	Dyslexia	Not reported	Not reported	Non-dyslexia	TBLSO
Wadman, R.; Durkin, K.; Conti-Ramsden, G.	Social stress in young people with specific language impairment	2011	Journal of Adolescence	34	3	421-31	Journal article	UK	English	To examine the social stress experienced by individuals with SLI in adolescence compared to peers	Cross sectional	SLI group mean age: 13.10, range 11.3–15.6. TD group mean age: 14.0, range 11.5–15.1.	56	60.7	28	60.7	71% (n=20) of the sample met criteria for specific language impairment. 25% (n=7) had non-SLI. One participant had an expressive language score of 83 (ie = 150, not -1.25SD from the mean). All are referred to as the SLI group.	28	60.7	Typically developing	TISS; SPPIA
Wadman, Ruth Elizabeth	Socioemotional functioning in adolescents with specific language impairment (sl)	2008	N/A	N/A	N/A	N/A	Thesis	UK	English	To examine aspects of socioemotional functioning in adolescents with SLI	Cross sectional	Study 1: SLI group mean age 13.10, range 11.3 to 15.6. SLI group mean age 14.0, range 11.5 to 15.1. Study 2: SLI group mean age 17.1, range 16-17. TD group mean age 16.10, range 16-17. Study 3: SLI group mean age 15.3, range 15.2 to 16.9. TD group mean age 15.11, range 15.2 to 16.7.	Study 1: 56. Study 2: 108. Study 3: 238.	Study 1: 60.7%. Study 2: 70.4%. Study 3: 68.5%.	Study 1: 28. Study 2: 54. Study 3: 120	Study 1: 60.7%. Study 2: 70.4%. Study 3: 72.5%.	Study 1 and 2: adolescents with specific language impairment. Study 3: Adolescents with a history of SLI.	Study 1: 28. Study 2: 54. Study 3: 118	Study 1: 60.7%. Study 2: 70.4%. Study 3: 64%.	All studies: Typically developing	TISS; SPPIA; RSST; IPR; CBSS; SDQ; study-specific questionnaire
Wallace, Gregory; Dudley, Katherine; Anthony, Laura; Pugliese, Cars; Orionzi, Bako; Clasen, Liv; Lee, Nancy; Giedd, Jay; Martin, Alex; Razanahar, Armin; Kenworthy, Lauren	Divergence of Age-Related Differences in Social-Communication: Improvements for Typically Developing Youth but Declines for Youth with Autism Spectrum Disorder	2017	Journal of Autism & Developmental Disorders	47	2	472-479	Journal article	USA	English	To compare the age-related differences in social-communication between youth with ASD and same-age typically developing peers.	Cross sectional	ASD group mean age: 12.04 (SD=4.39). TD group mean age: 13.72 (SD=5.28). Range 4–29 years.	762	63.4	324	82.7	Children, adolescents, and young adults diagnosed with autism spectrum disorder (without intellectual disability)	438	49.1	Typically developing	SRS-2; ADI-R; ADOS
Wellnitz, Sophia A.; Kastel, Isabella; Vilasaliu, Leonora; Cholemkery, Hanaiah; Freitag, Christine M.; Bast, Nico	The Revised Children's Communication Checklist-2 (CCC-R): Factor structure and psychometric evaluation	2021	Autism research	14	4	759-772	Journal article	Germany	German	To develop a revised version of the CCC-2 in a German-speaking sample	Experimental	ASD group mean age = 12.2 (SD = 4.0). ID group mean age = 11.5 (SD = 4.0). Mental health conditions group mean age = 11.8 (SD = 3.5). TD group mean age = 10.5 (SD = 4.0).	839	56.90%	422	64.90%	Autism spectrum disorder (n = 195), intellectual disability (n = 83), mental health conditions (n = 144)	417	48.70%	Typically developing	ADOS; ADI-R; CCC-2; SRS; SCQ
Wetherell, D. L. R.	The Narrative abilities of adolescents with and without Specific Language Impairment	2006	N/A	N/A	N/A	N/A	Thesis	UK	English	To explore the narrative abilities (Productivity, Syntactic complexity, Cohesion, Informativity, and Performance) of two groups of adolescents: those with SLI and typically developing peers.	Experimental	SLI group: mean age 14.3 (13.3 to 15.3). TD group: mean age 14.5 (13.1 to 15.9)	118	44.1	19	73.7	Specific language impairment	99	38.4	Typically developing	Narrative tasks

Author(s)	Title	Publication year	Journal	Volume	Issue	Pages	Document type	Country	Language spoken	Purpose of study	Study design	Participant ages (mean; range)	Total sample size	Gender (% male) - total sample	Clinical sample size	Gender (% male) - clinical sample	Clinical sample population	Comparison/control sample size	Gender (% male) - comparison/control sample	Comparison/control population	Ass tools
Wetherell, D.; Botting, N.; Conti-Ramsden, G.	Narrative in adolescent specific language impairment (SLI): a comparison with peers across two different narrative genres	2007	International Journal of Language & Communication Disorders	42	5	583-605	Journal article	UK	English	To explore the narrative abilities (Productivity, Syntactic complexity, Syntactic errors, and Performance) of two groups of adolescents: those with SLI and typically developing peers.	Experimental	SLI group: mean age 14.3 (13.3 to 15.3)TD group: mean age 14.5(13.1 to 15.9)	118	44.1	19	73.7	Specific language impairment	99	38.4	Typically developing	Narrative tasks
Wetherell, Danielle; Botting, Nicola; Conti-Ramsden, Gina	Narrative skills in adolescents with a history of SLI in relation to non-verbal IQ scores	2007	Child Language Teaching and Therapy	23	1	95-113	Journal article	UK	English	To explore the narrative abilities (Productivity, Syntactic complexity, Syntactic errors, and Performance) of two groups of adolescents with a history of SLI: those with normal range NVIQ and those with low NVIQ.	Experimental	Normal IQ group: mean age 171.8 (SD=8.7) months. Low IQ group: mean age 171.4 (SD=6.7) months.	19	73.7	11	72.7	Specific language impairment and non-verbal IQ of >= 85	8	75	SLI and non-verbal IQ of < 85	Narrative tasks
Yeates, K. O.; Swift, E.; Taylor, N. G.; Wade, S. L.; Drotar, D.; Slancin, T.; Minich, N.	Short- and long-term social outcomes following pediatric traumatic brain injury	2004	Journal of the International Neuropsychological Society	10	3	412-426	Journal article	USA	English	To examine the social outcomes of pediatric traumatic brain injury approximately 4-10 years post injury in a prospective cohort, longitudinal study.	Longitudinal	(Ages at time of extended follow up provided.) Severe TBI group: mean=13.7 (SD=2.2). Moderate TBI group: mean=13.7 (SD=1.7). OI group: mean=13.5 (SD=1.8).	189	67.2%	109	73.4%	Moderate traumatic brain injury (n=56). Severe traumatic brain injury (n=53)	80	58.8%	Orthopedic injury (OI)	CBCL; VABS; TLC-E; INS
Zaidman-Zait, A.; Moot, T.	Pragmatics and Peer Relationships Among Deaf, Hard of Hearing, and Hearing Adolescents	2020	Pediatrics	146	Suppl 3	5298-5303	Journal article	Israel	Hebrew	To examine differences in pragmatic abilities and peer relationships among deaf and hard of hearing (DHH) adolescents compared to hearing peers	Cross sectional	DHH group mean age = 14.83 (SD = 1.12). TH group mean age = 14.86 (SD = 1.18).	67	55%	33	57%	Deaf and hard of hearing	34	53%	Typical hearing	SDQ; CCC-2; CLU; MMBQ
Zajic, Matthew C.; Solari, Emily J.; Grimm, Ryan P.; McInyre, Nancy S.; Mundy, Peter C.	Relationships between reading profiles and narrative writing abilities in school-age children with autism spectrum disorder	2020	Reading and Writing	33	6	1531-1556	Journal article	USA	English	To examine the relationships between reading profiles and narrative writing abilities in children with autism	Cross sectional	Range = 10-18 years	64	83%	64	83%	Autism spectrum disorder	N/A	N/A	N/A	ADOS-2; TAPS-3; WRAML2; GORT-5; TOWL-4
Zwerlein, Joanna; Heilmann, John J.	Using a database of typical speakers to describe the expository language skills of children with language impairment	2016	N/A	N/A	N/A	N/A	Thesis	USA	English	To compare the expository discourse skills of students with language impairment (LI) to a database of typically developing (TD) students, and develop profiles of strengths and weaknesses in children with LI.	Case study	Mean age 16.8 (14:11 to 18:6)	9	33.3	9	33.3	Language impairment	N/A	N/A	N/A	Expository task

Supplemental Material S8. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1 (Title)
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1 (Abstract)
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4 (Purpose of the Scoping Review)
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4 (Stage 1: Identifying the Research Question)
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	N/A
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5 (Stage 3: Study (Selection))
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4–5 (Stage 2: Identifying Relevant Studies)
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	N/A
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5 (Stage 3: Study (Selection))
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	5–6 (Stage 4: Charting the Data)
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	5–6 (Stage 4: Charting the Data)

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5–6 (Stage 4: Charting the Data)
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6 (Figure 1)
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	7 (Study Characteristics)
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Supplementary Materials
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	7–10 (Research Questions 1-4)
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	10–11 (Discussion)
Limitations	20	Discuss the limitations of the scoping review process.	12-13 (Limitations of the Current Review)
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	13 (Conclusion)
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	1 (Funding)

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

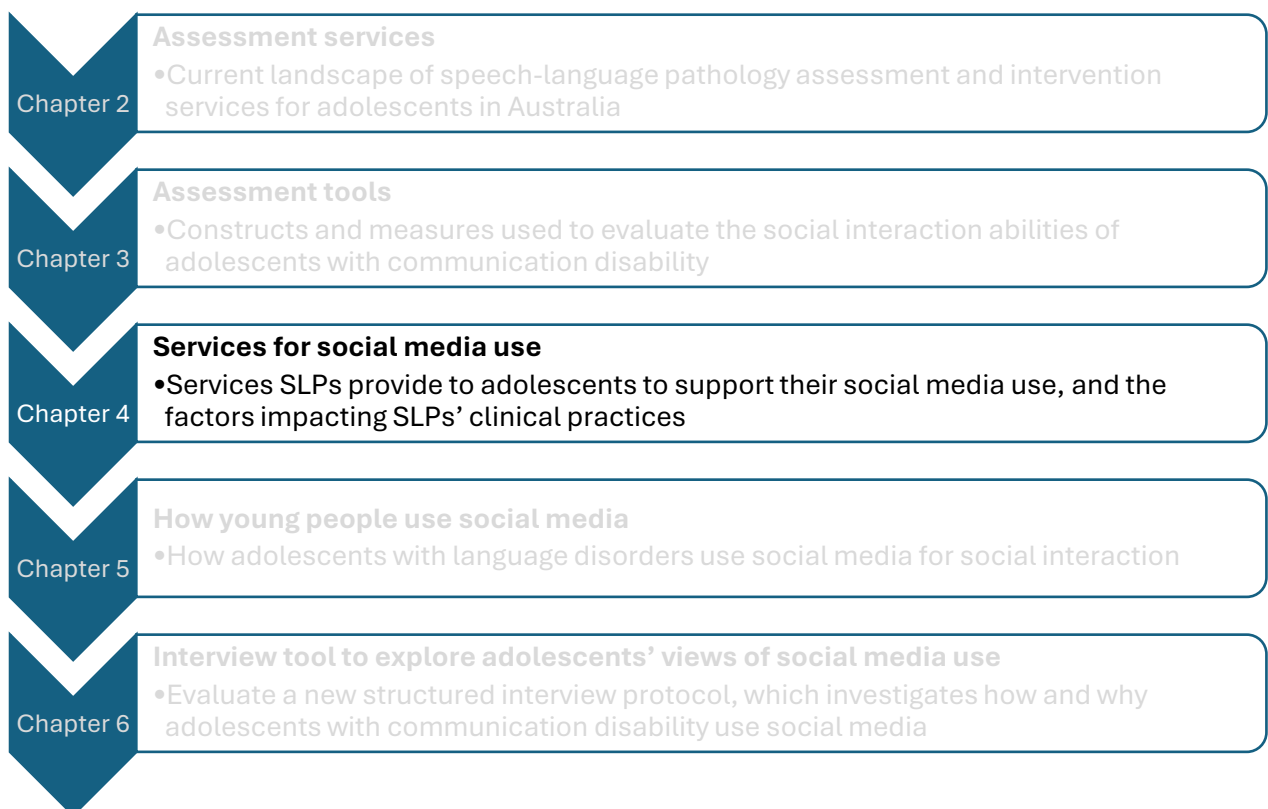
Supplemental material, Shelton et al., "Assessment of the Social Interaction Abilities of Adolescents With Communication Disability: A Scoping Review," *LSHSS*, https://doi.org/10.1044/2025_LSHSS-24-00081

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. [doi: 10.7326/M18-0850](https://doi.org/10.7326/M18-0850).



Chapter 4 (Paper 3)

SLPs' Assessment and Intervention Practices for Young People's Use of Social Media



This chapter presents a mixed methods investigation into the professional practices of SLPs in supporting young people with communication disability to engage with social media. As digital platforms become increasingly central to how young people communicate, social media has emerged as a vital context for the social interactions of this population, with implications for young people's social participation. Yet, the role of SLPs in facilitating equitable access to digital spaces for young people with communication disability remains critically underexplored. This study addressed a significant gap in the literature by examining not only the extent to which SLPs incorporate social media into their clinical practice, but also the factors that influence these decisions. In doing so, the groundwork is laid for future development of professional guidelines and the need to include the voices of young people with communication disability in efforts to advance digital inclusion is amplified.

The paper presented in this chapter has been published as:

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Author Attribution Statement

As co-author of the above paper and primary supervisor, I confirm that Nichola Shelton made the following contributions, in collaboration with co-authors:

- Conceptualisation
- Formal analysis
- Investigation
- Methodology

- Project administration
- Resources
- Visualisation
- Writing – original draft
- Writing – review & editing

Name: Melanie Keep

Date: 28/11/2025



RESEARCH REPORT

Do speech–language therapists support young people with communication disability to use social media? A mixed methods study of professional practices

Nichola Shelton¹ | Natalie Munro¹ | Melanie Keep¹ | Julia Starling¹ |
Lyn Tieu²

¹Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia

²Faculty of Arts and Science, University of Toronto, Toronto, ON, Canada

Correspondence

Nichola Shelton, Level 6, Susan Wakil Health Building, D18 Western Avenue, The University of Sydney, Camperdown, NSW 2006, Australia.
Email: Nichola.Shelton@sydney.edu.au

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Abstract

Background: Social media is increasingly used by young people, including those with communication disability. To date, though, little is known about how speech–language therapists (SLTs) support the social media use of young people with communication disability.

Aims: To explore what services SLTs provide to facilitate the social media use of young people with communication disability, including what these services look like, and the factors that impact SLTs' professional practices.

Methods & Procedures: A sequential mixed methods approach was employed including an online survey and in-depth semi-structured interviews. Participants were qualified practising SLTs in Australia with a caseload that included clients aged 12–16 years. Quantitative data were analysed with SPSS. A thematic analysis of qualitative data was conducted with NVivo.

Outcomes & Results: Survey responses from 61 SLTs were analysed. Interviews were conducted with 16 participants. Survey data indicated that SLTs do not systematically assess or treat young people's use of social media as part of their professional practice. Interview data revealed that where SLTs do support young people's use of social media, they transfer knowledge and practices typically used in offline contexts to underpin their work supporting clients' use of social media. In terms of factors that affect SLTs' practices, three major themes were identified: client/family factors, SLT factors, and societal factors.

Conclusions & Implications: While young people with communication disability may desire digital participation in social media spaces, SLTs' current professional practices do not routinely address this need. Professional practice guidelines would support SLTs' practices in this area. Future research should seek the opinions of young people with communication disability regarding their use of social media, and the role of SLTs in facilitating this.

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**KEYWORDS**

social media, adolescents, communication disability, mixed methods, professional practice

WHAT THIS PAPER ADDS*What is already known on the subject*

Young people with communication disability use social media, but digital inequality means that they may not do so to the same extent as their typically developing peers. Services targeting a young person's social media use is within the SLT scope of practice. Whether or not SLTs routinely address the social media use of young people with communication disability as part of their professional practice is unknown.

What this study adds to existing knowledge

This study found that SLTs in Australia do not systematically provide professional services targeting young people's use of social media. When services do address a young person's use of social media, knowledge and practices typically used by SLTs in offline contexts are adapted to support their work targeting online social media contexts.

What are the potential or actual clinical implications of this work?

This study indicates that SLTs should consider a range of factors when deciding whether to address a young person's social media use. Adapting existing offline professional practices to online environments could support SLTs' work in providing services targeting social media use. Professional practice guidelines would support SLTs' work facilitating the social media use of young people with communication disability.

BACKGROUND

The social environments in which adolescents are growing up are more networked than ever before, with the role of social media increasing (Sawyer et al., 2018). Due to the rapidly changing social media landscape, there is no commonly accepted definition of what constitutes social media (Aichner et al., 2021). However, since 2010, definitions typically share commonalities of connecting people, and creating and sharing user-generated content (Aichner et al., 2021). For the purposes of this paper, social media are digital technologies, typically websites and applications, that allow many-to-many communication amongst individuals, communities, and organizations to create, share and engage with user-generated content, or to participate in social networking (Barreto & Whitehair, 2017; Matassi & Boczkowski, 2021; McCay-Peet & Quan-Haase, 2018).

Young people's use of social media

Social media are a way of living for young people, with multiple sites/apps used multiple times a day, and viewed as a 'right' that is essential for wellbeing—for both connec-

tion and communication reasons (Goodyear et al., 2018). In 2021, 84% of 13- to 18-year-olds reported using social media, and spent an average of 87 min per day doing so (Rideout et al., 2022). The most common reason young people use social media is to communicate with others, as well as to share or comment on other people's photos, updates, and videos (Gray, 2018). This way of interacting with social media may explain why 81% of teens say social media makes them feel more connected to what is going on in their friends' lives (Pew Research Center, 2018). For young people, online communication may fulfil the critical needs of social interaction, self-disclosure, and identity exploration, particularly for those who experience feelings of loneliness and/or social anxiety (Bonetti et al., 2010). Accordingly, social media affords young people the opportunity to form meaningful relationships that help them to navigate the physical, emotional, and social challenges presented by adolescence (Third & Richardson, 2009). In particular, young people with a disability or vulnerable young people, such as survivors of sexual assault and/or abuse or those in out-of-home care, may use social media to enhance their sense of self and belonging (Swist et al., 2015).



Contemporary contexts of communication for young people with communication disability

Communication disability can be understood as difficulties receiving and producing communicative messages in a home language(s) due to difficulties with speech, language, voice, stuttering, hearing, and/or social interaction (McLeod, 2018), with the interaction between a person's impairments and personal and environmental contextual factors resulting in limitations on a person's activities and/or their participation (Threats, 2008). Young people with communication disability can be socially motivated to seek interpersonal relationships with others, including friendships, even if they are less skilled at such contact compared with typically developing peers (Durkin & Conti-Ramsden, 2007; Wadman et al., 2008). More widely, young people with disabilities, particularly those who experience difficulties with social situations or peer relationships, such as those with a diagnosis of autism spectrum disorder, may find technology a less threatening way to interact with others (Schimmel-Bristow & Ahrens, 2018). Durkin et al. (2010) argued that 17-year-olds with a history of language disorder were less shy online compared with when they were offline, and that computer-mediated communication may make less stringent demands on a young person's language skills. Hence this mode of interaction presents young people with language difficulties with a context within which they can positively adapt to the situation's communicative demands. The majority of young people with disabilities in one study strongly expressed wanting to learn more about using social media to connect or communicate with others, but reported significant barriers to doing so, including low literacy skills (Raghavendra et al., 2015). Speech-language therapists (SLTs) may facilitate the social media use of young people with communication disability for communication and connection, but the extent to which they do has not been systematically investigated.

Young people with communication disability may experience digital inequality

Digital inequality means that many people with disabilities do not use the Internet to the same extent as other groups (Dobransky & Hargittai, 2006). The digital exclusion of people with disabilities is an important social issue, with implications for identity, social participation, and community and civic engagement (Chadwick & Wesson, 2016). For people with communication disability, particularly language difficulties, accessing opportunities for online participation may be particularly difficult. This is

because actively using technology to communicate with peers, among other online activities, necessitates particular skills such as digital literacy (Alvermann, 2004). Further, evidence from other health disciplines suggests that social media-based interventions targeted at adolescents are being used to tackle both physical and mental health concerns (for examples, see Hsu et al., 2018; O'Reilly et al., 2019; Scalzi et al., 2018). For young people, particularly those with communication disability, being able to engage with social media may be important both in terms of social participation and, more broadly, to support their wellbeing. Accordingly, SLTs may have a role to play in ensuring that their clients are able to engage with these digital technologies. However, whether SLTs assess and/or provide interventions that support the learning of skills to support digital participation is unknown.

SLTs' professional practices regarding young people's use of social media

While evidence exists that young people with communication disability use social media (e.g., Bedell et al., 2017; Grace & Raghavendra, 2018), there is limited information on how these young people are supported to use social media by SLTs. In addition to the paucity of research on the assessment and intervention practices of SLTs regarding how they support a young person to use social media, there is no information on the views of SLTs regarding the use of social media by young people with communication disability. Rehabilitation professionals, including SLTs, who work with adults with traumatic brain injury (TBI) have suggested that there are potential benefits for supporting people with TBI to meaningfully engage in using social media (Brunner et al., 2021b), including reduced social isolation and increased connections to online communities. But they also identify risks such as vulnerability, exploitation, and reputation management (Brunner et al., 2021b). While people with communication disability need and want to use social media (Brunner et al., 2022a), the extent to which SLTs' professional practices support the efforts of young people to engage in online communication is unknown.

Why SLTs?

Economic, cultural, and social capitals together impact both barriers and facilitators for young people to participate in social media (Sandford & Quarmby, 2019). SLTs are well placed to address some barriers afforded by lack of cultural and social capitals, such as language and literacy difficulties and knowing how to converse and socialize,

as well as to suggest assistive technologies (e.g., speech-to-text; Newman et al., 2017). SLTs' professional practices can support the competency of people with communication disability to use social media, and promote their networking by sharing the posts and profiles of those with lived experience of communication disability with clients with a similar disability (Brunner et al., 2022a). Further, professional practices targeting clients' social media use is within the SLT scope of practice, which includes language, literacy, pragmatics, and social skills (American Speech–Language–Hearing Association, 2016; Speech Pathology Australia, 2022).

AIMS

For adolescents with communication disability, social interaction broadly may present both challenges and a source of support (Forrest et al., 2021). However, little is known as to how SLTs support the social interactions, particularly via social media, of young people at this stage of development. This study aimed to answer the following research questions:

- What services do SLTs provide that support young people's online communication interactions, specifically with respect to social media use?
- What are the professional practices of SLTs concerning young people's use of social media?
- What factors affect SLTs' practices around young people's use of social media?

METHODS AND PROCEDURES

Methodology

This research employed a sequential mixed methods approach, first with a survey, followed by interviews with SLTs. In this way, the richer qualitative data provide context to the quantitative data to enable exploration of the different aspects of the research questions (Tariq & Woodman, 2013). We investigated SLT assessment and management practices for young people with communication disabilities as part of the first author's PhD studies.

Participants

To be eligible to complete both the survey and interviews, respondents needed to be a qualified practising SLT in Australia and have a caseload that included clients aged 12–16 years. Respondents were recruited through social

media (Twitter and Facebook) and newsletter announcements (via Speech Pathology Australia). Survey respondents were also recruited via the Children's Healthcare Network Allied to Kids (A2K) website. For the survey and interviews, a convenience sample of respondents was sought (i.e., readily available respondents self-selected to complete the survey), and no incentives were offered. In addition, interviews used purposive sampling (i.e., we approached some information-rich participants with specific characteristics, such as offering a particular type of service delivery, and invited them to take part). Participants need not have completed the survey to be interviewed. The survey results presented below relate to a subsection of the survey (see section Materials employed). To complete the subsection, respondents were required to have a caseload that included 12- to 14-year-olds; an additional question ("Do you have a clinical caseload that includes working with young people aged 12–14 years?") established respondents' eligibility to participate.

Materials employed

An anonymous online survey, hosted on Qualtrics (www.qualtrics.com) and consisting of 55–70 questions, was designed to obtain information about the assessment and intervention practices of SLTs working with young people. The survey was open from March to July 2019. The survey comprised 12 sections in total. Nine sections covered consent, eligibility, demographics, caseload, SLT role, assessment tools and practices, and intervention tools and practices with 12- to 16-year-olds. The final three sections of the survey focused specifically on respondents' assessment and intervention practices with 12- to 14-year-olds. One section established SLTs' eligibility to complete these, while the final two focused on SLTs' assessment and therapy practices with this age group, including SLTs' practices with respect to this population's social media use. A detailed discussion of the questionnaire design, distribution and analysis can be found in Shelton et al. (2021), who reported on how SLT services for 12- to 16-year-olds differ across states/territories in Australia by drawing on the nine sections of the survey detailed above.

The decision to focus part of the survey on 12- to 14-year-olds was motivated by two factors. First, most social media platforms require that users be at least 13 years old. Second, data from the Australian Communications and Media Authority indicates that in 2020, 76% of 12- to 13-year-olds own the phone that they use, compared with 33% of 10- to 11-year-olds (Australian Communications and Media Authority, 2021). This suggests that turning 12 years, an age commonly associated with the transition to high school in Australia, may be marked



by young people being allowed to own their own mobile phone for the first time. However, the survey also included questions on assessment and intervention practices with 12- to 14-year-olds compared with those aged 15- to 16 years-old. Analysis of these data indicated no differences between these age groups in terms of SLTs' assessment and therapy practices. Therefore, the interviews again more broadly focused on young people aged 12- to 16-years-old.

In-depth semi-structured interviews using a topic guide were conducted by the first author either by phone or through videoconference technology (Zoom) between October 2019 and April 2020. Interview topics broadly covered SLTs' assessment and therapy practices with respect to young people with communication disability, and specifically questioned SLTs on their experiences of assessing and treating young people's use of social media. Interviews lasted between 45 and 70 min. Interviews were recorded, transcribed verbatim, and anonymised before data analysis. This mixed methods study was approved by The University of Sydney Human Research Ethics Committee (project number 2019/079).

Nature of the analyses performed

Survey data were analysed using IBM SPSS Statistics for Windows version 24.0 (IBM Corp, 2016). Data from respondents that met eligibility criteria were included in the data analysis, including respondents with an incomplete survey. To facilitate data analysis, responses to questions concerning assessment and therapy practices regarding social media use were collapsed from five categories into three: always/very often, sometimes, and rarely/never.

Interview data were subjected to a six-phase thematic analysis, which identified semantic themes through an inductive approach (Braun & Clarke, 2006), using NVivo Release 1.6 (QSR International Pty Ltd, 2020). Following coding of data, repeated discussions between N.S., N.M. and J.S. established consensus on the identified themes and subthemes. Table 1 details strategies applied to the qualitative study to document rigour. In the next section, we report survey and then interview results sequentially.

OUTCOMES AND RESULTS

In total, 101 people consented to complete the survey, and 96 met the eligibility criteria of being a qualified practising SLT in Australia with a caseload that included clients aged 12- to 16-years-old. Of the 63 people who answered the eligibility question to complete the subsection of the survey (focused on respondents' assessment and intervention practices with 12- to 14-year-olds), two participants (3.2%)

TABLE 1 Four criteria for data trustworthiness (Lincoln & Guba, 1985)

Criteria	Purpose	Strategies used in the qualitative study
Credibility	To establish confidence that the results are 'true' from the perspective of the participants.	<i>Interviewing process:</i> The interview protocol was tested via a pilot interview. Interview transcripts were shared with participants for their review.
Dependability	The extent to which the results are consistent and could be repeated if the enquiry were to be replicated in the same context with the same cohort of participants and coders.	<i>Audit trail:</i> The process and product of the research study are logical and traceable. Records of raw data, field notes, and transcripts have been kept and coding decisions are evidenced.
Confirmability	The extent to which the findings would be replicated/corroborated by other researchers as the results are not shaped by (conscious or unconscious) researcher bias, motivation, or interest.	<i>Reflexivity:</i> Regular investigators' meetings were held throughout the study design, data collection, and data analysis periods. This dialogue ensured both complementary and divergent understandings could be revealed and contested <i>Triangulation:</i> We applied methodological and investigator triangulation techniques.
Transferability	The extent to which the findings can be applied to other contexts and situations.	<i>Purposive sampling:</i> We selected some participants to best match the research design.

did not meet the eligibility criterion. Therefore, the survey results reported here are based on the responses of 61 respondents.

SLT is not a registered profession in Australia, and the number of SLTs working with young people is unknown. Accordingly, the representativeness of the sample cannot be calculated. A detailed breakdown of demographic characteristics is provided in Table 2.

In total, 15 interviews were conducted with 16 participants. One interview was conducted with two participants who shared a role and chose to be interviewed together. Three of the 16 participants were male; gender is not included in Table 3 to ensure participants' confidentiality.

Research question 1: What services do SLTs provide that support young people's online communication interactions, specifically with respect to social media use?

With regards to assessment, SLTs were surveyed on whether they ask 12- to 14-year-olds about their use of social media and whether they ask parents/carers about their young person's use of social media. SLTs were also asked whether the intervention goals of the 12- to 14-year-olds on their caseload targeted their use of social media. Figure 1 shows that SLTs are not routinely asking either young people or their parents/carers about a young person's social media use during assessments, which may explain why a majority (72.9%, $n = 43$) of SLTs rarely/never provide therapy targeting a young person's social media use.

Respondents were presented with statements about the ways in which SLTs support 12- to 14-year-olds and were asked to indicate their agreement/disagreement with each one. Figure 2 identifies that just 5.2% ($n = 3$) of respondents agreed with the statement that 12- to 14-year-olds receive adequate support from SLTs to access social media. This contrasts with 60.3% ($n = 35$) of respondents who disagreed. However, it should be noted that 28.1% ($n = 16$) of respondents agreed that SLTs provide adequate services to young people to enable them to develop their social networks, while 40.4% ($n = 23$) disagreed with this statement. As the term "social networks" was not further specified in that statement, it remains unclear whether SLTs interpreted this to mean on- or off-line.

Research question 2: What are the professional practices of SLTs concerning young people's use of social media?

Qualitative analysis of the semi-structured interview transcripts identified three major themes concerning SLTs'

professional practices: (1) assessment of technology use, (2) treatment using technology, and (3) adaptability.

Assessment of technology use

Participants described their assessment practices regarding a young person's use of technology as typically being client-centred and reliant on informal interviews with either the young person themselves or their parent for data collection: "[W]ell in terms of recognising it as a problem usually comes from the verbal information from the parents or the kid themselves" (CPI-14). Two aspects of how their clients functioned in a social media context were outlined: How well young people can use technology to gather information, and how well they were able to develop social connections with it.

Treatment using technology

SLTs described goals/intervention targeting social media as client-centred, and social media being a means by which young people could maintain relationships with others. A range of platforms were discussed by SLTs, including websites and applications (such as Facebook, Instagram, YouTube, Snapchat, TikTok, and WhatsApp). Participants described teaching the uses and potential impact of social media (e.g., to maintain relationships, being aware of the public nature of posts) as well as content and conventions around use (e.g., length of posts, how frequently to post):

I have worked with some kids, probably three kids, ... on how to do a Facebook post. That's actually been a goal ... what they can do to, to pre-write and to edit their posts and that sort of thing. ... we're always simulating what it is. So for example with the Facebook erm posts I did, what we did is we looked at some examples of how people were Facebook posting. (CPI-12)

More broadly, SLTs discussed how using technology can act in a compensatory manner to support their client's functioning in their everyday lives, for example, using a calendar for scheduling, or emailing a teacher for clarification on classroom tasks. However, a small number of participants also commented on how social media specifically could be used strategically to compensate for a young person's communication difficulties: "Others are using social media to compensate for their difficulties. So particularly Snapchat a couple of years ago, there was a



TABLE 2 Demographic data of survey respondents

Demographic	n	(%)
<i>Gender (n = 61)</i>		
Female	60	98.4%
Male	1	1.6%
<i>Australian State/territory of practice (n = 61)</i>		
Australian Capital Territory	2	3.3%
New South Wales	28	45.9%
Northern Territory	0	0.0%
Queensland	11	18.0%
South Australia	2	3.3%
Tasmania	2	3.3%
Victoria	9	14.8%
Western Australia	7	11.5%
<i>Main agency through which SLT services are provided (n = 61)</i>		
Local health district (community health)	5	8.2%
Hospital (public)	2	3.3%
Department of Education (public/government school)	9	14.8%
Catholic education	3	4.9%
Other non-government school	0	0.0%
Private practice (clinic setting, mobile or contract service to early childhood education and care settings or schools)	32	52.5%
University clinic	1	1.6%
Non-government organisation	6	9.8%
Other (Please specify)	3	4.9%
<i>Main agency through which SLT services are provided (n = 61)</i>		
Government service	18	29.5%
Non-government service	11	18.0%
Private practice	32	52.5%



TABLE 3 Demographic data of interview participants

Code	Employer	State	Number of years practising	Type of service delivery
CPI-01	Private practice	NSW	>26	Direct
CPI-02	Private practice	WA	>26	Direct
CPI-03	Non-government service	NSW	5–9	Direct
CPI-04	Government service	NSW	5–9	Direct
CPI-05	Non-government service	NSW	16–20	Direct
CPI-06	Government service	NSW	21–25	Direct
CPI-07	Government service	SA	16–20	Indirect
CPI-08	Private practice	VIC	21–25	Direct
CPI-09	Government service	SA	16–20	Indirect
CPI-10	Government service	SA	>26	Indirect
CPI-11	Government service	QLD	10–15	Direct
CPI-12	Private practice	NSW	5–9	Direct
CPI-13	Private practice	QLD	10–15	Direct
CPI-14	Private practice	ACT	5–9	Direct
CPI-15	Private practice	NSW	10–15	Direct
CPI-16	Private practice	NSW	10–15	Direct

Note: State: New South Wales (NSW), Western Australia (WA), South Australia (SA), Victoria (VIC), Queensland (QLD), and Australian Capital Territory (ACT).

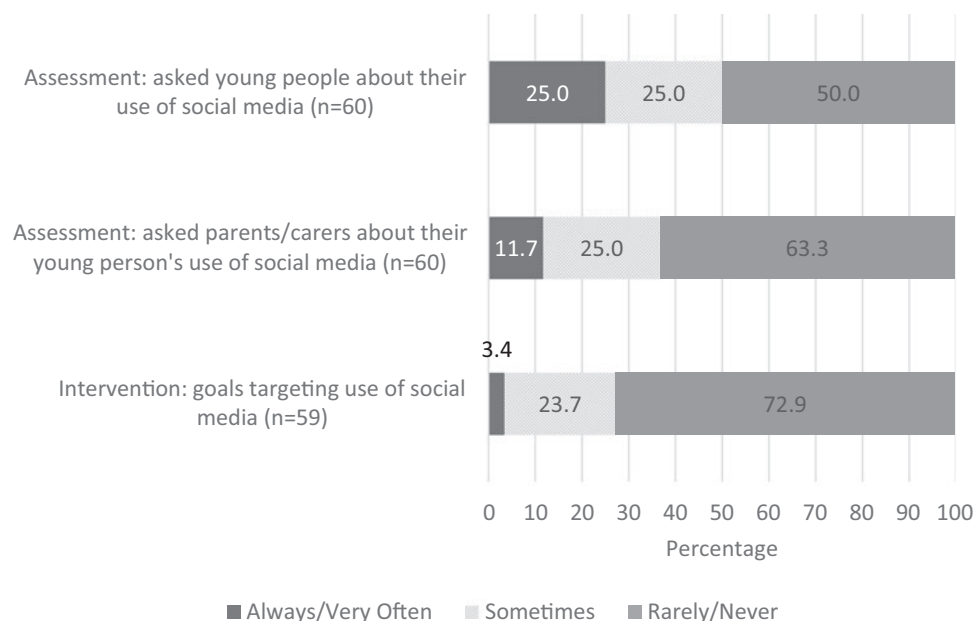


FIGURE 1 SLTs' assessment and intervention practices with 12- to 14-year-olds regarding young people's social media use

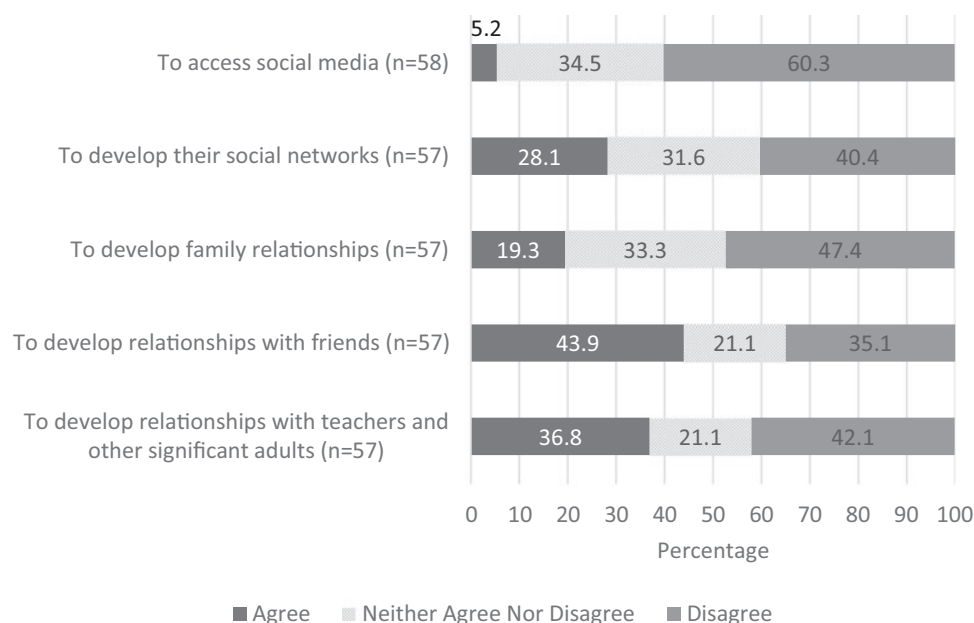


FIGURE 2 SLTs' dis/agreement with statements about the ways in which 12- to 14-year-olds are supported by SLTs

disproportionate number of clients with significant language disorders using it because it's video based" (CPI-12).

Adaptability

Responses indicated that SLTs adapt their current practices for oral, written, and/or pragmatic language therapy to work on their client's social media goals, for example, by adapting the teaching of written language to an online environment: "... our goals don't change but our activities

change. Our activities change to meet those goals. So, if our goals are appropriate written language then that goal can be applied to schoolwork and emails and text messaging. So the nature of the goal remains the same but the activity changes depending on student situations and teacher situations" (CPI-16). Some participants highlighted that creativity was necessary when targeting social media goals, perhaps reflecting a lack of evidence-base and ready-made materials for therapy in this area: "... just make it up on the spot. ... Erm, so yeah, it's just trial and error (laughs)" (CPI-06).

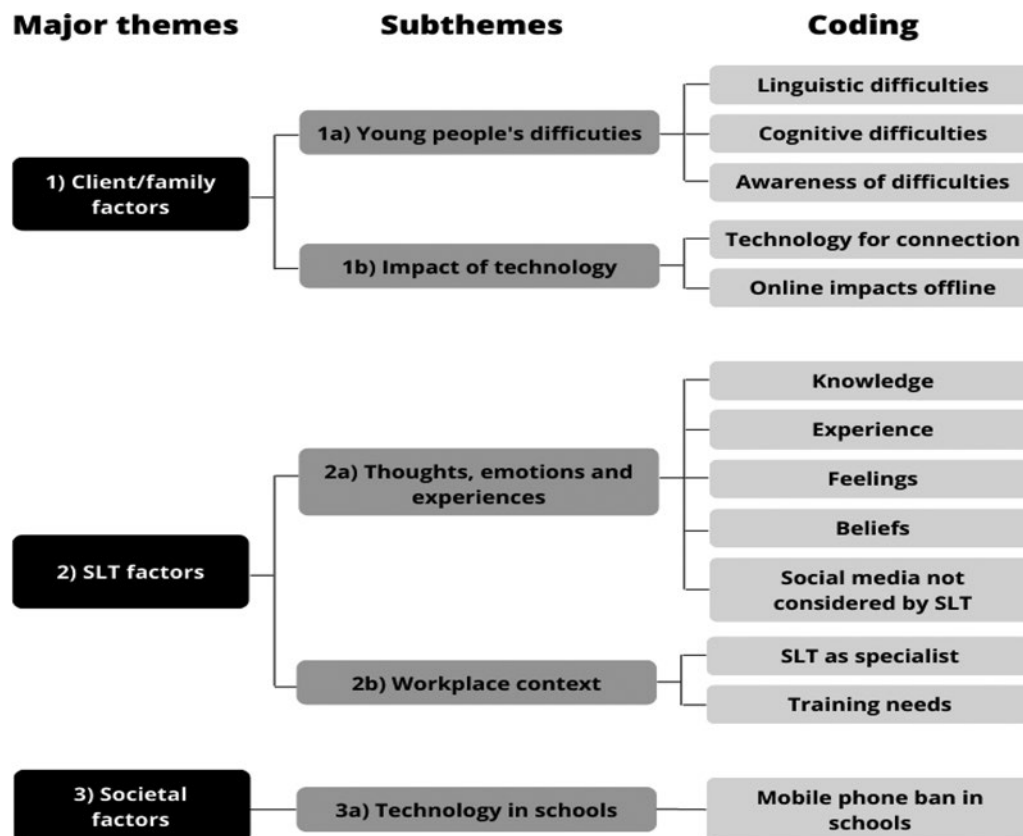


FIGURE 3 Factors affecting SLTs' practices around young people's use of social media

Research question 3: What factors affect SLTs' practices around young people's use of social media?

Following qualitative analysis of the semi-structured interview data, three major themes were identified in terms of factors that affect SLTs' practices. The themes and subthemes are outlined in Figure 3.

Major theme one: Client/family factors

This theme encompasses how characteristics of the young person and/or their family impact professional practices, as SLTs consider both the client/family, and the ways in which technology impacts them, when decision making.

Subtheme: Young people's difficulties

Participants outlined how children's difficulties in cognitive (e.g., impulsivity, problem-solving) and linguistic (e.g., higher order language skills, comprehension, vocabulary, pragmatic skills, and literacy skills) domains could impact their practices:

they also don't understand sarcasm in written form. They often can't work out tone in

written language. ... And even the emojis, everyone's got a different understanding of what the emojis mean ... it was their ability to problem solve, stop, and think. And look at cause and effects and consequences. (CPI-06)

SLTs also reflected on how a young person's insight, or lack thereof, into their own difficulties impacted their professional practices around a young person's use of social media: "Yeah, I think with the kids who are aware of [their difficulties], they do have a lot of buy-in. ... Like they're involved in the process and they want to work on it. So I'll be frank about what the goals are and stuff like that with those kind of kids" (CPI-14) and "I think a lot of the young people on our, that I work with, don't want to ask for help. Don't want to and don't know how to" (CPI-05).

Subtheme: Impact of technology

Participants recognized that for some of their clients, social media was an important way for them to maintain relationships and connect with others, particularly with people they knew offline:

He was quite keen to maintain some relationships with some of the people that he met from the [name omitted for confidentiality]



group. ... So we talked a lot about, erm, different apps in his phone that he could use to try and maintain contact with those people. (CPI-03)

However, SLTs also described social media as having negative offline impacts on young people's relationships: "we're having massive problems in terms of fights and physical abuse because of things that have been written on social media that have either meant nothing or mentions a joke" (CPI-06). Further, families' perspectives regarding their young person's use of social media also impacted SLTs' professional practices:

... she's forbidden [by her parents], that's the word that's being used, from using social media. ... I said, 'How does it make you feel?' and she said, 'It makes me feel left out and I worry that they talk about me behind my back if I'm not there'. So then that became a really interesting conversation with Mum (CPI-13).

Major theme two: SLT factors

SLT factors describe how SLTs' knowledge, feelings, beliefs, and experience, along with their workplace context, impact their assessment and intervention practices regarding young people's social media use.

Subtheme: Thoughts, emotions, and experiences

Some SLTs drew on the literature and/or their experiences to explain their practices around young people's use of social media: "I know that Gina [Conti-Ramsden] and Kevin [Durkin]'s research suggests that we should definitely be integrating and utilising social media as part of our teaching practises" (CPI-13) and "So erm things like Discord and WhatsApp in particular as platforms, erm, have just become such a big deal for some of my clients that just to ignore that would be a huge mistake. Because most of their language is happening there" (CPI-12). In contrast, some SLTs believed that young people "[are] all over the technology, ... they're often telling us different methodologies to use" (CPI-02) and so did not feel the need to incorporate social media use into their service provision. Conversely, others had not considered social media in terms of being an area of SLT practice: "Erm, not, no I don't, I've never actually thought about it that way" (CPI-04).

A lack of experience and/or confidence working in the social media area was identified as a significant factor impacting SLTs' practices: "I mean, I haven't done heaps of it and I'd like to do more of it ... I just got TikTok the

other day to have a look at it. It's weird. It makes you feel so old so quickly. Like it's, I have no idea what's going on with certain technology or social media" (CPI-14) and:

I've definitely come a long way but I would like to feel more confident around social media, particularly erm because that, like I know, I can give the person the means to access that, I understand that part of it, but in terms of assessing and understanding their ability to use that, and how they might implement something like that, or I might implement something like that into therapy, I probably don't feel that confident in that area. (CPI-03)

Subtheme: Workplace context

The workplace an SLT was employed in was identified as an influence on their practices around young people's use of social media. SLTs employed in schools with an indirect caseload typically described their role as "more curriculum based, supporting students' access to curriculum, supporting teachers to support students. Rather than working one-on-one with young people and looking at how they use social media" (CPI-07). Attempts to triangulate this finding with survey data were unsuccessful due to the small number of respondents in the survey who offered only whole classroom ($n = 2$) or only whole classroom and small group ($n = 1$) therapy services. Interestingly, some SLTs working in private practice considered themselves an expert in a particular aspect of SLT practice, such as literacy, but considered other areas as beyond their scope of practice: "[T]hat's not something that I would normally do ... they [clients] come to me with a very specific agenda, that's not usually, not on their agenda coming to see me" (CPI-01).

The lack of guidance in supporting SLTs' practices around social media, possibly due to a gap in the evidence base, was also flagged: "I actually think we probably need some training as speech pathologists around using social media with young adults, and adolescents ... what's the speech pathologist's role in, in social media usage?" (CPI-13).

Major theme three: Societal factors

This theme explores how influences external to either a young person/their family and an SLT may impact the provision of services. This theme encompasses technology in schools broadly, and the role of mobile phones in school specifically.

Subtheme: Technology in schools

Participants, particularly those working in schools, reflected that many schools have a policy in place banning students from accessing their mobile phone during the school day. This may play a role in SLTs' decisions around their professional practices: "we don't really see them with their phones at all. Erm, so maybe that's kind of [not] prompting anyone to sort of think about it" (CPI-11).

DISCUSSION

This research sought to identify: (1) what services SLTs provide to support young people's social media use; (2) what these services look like; and (3) what factors affect SLTs' practices around young people's use of social media. Our survey results indicated that SLTs currently do not systematically address young people's communication needs in social media contexts. Further, most SLTs disagreed that 12- to 14-year-olds receive adequate support from SLTs to access social media. A common finding from research with diverse populations who have communication disability is that people are not well supported by SLTs in their social media goals (Brunner et al., 2022a).

Encouragingly, interview participants' descriptions of their assessment and therapy practices around young people's social media use reflect the principles of best practice underpinning work with older students (e.g., being client-centred, and using informal interviews; Larson & McKinley, 2003). This indicates that SLTs are transferring and adapting knowledge and practices typically used in offline contexts to underpin their work supporting clients' use of online spaces. In this way, SLTs' practices with respect to a young person's social media use may be seen as the same but different to their existing professional practices.

For young people with communication disability, difficulties with pragmatic skills (such as making inferences, understanding and using figurative language, and appreciating humour) can increase during adolescence, and impact how young people interact with peers (St Clair et al., 2011). SLTs are wellplaced to address such difficulties by supporting the pragmatic functioning of young people with communication disability (Nippold, 2000). Extending this support to online environments, particularly to support use of social media, enables SLTs to consider young people's functioning in contemporary contexts.

Theoretical implications

Our findings on the factors influencing SLTs' practices around young people's use of social media suggest that frameworks for understanding technology adoption (e.g.,

the use of video calls in a health service) can also be used to understand how technology is accounted for in therapeutic practice (in our case, understanding and supporting young people's use of social media as part of SLT practice). Although our research design was not based on diffusion theory (Rogers, 2003), our results are consistent with the fundamental tenets of the theory. Diffusion theory (Rogers, 2003) postulates that the adoption of an innovation follows a predictable pattern. Initially, there is a slow (lag) phase, followed by an acceleration (takeoff) in the number of people adopting the innovation. Accordingly, terms such as 'early adopter' and 'laggards' have been proposed as categories for the adopters of any particular innovation by a particular population. The adoption or non-adoption, including resistance to adoption, of an innovation is a complex, multi-staged process, with attributes of the innovation interacting with attributes of both the adopter (their personal characteristics and attitude to the innovation, including knowledge and beliefs) and their organisational setting (Greenhalgh et al., 2007). Future research could seek to understand the applicability of the diffusion theory model to the innovation of providing assessment and/or therapy for young people's social media use, to better understand both the attributes of factors that impact adoption decisions (examples given in Figure 4) and the ways in which they interact.

Implications—including future directions for research

A lack of guidance on how to provide professional services that support a young person's social media use, coupled with gaps in the evidence base, may contribute to our finding that SLTs' current professional practices do not routinely support young people's use of social media. A range of complex issues are raised when considering young people's digital participation using social media (Willoughby, 2019), including questions of consent and the capacity of young people to do so, particularly given the developmental nature of being a minor. While such considerations may be justified, a perspective of deficit can suggest an assumed vulnerability, including for young people with communication disability (Subramaniam et al., 2020). Additionally, parents may have strong feelings about their child's participation in online spaces: How prepared are SLTs to advocate for our client's use of social media, if parents have reservations? However, it should be noted that facilitating young people's use of social media when they have not previously used it raises important ethical concerns, such as the potential for young people to be exposed to cyberbullying, and the role of SLTs to support young people in this context.

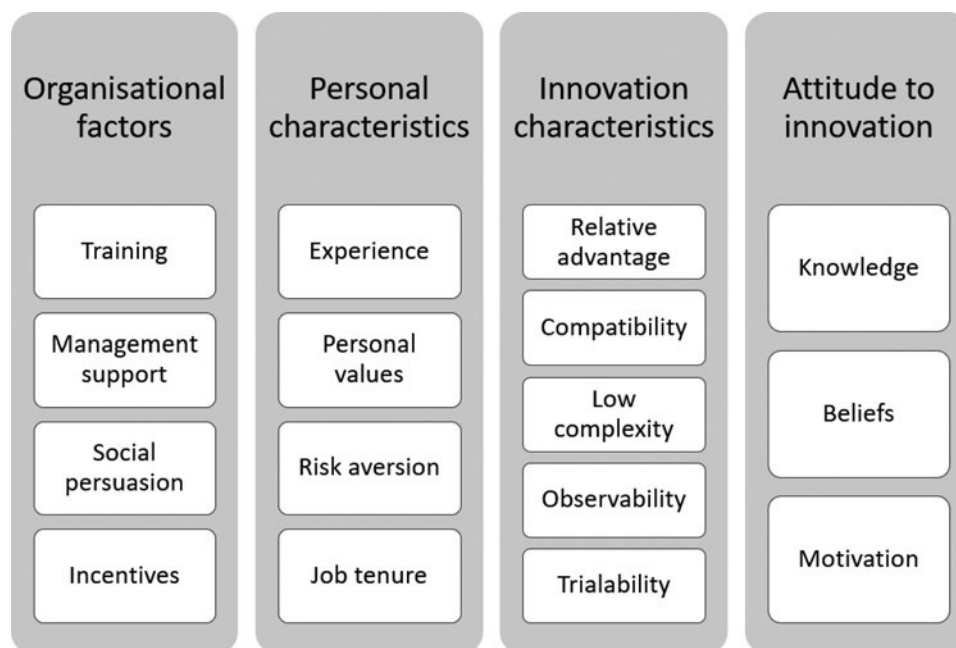


FIGURE 4 Attributes of factors that impact adoption decisions

Source: Adapted from Frambach & Schillewaert (2002, fig. 1) and Greenhalgh et al. (2007, fig. 5.2).

The finding that SLTs need to be adaptable may reflect a limited evidence base and a lack of ready-made therapeutic resources targeting a young person's social media use. Brunner et al. (2022b) reviewed interventions and web-based resources targeting social media skills for both the general public and those with health conditions, particularly acquired brain injury (ABI). Just two of the 48 websites reviewed were tailored for children or young people, but neither were relevant or accessible for people with communication disability. This indicates a gap in research into social media skills support for young people with communication disability and highlights the flow-on gap in resources and advice for SLTs supporting the provision of therapy targeting a young person's use of social media. Further research specifically investigating which young people would benefit from intervention targeting social media use, and how this support may be provided, is needed. Additionally, as lack of experience and/or confidence working in the social media area was identified as a factor that impacted their professional practices, SLTs may benefit from further training in this space.

Our findings highlight that guidelines to support SLTs' practices around their clients' social media use may be beneficial. There are many types of guidelines, including expert opinion, formal consensus, evidence-based, and evidence- and consensus-based (Twaddle, 2005). Increasingly, it is recommended that guideline development include consumers (National Health and Medical Research Council, 1999). A distinction may be drawn

between clinical practice guidelines, based on systematic reviews of the evidence, and professional practice guidelines, which are not necessarily based on systematic reviews but developed via expert consensus and current literature; the latter being designed to guide professional practice and highlight issues to be considered (American Psychological Association, 2002). Given the current state of the literature regarding SLTs' practices around young people's social media use, professional practice guidelines are more appropriate at this time.

In the absence of evidence, expert opinion may be used in the development of guidelines, including to generate recommendations (Shekelle et al., 1999). Expert opinion to develop guidelines necessitates decision-making, and one way to achieve group consensus is via a formal process such as Delphi (Qaseem et al., 2012). Guidelines can improve the quality of clinical decisions and thus improve the quality of care provided to clients (Woolf et al., 1999). Without guidance or support, professionals employ greater caution in providing therapy regarding social media use, especially if they have previously had, or witnessed someone else have, negative online experiences (Brunner et al., 2021a). Hence, guidelines may support clinicians in their professional practice by recommending factors to consider. For instance, guidelines could highlight how client/family factors, such as a young person's linguistic skills, as well as societal factors, such as policies around device usage at a client's place of education, may impact SLTs' assessment and/or intervention practices.

Given the importance of including consumers in guideline development, the first step, and a future research recommendation, is consulting young people with communication disability on their opinions on social media, their access to it, and the potential role of SLTs in facilitating this. Understanding what young people with communication disability think regarding the potential benefits, drawbacks, and barriers to using social media will help SLTs to identify the risks of not supporting young people in their digital participation.

Limitations

The survey data reported here are a subsection of a survey more broadly concerned with the practices of SLTs working with 12- to 16-year-olds in Australia. These data relate to SLTs' professional practices regarding 12- to 14-year-olds, while interview data focused on young people aged 12- to 16-years-old. As the age range is slightly different across survey and interview data, no assumptions should be made as to how each relates to the other. Further, as the survey and interviews were conducted with SLTs practising in Australia, future research should seek the experiences of SLTs working in other countries.

An additional limitation is that survey data were collected prior to the COVID-19 pandemic. SLT services for Australian adolescents provided via telehealth was offered by less than 10% of SLTs pre-pandemic (Shelton et al., 2021). This figure is likely much higher now, as 82% of Australian allied health practitioners used telehealth for the first time during the COVID-19 pandemic (Filbay et al., 2021). Whether SLTs' use of telehealth has impacted their professional practices in supporting young people's social media use is currently unknown.

CONCLUSIONS

This research aimed to identify what services SLTs offer to support young people's social media use, the nature of these services, and the factors impacting SLTs' practices. We found that while SLTs currently do not systematically address young people's communication needs in social media contexts, they are adapting principles of best practice as the foundations of their work supporting clients' use of social media. Young people's digital participation in social media spaces raises complex issues, which may impact SLTs' professional practices. Accordingly, both further research into the opinions of young people with communication disability regarding social media, and professional practice guidelines to support SLTs' practices in this area are needed.

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CONFLICT OF INTEREST

The authors have no conflicts of interest in relation to the research presented in this paper.

DATA AVAILABILITY STATEMENT

The datasets that support the findings of this study cannot be made publicly available due to the approval conditions of the ethics review committee.

PATIENT CONSENT STATEMENT

All participants (survey and interviews) provided written informed consent to participate in the research.

ORCID

Nichola Shelton  <https://orcid.org/0000-0003-3162-8338>

Natalie Munro  <https://orcid.org/0000-0002-5870-6378>

Melanie Keep  <https://orcid.org/0000-0001-9516-0303>

Julia Starling  <https://orcid.org/0000-0001-7909-6102>

Lyn Tieu  <https://orcid.org/0000-0003-2794-7977>

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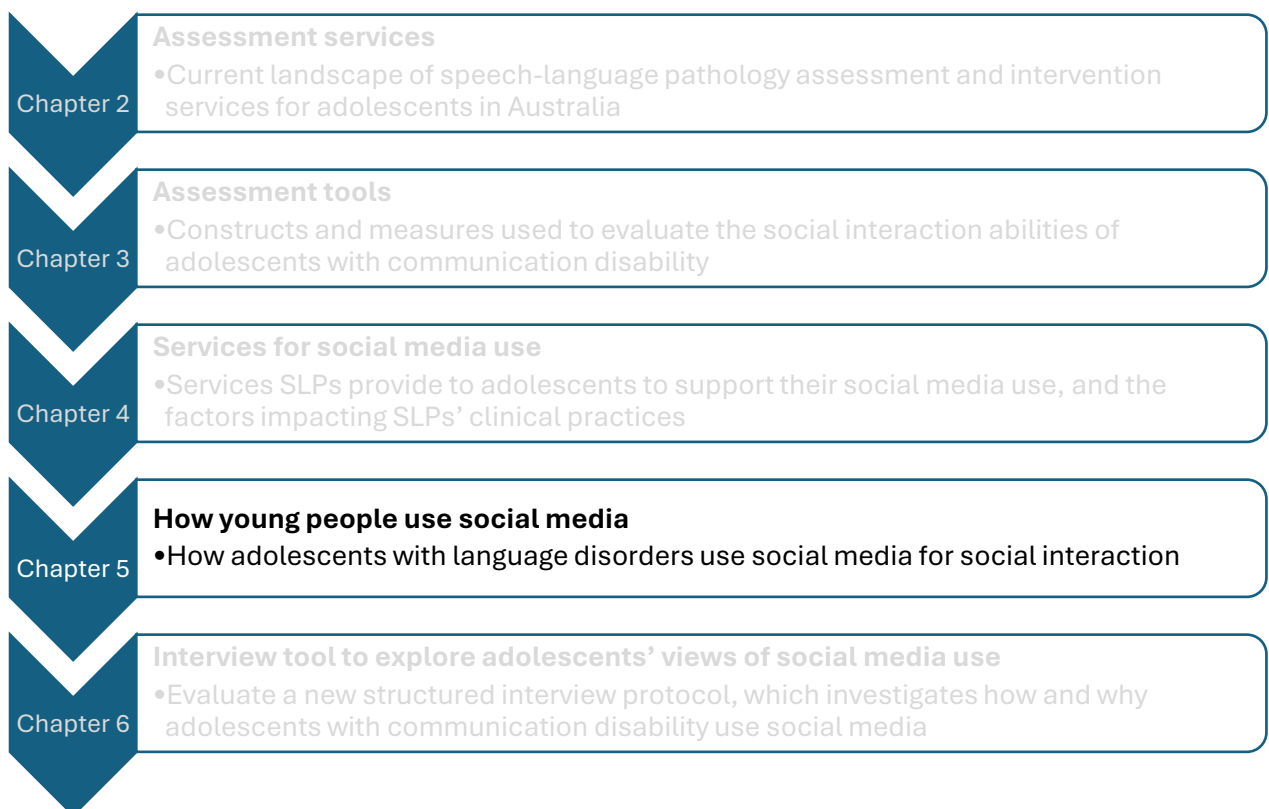
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Chapter 5 (Paper 4)

How do Young People with Communication Disability Use Social Media for Social Interaction?



Building on the professional perspectives explored in Chapter 4, this chapter shifts focus to the experiences of young people with communication disability. It presents a scoping review that examined social media use by young people with language disorders, offering a comprehensive synthesis of existing knowledge and identifying critical gaps in understanding. To date, research has largely neglected how young people with language disorders engage with social media platforms; existing studies tend to focus on adult populations or narrowly defined subgroups of young people, leaving a fragmented picture of adolescent experiences. This review addressed a significant gap by mapping the breadth of evidence across diverse populations and platforms. It highlights the limited availability of co-designed interventions, due to the absence of young people's voices in shaping support strategies, and the lack of inclusive research approaches. In doing so, this chapter lays the foundations for future innovation in supporting digital participation for young people with communication disability.

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As co-author of the above paper and primary supervisor, I confirm that Nichola Shelton made the following contributions, in collaboration with co-authors:

- Conceptualisation

- Formal analysis
- Investigation
- Methodology
- Project administration
- Visualisation
- Writing – original draft
- Writing – review & editing

Name: Melanie Keep

Date: 28/11/2025

REVIEW



Social media use by young people with language disorders: a scoping review

Nichola Shelton^a, Natalie Munro^{a*}, Julia Starling^a, Lyn Tieu^{b,c,d} and Melanie Keep^a 

^aFaculty of Medicine and Health, The University of Sydney, Sydney, Australia; ^bFaculty of Arts and Science, University of Toronto, Toronto, Canada; ^cMARCS Institute for Brain, Behaviour and Development, Western Sydney University, Sydney, Australia; ^dDepartment of Linguistics, Macquarie University, Sydney, Australia

ABSTRACT

Purpose: Social media are widely used by young people (YP), but how YP with language disorders use social media for social interaction remains insufficiently studied. This article provides an overview of the research on social media use by YP with language disorders.

Materials and methods: A scoping review was conducted, guided by a five-stage framework. Ten databases were searched (CENTRAL, CINAHL, ERIC, LLBA, Medline, PsychINFO, Scopus, speechBITE, Web of Science, ProQuest Dissertations & Theses Global). Chaining searches of papers identified for inclusion were conducted.

Results: After screening 199 unique papers, 44 were included. Findings revealed that YP with language disorders use social media less compared to typically developing peers; their profile of communication difficulties may impact the types of social media with which they engage. Although intervention studies are limited, the results offer encouraging findings regarding the positive impact of support for use of social media. Barriers and facilitators for social media use are identified.

Conclusions: YP with language disorders use social media for social purposes. However, co-designed research into what YP with language disorders perceive their social media needs to be is urgently needed. How to support YP with language disorders to use social media is subject to future investigation.

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> IMPLICATIONS FOR REHABILITATION

- Young people with language disorders are likely using a range of social media to support their social participation, but they use social media less than typically developing peers.
- The types of social media young people with language disorders choose to engage with may be impacted by their language/literacy difficulties.
- There is preliminary evidence that intervention to support the use of social media by young people with language disorders is beneficial, but more research is required to identify the components to include in social media use training programs.
- To support the access to and use of social media by young people with language disorders, healthcare professionals may need to collaborate with parents and schools.

Introduction

Definition and prevalence of language disorders in young people

Language disorder can be conceptualised as a profile of linguistic difficulties that affect a person's functioning in their daily life; it may or may not be associated with a known biomedical aetiology [1]. Common difficulties associated with language disorders that are related to a person's primary language include difficulty understanding and using grammar, vocabulary, and phonology (i.e., the speech sounds and rules of a language), and difficulties with higher-order language (including pragmatics) [2]. A systematic review of epidemiological literature found that nine of 11 studies that estimated prevalence of low language skills in children aged 5 and older reported comparable rates between 6.4% and 8.04% [3]. Language disorders can have a significant impact on a young

person's ability to communicate and interact with others, affecting their social, emotional, and academic development [4,5].

Difficulties associated with language disorders in adolescence

Adolescence is associated with changes in biological, cognitive, psychosocial, and emotional domains, as well as social role transitions [6]. Language development also continues throughout adolescence, with substantial growth in the domains of syntax, semantics, and pragmatics [7]. Consequently, the demands on a young person's communicative skills expand during adolescence [8]. Language skills are implicated in reasoning, problem solving, communication, and socialising with others and are thus essential for a young person to perform daily tasks [9]. Compared to typically developing peers, young people with language disorders experience more behavioural difficulties, more symptoms of

CONTACT Nichola Shelton  Nichola.Shelton@sydney.edu.au  Level 6, Susan Wakil Health Building, D18 Western Avenue, The University of Sydney, Camperdown, NSW 2006, Australia

*Present address: Faculty of Health, Southern Cross University, Gold Coast, Australia.

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emotional difficulties as defined in the Strengths and Difficulties Questionnaire (e.g., being worried or fearful), and more difficulties with peer relations [10]. For young people with disabilities, particularly those who experience difficulties with face-to-face interactions or social situations, technology may present a less threatening way to interact with others [11]. One reason for this may be that the real-time demands on a young person's language skills are less stringent online compared to other situations, such as face-to-face interactions [12]. Conversely, different forms of social media may vary in how appealing they are to young people due to the literacy demands that they make. For example, proficient use of textese (i.e., the register specific to texting) and textisms (e.g., the use of contractions, initialisations, abbreviations, etc. to represent words, typically sound-based rather than based on conventional spellings) may be improved by good literacy skills [13]. It remains unclear in which forms of social media young people with language disorders typically engage.

Overview of social media

Social media are digital technologies that enable social networking, and/or the creation and sharing of user-generated content [14]. The widespread use of social media has created new opportunities for communication and social interaction, including for young people [15]. A wide variety of social media apps and websites now provide a platform for users to connect with others, share information and content, and participate in online communities [16].

The proliferation and adoption of new information and communications technology is unquestionably global and ubiquitous [17]. Young people aged 13–18 years spend less time engaging in in-person social interactions and more time interacting through electronic communication, including digital media, compared to previous generations [18]. One nationally representative survey found that, in 2021, 84% of 13- to 18-year-olds in the United States used social media, spending an average of 87 min per day doing so [19]. The appeal of social media is reflected in the exponential increase in adolescents' adoption of social media tools since the late 1990s/early 2000s [20].

Young people view social media as a nuanced constellation of experiences, which is primarily social, being built on relationships, and which fosters a sense of connectedness to others via their participation in online communities [21]. While social media may present benefits with use, such as increased social capital and self-esteem [22], and increased opportunities for social contact and social support [23], it may also adversely impact young people by transforming peer relations. Nesi et al. [24] argue that characteristics of a social media environment (e.g., permanence, publicness) can impact a young person's experience of peer victimization (i.e., cyberbullying) and peer status, including their acceptance and rejection. Most of the extant literature, however, does not focus on young people with language disorders nor does it report language disorders as a demographic variable.

Social interaction in the context of social media

In the context of social media, social interaction refers to the act of communicating (in myriad forms, e.g., text, emojis, images, videos, audio) and participating in interactions with others through social media platforms [25]. It involves the use of digital tools (e.g., apps, websites) to engage in social communication and social relationships with peers, family members, and other individuals, whether known or not, online [26]. As such, it may involve the synchronous or asynchronous exchange of information, ideas,

opinions, and feelings between people [27]. This may include activities such as messaging, emailing, commenting on or reacting to posts, sharing posts, participating in online communities, and video chatting [28]. Such social interactions may provide opportunities for young people to connect with others, build relationships, and develop the context-specific social skills that underpin online interactions [29], which could be particularly useful for young people with language disorders. Social media can be valuable to young people with disability who may feel excluded, marginalised, or lacking in support [30].

Purposes of social media use

The Kaye framework posits four categories of social media use based on two dimensions: level of interactivity (two-way interactive vs. one-way non-interactive) and the user's position in the communication (sender vs. recipient/audience) [31]. Accordingly, *interactive*, *reactive*, *broadcasting*, and *passive* uses of social media are conceptualised. Interactive use (two-way, sender) may be activities such as video chatting or highly interactive threads on social networking sites. Reactive use (two-way, recipient/audience) are activities in which a person reacts to others' content, e.g., by liking/commenting on or sharing a post on a social networking site. Broadcasting use (one-way, sender) involves activities such as posting information on one's own profile or timeline on social networking sites. Passive use (one-way, recipient/audience) may be understood as behaviours associated with browsing (e.g., scrolling through feeds, checking other people's accounts, and generally consuming information). Three of these categories (interactive, reactive, broadcasting) may be considered active social media use, being behaviours that involve producing and publishing content and are, therefore, more social in nature as they involve communicating directly with others [32]. In line with this framework, communicative and non-communicative purposes for the use of social media by young people have been identified: to both find and share information and to support social connections [22]. Furthermore, online communication can positively affect young people's well-being via its influence on the time spent with existing friends [33].

Purpose of the scoping review

While previous research has explored the use of technology, including social media, by individuals with language disorders, this has typically focused on adult populations (for example, [33]). Where research has investigated use of technology by a paediatric population, this has typically focused on either a specific type of social media use and/or a population with a particular subset of language disorders; for example, internet chatroom use by teenagers with a language disorder associated with traumatic brain injury [34]. Therefore, there is still a gap in the literature with respect to how young people with language disorders use social media. Further, the specific ways in which this population uses social media for social interaction have not been extensively examined.

A scoping review aims to map key concepts, types of evidence, and gaps in research to address an exploratory research question by systematically searching, selecting, and synthesising existing knowledge [35]. The purpose of this scoping review is to synthesise the existing literature on how young people with language disorders use social media for social interaction. By providing an overview of the current state of knowledge, gaps in the literature that warrant further research may be identified [36]. The results of this review will contribute to understanding (a) how young

people with language disorders use social media for social interaction, (b) how interventions can support the use of social media by young people with language disorders, and (c) will identify both barriers and facilitators for the use of social media by young people with language disorders. These results may have implications for the professional practices of speech-language pathologists or other allied health and educational professionals who support young people with language disorders.

Methods

The design of this study followed a five-stage framework [36]. Reporting of results is informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for scoping reviews [37].

Stage 1: Identifying the research question

The questions that this review addressed were: (1) What is known from the existing literature on how young people with language disorders use social media for social interaction? (2) What interventions involving the use of social media are being implemented for young people with language disorders? (3) What are the barriers and facilitators to the use of social media by young people with language disorders?

Stage 2: Identifying relevant studies

Four key concepts were identified: adolescent, language disorder, social media, and social interaction. To define these, a scoping search of medical subject headings (MeSH) indexing terms was performed before the review was conducted. Additional keyword terms were also identified by reviewing relevant journal articles. Given the myriad terms that have historically been used to describe language disorders [38,39], a Google Scholar scoping search was undertaken on the 138 possible terms identified by Bishop [40]. Terms with the most results identified in this scoping search were included as keyword terms; they were supplemented with additional keyword terms identified by reviewing relevant journal articles. This resulted in a large number of terms for the concept of language disorder for each database search; for example, the Medline search included 64 variations of the term. The input of a research librarian was also sought prior to the search strategy being finalised. Search terms for each concept were identified and concepts were grouped with Boolean logic (i.e., the “AND” and “OR” operators). Wildcards, specifically the asterisk and question mark symbols, were employed to account for variable endings of a root word (for example, adolescen* would return adolescent, adolescents, and adolescence) and variable spellings (for example, social behavio?r would return both social behaviour and social behavior) in searches—see Table 1.

To identify studies for inclusion in this review, the following databases were searched in October 2022: CENTRAL, CINAHL, ERIC, LLBA, Medline, PsychINFO, Scopus, speechBITE, Web of Science, and ProQuest Dissertations & Theses Global. To attempt to capture

grey literature, theses (indexed on ProQuest Dissertations & Theses Global) were included in the review. While conference proceedings were included, conference papers (indexed on CINAHL, Scopus, and Web of Science) were excluded. The search was limited to results in the English language and from 2001, which is when the International Classification of Functioning, Disability and Health (ICF) was officially endorsed by the World Health Organization [41]. In addition, in January 2023, backward and forward chaining searches were conducted on the articles identified for inclusion in the scoping review (i.e., both the reference lists and Google Scholar citations were hand checked for additional relevant papers).

Stage 3: Study selection

Inclusion and exclusion criteria were determined prior to the search being conducted. Inclusion criteria were participants aged 12–18 years with a language disorder, which could include autism, attention-deficit/hyperactivity disorder, acquired brain injury, intellectual disability, and augmentative and alternative communication users. Studies were excluded if participants were hearing impaired and solely used sign language. These criteria were applied by the first two authors at each stage of the screening process.

We chose to broadly define both social media and language disorders, given the scoping nature of this review. Social media can be understood as digital technologies that enable social networking, and/or the creation and sharing of user-generated content [14]. Similarly, we have not limited language disorders to the oral modality, given the use of social media may present challenges to young people who have difficulties with written language in terms of both understanding and writing social media content [42]. The broad understandings of these concepts facilitate the inclusion of papers that may be considered early versions of social media (for example, texting as a precursor to apps such as WhatsApp).

As the aim of this scoping review was to provide a narrative overview of the reviewed literature, it will not assess the quality of the evidence [36].

Results

Stage 4: Charting the data

The initial search identified 182 references. Using Covidence (web-based software), seven references were removed as duplicates, resulting in 175 unique records. The first and second authors reviewed the title and abstracts at this screening stage, with moderate interrater agreement (Cohen’s kappa = 0.57). After resolving conflicts, the first and second authors excluded 135 papers and reviewed all 40 papers that were eligible for the full-text screening phase. This resulted in an additional 20 papers being excluded and 20 papers being included in the scoping review. The references and Google Scholar citations for these 20 papers were hand searched to identify additional papers for inclusion, which uncovered a further 24 unique references (18 via citation searching and 6 via searching references). The inclusion

Table 1. Sample search terms for each identified concept.

Adolescent		Language disorder		Social media		Social interaction	
Adolescen* OR Teen* OR Young person OR Youth	AND	Language Disorder* OR Developmental Language Disorder* OR Specific Language Impairment	AND	Social media OR Social networking OR Online social networking	AND	Social interaction OR Interpersonal relations OR Social behavio?r	

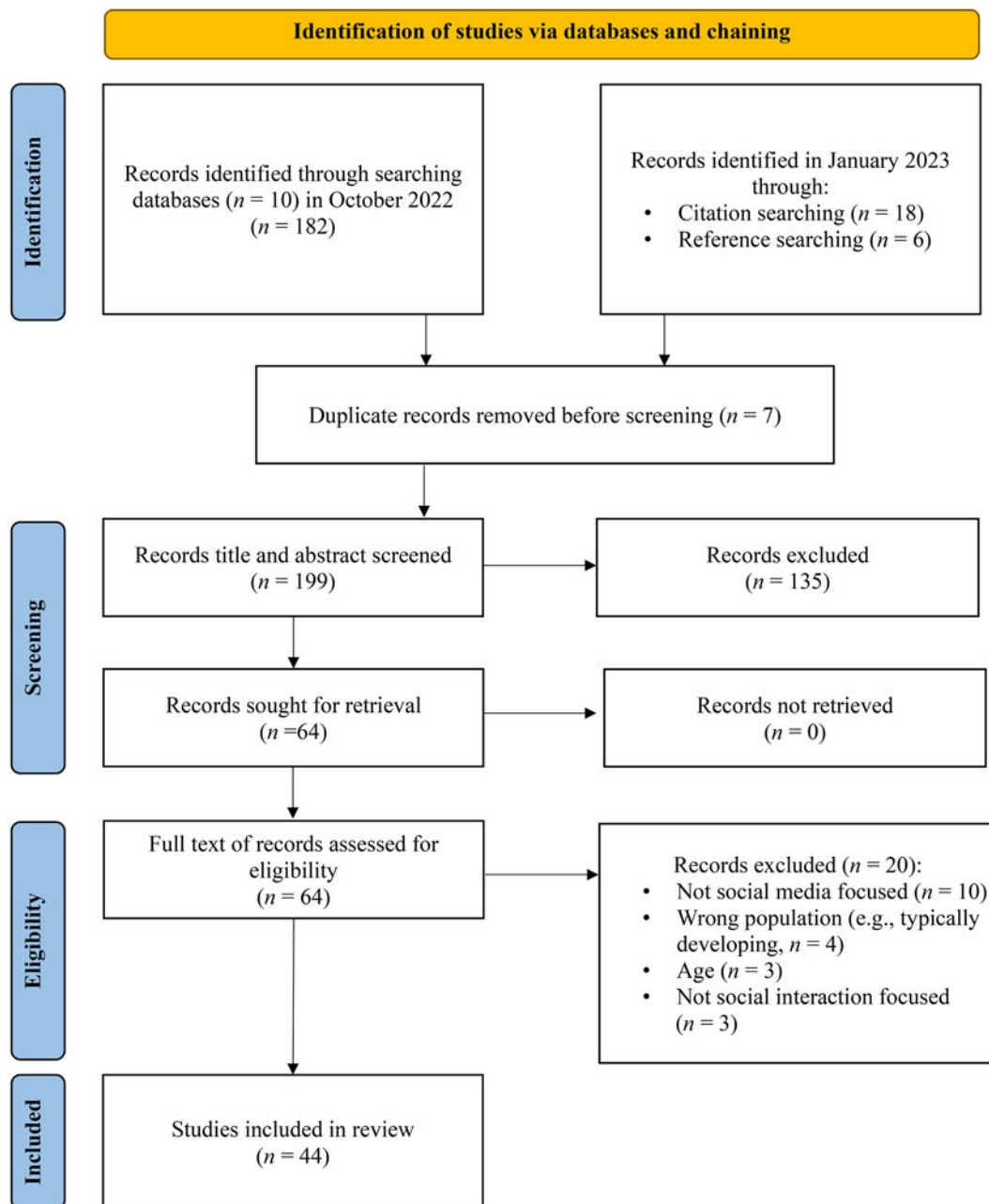


Figure 1. PRISMA flow diagram.

of these 24 references was agreed upon by the first and second authors. Figure 1 presents the results of the search process.

To facilitate synthesis of the findings, data were charted using a custom-created form in Excel that recorded: details of papers (author, title, year of publication, study location); study populations (including both clinical and control samples); aims of the study; design of the study; study measures related to technology and social media; and key findings.

Stage 5: Collating, summarising, and reporting the results

In this section, an overview of the findings from the 44 papers included in the review is presented. The 44 papers included 36 journal articles, four PhD theses, two Master's theses, one conference proceedings, and one report. The papers included in the review were published between 2008 and 2022, with the median

year of publication being 2014. The majority of the papers were qualitative in design ($n = 10$), but there were also quasi-experimental designs ($n = 7$), literature reviews ($n = 6$), mixed method designs ($n = 5$), cohort designs ($n = 4$), survey designs ($n = 4$), three discussion papers, cross-sectional designs ($n = 2$), experimental designs ($n = 2$), and one longitudinal study. The studies were conducted in a variety of countries, including Australia ($n = 13$), France ($n = 1$), Germany ($n = 1$), Ireland ($n = 2$), the Netherlands ($n = 1$), the United Kingdom ($n = 15$), and the United States ($n = 10$). One PhD thesis included studies conducted in the United Kingdom and Italy. See the [Supplementary Material \(Appendix 1\)](#) for details of the included papers.

Types of social media included

Most papers (55%, $n = 24$) considered social media generally, typically covering three or more of: social networking sites (e.g.,

Table 2. Types of social media used/referenced.

Social media	Count	Percentage
Social networking sites (e.g., Facebook, Twitter, Instagram, MSN)	24	21.6
Email	19	17.1
Skype	12	10.8
Online games	12	10.8
Texting/SMS	10	9.0
Instant messaging	9	8.1
Blogs	7	6.3
Social media or computer use generally	6	5.4
YouTube	5	4.5
Chat rooms	4	3.6
Forums/discussion boards	3	2.7
	111	100

Facebook, Twitter, Instagram, MSN), email, Skype, online games, texting/SMS, instant messaging, blogs, YouTube, chat rooms, and/or forums/discussion boards (see Table 2). Of the papers that considered one or two specific forms of social media (45%, $n=20$), most used Facebook ($n=6$), text messaging ($n=5$), or email ($n=3$). See the [Supplementary Material \(Appendix 2\)](#) for specific details of each paper with respect to social media.

Participants in included studies

Half of the papers ($n=22$) reported a mean age of the participants, which averaged 14.6 years. Only 13 of the papers (29.5%) included participants under 13, perhaps reflecting that most social networking platforms require users to be at least 13 years of age. Approximately one-third of the papers were concerned with, or included participants with, oral or written language disorders: 15.9% ($n=7$) related to specific language impairment (SLI)/language impairment [12,43–48] and 15.9% ($n=7$) related to dyslexia [49–55]. A further third (27.3%, $n=12$) included or were concerned with a mixed clinical population [56–67]. Other specific populations included autistic young people (15.9%, $n=7$) [68–74], users of augmentative and alternative communication (15.9%, $n=7$) [75–81], and people with acquired brain injury (4.5%, $n=2$) [82,83]. There were also two separate papers that included young people with hearing loss (2.3%, $n=1$) [84], or social pragmatic communication disorder (2.3%, $n=1$) [85].

In the following sections, the term *language disorder* is used to indicate either a developmental language disorder (formerly known as SLI) or a language disorder associated with a co-occurring condition. The term *language disorders* is used to indicate that the findings draw on more than one population of young people.

Question 1: What is known from the existing literature on how young people with language disorders use social media for social interaction?

Young people with language disorders have reported using social media for social connection [69,75,78,82,85]. According to Fisher et al. [60], young people with language disorders who use social media to communicate with friends were also reported to be significantly more likely to see their friends at least once a week outside of school compared to those who do not. Uses of social media for social connection include chatting to people online [78,80], planning social activities [85], being a source of social support [69], finding acceptance/sense of belonging [54,55,61,67], and supplementing offline relationships [69,85]. Although for some, social connection may mean

establishing relationships online [80], it typically involves improving existing (offline) relationships with friends and/or family [66,67,78,85].

For young people with language disorders, their personal profile of communication strengths and difficulties may impact both the extent of their use of social media and the types of social media with which they choose to engage. It is reported that young people with language disorders use certain social media significantly less than typically developing peers [12,45,73], based on frequency of use measures including questionnaires/surveys, diary records, and interviews. For example, young people with SLI are reported to be less likely than their typically developing peers to send and receive text messages [44]. Further, autistic young people may have a preference for videogames over other forms of social media [73,74] and deaf/hard of hearing young people may have a preference for texting [84].

In terms of negative social interactions through social media, experiences of cyberbullying were discussed in two papers [67,69] and briefly mentioned in a further three [54,55,82]. Concerns about cybersafety may be a source of tension between young people and their parents [64].

Young people with a language disorder have expressed a desire for online participation in social media [78,81,82] and, as such, they may highly value use of social media [69,78]. Although further research is needed to shed light on the reasons for this, it may be that social media provides some young people with language disorders with a preferred means of communication for reasons such as response time (e.g., asynchronicity) and lack of face-to-face demands [58,59,68,69,82]. Alternatively, use of social media may be associated with self-determination and increased independence, as was found in some research with young people who use augmentative and alternative communication [78].

One study found that medical and clinical professionals primarily suggest to parents of autistic children that they employ restrictive mediation with respect to their child's use of media and technology (e.g., by limiting access to use as a reward or reinforcement and by setting time limits) [70]. However, some researchers recommend a constructive use strategy (i.e., procedures to accommodate, support, and build on the media activities of young people with language disorders) due to the benefits of engaging with such technology [46].

Question 2: What interventions involving the use of social media are being implemented for young people with language disorders?

Several projects have investigated interventions for, or using, social media. Two projects aimed to increase the knowledge and skills of young people with language disorders through one-on-one support and training to achieve individualised goals, such as engaging in social networking sites, sending emails, and using Skype. Six papers [56,63–66,81] reported the findings of these two projects. The projects were a home-based intervention over 4–7 months that included elements of both technical training (e.g., visual prompts or steps to complete a task, such as using Skype or sharing a YouTube link, and hints to remember social media account log-in details) and communication training (e.g., “house rules” for expected online behaviour that were developed in consultation with parents/carers, discussion of age-appropriate social media, writing templates for messages, and the provision of word banks or abbreviation expansions for commonly used language), as well as the provision of a cueing hierarchy for family members, to help them teach their child to learn to use social media with increasing independence. In each case, significant improvements

were observed on personal communication goals as measured by the Canadian Occupational Performance Measure [86] and the Goal Attainment Scale [87]. Qualitative interviews revealed that participants perceived that their social participation had benefitted from the intervention.

Peer e-mentoring has been used in two studies [66,77]. In both, adults with disability used a range of social media (social networking sites, Skype, email) to support young people with language disorders to increase their use of social media over a period of 4 months. The results of both showed participants' positive experiences post-intervention, including increased social connection through social media.

Another project used social media as an educational resource: students with dyslexia co-created a Facebook page to document their research on, and learning about, dyslexia [49–52]. As a result of the project, participants were able to both make sense of and communicate their experiences of dyslexia, while also becoming experts, beyond their lived experiences, on dyslexia. Furthermore, over the course of the project, participants developed a shared dyslexic identity and formed an affinity group—their use of social media strengthened their offline relationships with each other. Strengths of this co-constructed project were the diverse methods of data collection, which enhanced the rigour of the project; the degree of control and self-determination participants had, which contributed to their motivation to engage; and the fact that findings appeared to resonate with participants' own experiences, as reported by post-project interviews.

Finally, one Master's thesis study used a moderated online blog as the basis of a 7-week online program designed to provide a context for social interaction for autistic young people [72]. While no increase in scores was observed on the main outcome measure (the Quality of Communication Life scale [88]) post-intervention, descriptive survey data indicated that participants enjoyed the blog as it facilitated their social interaction with previously unknown peers.

Question 3: What are the barriers and facilitators to the use of social media by young people with language disorders?

The review identified a range of barriers and facilitators to the use of social media by young people with language disorders. Identified facilitators to social media use included a young person's social network (i.e., their circle of contacts) [67], the skills and knowledge of young people and their family members to be able to problem-solve access issues [67], education and training in social media use [60,76,82], and assistive technologies [64,67,75].

Identified barriers included the profile of young people's difficulties (e.g., language and/or literacy difficulties) [47,57,62,75,76,79], resource issues (in terms of both technology and skills/knowledge for use) [62,67,71,76], young people's own concerns about safe social media use [64,75], limited opportunities for social communication (i.e., a lack of digital social networks with which to connect) [62,68], inaccessibility of social media (e.g., due to the inherent complexity of a social networking site, which necessitates a certain degree of linguistic competence) [45,59,78,82,83], and a lack of access and/or support for use, including social media training resources [61,76,83].

Furthermore, opportunities to use social media, among other online activities, are often regulated by the parents of a young person and also by their school (e.g., by blocking and filtering content or monitoring a young person's online activities) [61,67,76]. As such, parents and schools may constitute either barriers or facilitators (or both) to a young person's use of social media.

Discussion

The aim of this review was to synthesise the existing literature to better understand how young people with language disorders use social media for social interaction, what interventions involving the use of social media are being implemented for young people with language disorders, and what barriers and facilitators to the use of social media by young people with language disorders have been identified within the literature.

This review found that young people with language disorders use social media in a variety of ways, including to chat to people online, to find acceptance/sense of belonging, and for social support—in other words, for the communicative purpose of supporting social connections, rather than for the non-communicative purposes of finding and sharing information. The review also found that a small body of research has implemented support and training for social media use for this population, focusing on both technical training (i.e., how to complete tasks on social media) and communication training (i.e., the dos and don'ts of social media use), and utilising peer e-mentoring in the explicit teaching of social media use skills. Finally, while a small number of facilitators to the use of social media by young people with language disorders have been identified, such as a person's social network, and education and training in social media use, a greater number of barriers are outlined, including the profile of young people's difficulties and the inaccessibility of social media.

The review found that young people with language disorders use social media for social connection, but they appear to use social media less frequently than their typically developing peers. Computer and mobile phone ownership levels are reported to be similar between these two broad groups [12,43] so physical access alone does not seem to account for their differential use of social media. Instead, their neurodevelopmental profiles may positively or negatively impact the types of social media that they engage with, while their oral and written linguistic competencies may also impact access and use.

Social media as a context for participation

As per the International Classification of Functioning, Disability and Health (ICF), participation is defined as "involvement in a life situation" [41]. Participation may be understood as comprising both objective (i.e., what activities people do or attend) and subjective (i.e., the experience of participation for a person) components [89,90]. Given the ubiquitous nature of social media for young people, use of it may constitute involvement in a life situation, being a real-world context for communication [77]. As such, interventions in this space may be especially valued by young people with language disorders.

Furthermore, the United Nations' Convention on the Rights of Persons with Disabilities [91] recognises the right of people with disabilities to have access to cultural material. Lack of access to cultural material, in this case social media, may constitute a socially constructed disability [78]; the barriers and facilitators to social media use reflect the social networks and systems in which young people interact. Lack of access to social media may perpetuate a lack of social participation in young people with language disorders [76].

The findings of this scoping review encourage a focus beyond simplistic concepts of social media use, such as frequency of screentime, and instead bring further questions around the intention or goals behind why young people with language disorders engage in social media. Our lens here is the use of social media

that focuses on communicative purposes, such as online conversations. Social media can offer young people with language disorders opportunities to engage with others on a more even footing [50], due to the more informal nature of the medium: rules around use of grammar and spelling are relaxed, “mistakes” in expression are tolerated, and the asynchronous, editable nature of interactions provides young people with the opportunity to read, think, write, and rewrite their contributions [41]. Further, young people can choose when and how often to engage with social media, as well as what they engage with [48]. This is not to suggest that for young people with language disorders there are not difficulties associated with communicating online (see section [Question 3: What are the barriers and facilitators to the use of social media by young people with language disorders?](#)); however, such difficulties may be due to demands of the medium itself, a young person’s personal profile of communication strengths and difficulties, or a combination of these factors.

Social media interventions to support young people with language disorders

Allied health professionals, such as speech-language pathologists, and education professionals are well positioned to provide support to young people with language disorders for their language and literacy skills, which are heavily implicated in the use of social media [92]. Providing intervention in this context may facilitate a young person’s desired use of social media.

This scoping review found that some interventions that targeted social media use resulted in significant improvements in the knowledge and skills of young people with language disorder to use social media [56,63–66,81], and the young person’s self-reported increase in social participation because of intervention [66,72,77]. This suggests that intervention can address barriers to a young person’s social media use. However, the ingredients for successful social media use training programs targeting young people with language disorders remain unknown. Further research is needed to establish how often an intervention is required, in what format, and targeting which aspects of social media use (i.e., skills and/or knowledge). Currently, existing evidence suggests that both e-mentoring and explicit teaching of social media use skills, which are personalised to the recipient, deserve further investigation.

For young people with language disorders, achieving success as communicators in social interactions throughout childhood and adolescence supports their preparation for adulthood [79]. This raises an important question: If young people do not learn to use social media in adolescence, when will they? For a young person’s successful transition to adulthood, opportunities to develop social networks, particularly with peers, in the social contexts within which they happen is essential. As such, social media may provide a natural context for developing skills that may generalise to other contexts [34].

Implications for clinical practice and policy

As highlighted in the [Types of social media included](#) section, young people with language disorders are likely using a range of social media. This suggests that healthcare professionals need to be familiar with the platforms/tools that young people are interested in using in order to support them. Professionals supporting young people may find it beneficial to work with families

to ensure a young person’s access to resources (in terms of skills, knowledge, and technology—including assistive technology, where needed) to support a young person’s social media use.

Working with young people and their families to identify potential communication partners for young people with language disorders to engage with via social media is likely important to address a potential barrier (i.e., a lack of digital social networks with which to connect) to the use of social media by a young person. Further, creating opportunities to practice social media skills in a safe space may increase the confidence of both a young person with a language disorder and their family with respect to a young person’s abilities.

Parenting practices concerning a child’s use of technology are varied, impacting device ownership by children, platforms/sites used, frequency of use, and purpose of use [93]. In part, this may be affected by worries that parents have about their child being online: issues such as exposure to inappropriate content, contact with strangers, and cyberbullying [94]. Healthcare professionals may need to advocate for the use of social media by young people with language disorders with both parents and schools, who regulate the opportunities for use (see section [Question 3: What are the barriers and facilitators to the use of social media by young people with language disorders?](#)). Professionals may wish to consider whether advocating for a constructive use strategy (i.e., procedures for accommodating, supporting, and building on young people’s media activities) would be appropriate for their clients.

It is recognised that some healthcare professionals may be reticent in supporting young people with language disorders to use social media, for a variety of reasons. For example, rehabilitation professionals used greater caution when providing therapy in a social media context when they had encountered, or observed that someone else had, negative experiences online [95]. However, a mixed methods study of the professional practices of speech-language pathologists with respect to the use of social media by young people with communication disability found that speech-language pathologists adapt their existing offline professional practices (e.g., language therapy goals) to online social media environments [92].

Limitations of the current review

A limitation of the current review is the use of the term language disorder and its myriad synonyms in the database search process. This may have excluded literature that may not always use this terminology. However, we attempted to minimise this limitation by searching a large number of databases ($n=10$) and by implementing both backward and forward chaining searches on the original 20 results. The current review is also constrained by findings that are limited to certain populations of young people with a language disorder and the use of certain social media platforms. We limited our grey literature search to doctoral theses and conference proceedings. In doing so, we acknowledge that there may be some young people who are social media users that identify as having a language disorder, but this was not systematically explored across social networking sites or within specific platforms, for example, YouTube. It remains an open question as to whether young people with language disorders are represented within these platforms and what their purposes of social media use are, be it interactive, reactive, broadcaster, or passive use. Furthermore, the studies identified within this review were carried out in a small number

of minority world countries, which may limit the generalisability of the findings to other countries. The lack of large-scale quantitative studies is another significant limitation of the existing literature.

This scoping review has also revealed the lack of co-designed research. The views, opinions, and insights of young people with language disorders, whether social media users or not, were not commonly included. The role of a young person with a language disorder in the identified research is typically that of research participant, rather than co-creator. As such, there is a lack of information from the perspective of young people as to what they perceive their social media needs, including training needs, to be and what support for social media use might look like.

Given the limited evidence, it is apparent that the literature in this area is currently in its infancy. That is not to say that the literature is new: 60% of the studies in this review were conducted before 2015. However, in light of how quickly social media develops, the paucity of research currently available indicates that there is a huge scope for future research.

Future research

Future research with specific study populations (e.g., young people with developmental language disorder, a subset of language disorder with no known biomedical condition) and larger sample sizes would be beneficial to fully understand how young people with a language disorder use social media, the challenges they may face, and how these may be addressed.

Future research should also consider applying Kaye's framework [31] of social media use.

While this scoping review suggests that young people with language disorders are engaged in a range of activities in line with this framework, for example, talking with friends on Skype may be considered interactive social media use (being a two-way interaction, in which the user occupies a sender role in the exchange), and liking or commenting on someone else's post on Facebook may be considered reactive social media use (being a two-way interaction, but this time with the user occupying an audience/recipient role) [31], further research is required to establish the primary types of social media use (interactive, reactive, broadcasting, or passive) young people with language disorders engage in, what type of social media use is preferred by young people with language disorders and why, and in what way their use of social media is impacted by their language disorder. Currently, research indicates quantitative differences in social media use by young people with language disorders and their typically developing peers. However, we hypothesise that there are likely also qualitative differences between these groups in terms of the ways in which they use social media.

Furthermore, research should focus on developing strategies to help young people with language disorders use social media effectively and comfortably, while also addressing potential negative impacts that they may encounter. Research examining the role of parents, healthcare providers, and educators in supporting young people with language disorders to successfully use social media is urgently needed.

Conclusion

This scoping review aimed to identify what is known from the existing literature on how young people with language disorders use social media for social interaction, what interventions involving

the use of social media are being implemented, and what the barriers and facilitators for social media use by young people with language disorders are. We found that young people with language disorders use social media less compared to typically developing peers. In addition, their unique profile of strengths/weaknesses, particularly with respect to language, may impact the types of social media that young people with language disorders choose to engage with. Some small-scale studies provide initial evidence that intervention to support the use of social media by young people with language disorders is beneficial. However, there is a substantial gap in the literature in this area and more research is required to identify what elements might be included in social media use training programs. In particular, research that involves young people with language disorders as co-designers in the research process is urgently needed, to understand young people's perspectives on what they perceive their social media needs to be and what support for the use of social media could look like.

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ORCID

Melanie Keep  <http://orcid.org/0000-0001-9516-0303>

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Appendix 1: Characteristics of papers in the included literature ($N = 44$).

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Alper [70]	USA	To investigate what advice medical and clinical professionals provide to parents of children with autism spectrum disorder about their children's recreational media and technology use.	Journal article (original research)	Survey	Questionnaire	Social media	Autism spectrum disorder	234 applied behavioural analysis providers working with autistic children aged 3-13 years.
Barden ^a [49]	UK	To examine the educational affordances of a co-constructed Facebook group page about students' scaffolded research into dyslexia.	Journal article (original research)	Qualitative	Participant observation, pre-and post- project interviews, video, dynamic screen capture, and protocol analysis	Facebook	Dyslexia	5 sixth form college students (16-19 years) with dyslexia.
Barden ^a [50]	UK	To examine the educational affordances of a co-constructed Facebook group page about students' scaffolded research into dyslexia.	Journal article (original research)	Qualitative	Participant observation, pre-and post- project interviews, video, dynamic screen capture,	Facebook	Dyslexia	5 sixth form college students (16-19 years) with dyslexia.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
					and protocol analysis			
Barden ^a [51]	UK	To discuss the methods used in a study of Facebook as an educational resource (used as a co-constructed group page about students' scaffolded research into dyslexia).	Journal article (discussion paper)	Discussion paper	Commentary	Facebook	Dyslexia	5 sixth form college students (16-19 years) with dyslexia.
Barden ^a [52]	UK	To examine the motivation to learn through literacy (via their engagement with Facebook) in students with dyslexia and the impact on their sense of identity.	Journal article (original research)	Qualitative	Participant observation, pre-and post-project interviews, video, dynamic screen capture, and protocol analysis	Facebook	Dyslexia	5 sixth form college students (16-19 years) with dyslexia.
Blom [48]	Netherlands	To compare texting and textese in children with specific language impairment and typically developing children.	Journal article (original research)	Quasi-experimental	Texting and oral language elicitation tasks (sending texts, and recording a voicemail message)	Text messaging	Specific language impairment	15 people with specific language impairment. Mean age 12;1, range 10-13 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Bosse [75]	Germany	To compare Internet and social media use (types, frequency, and duration) among students with complex communication needs.	Journal article (original research)	Survey	Questionnaire	Social media (e.g., Skype, email, Facebook, Twitter, online games, instant messaging, YouTube, blogs, forum)	AAC users	24 AAC users. Mean age 16.85, range 10-25 years.
Bower [85]	USA	To identify how adolescents with social pragmatic communication disorder use text messaging to establish and maintain friendship networks.	PhD Thesis	Qualitative	Conversational analysis of text messages and semi-structured interviews	Text messaging	Social pragmatic communication disorder	6 people with social pragmatic communication disorder. Mean age 16.8, range 15-17.5 years.
Brunner [82]	Australia	To review the literature relating to use of social media by people with a traumatic brain injury, specifically its use for social engagement, information exchange, or rehabilitation.	Journal article (review)	Literature review	Systematic review	Social media (e.g., Facebook, Twitter, YouTube, MySpace, LinkedIn, Ustream, Skype, blogs, forums, Internet chatrooms)	Traumatic brain injury	People (including adolescents) with traumatic brain injury.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Brunner [83]	Australia	To examine: 1) research on interventions addressing social media skills and safety for people living with health conditions; 2) free web-based resources on social media skills training for the general public; and 3) online support groups for people with ABI.	Journal article (review)	Literature review	Scoping review	Social media (e.g., Facebook group or page; web-based discussion forum or space; online support meetings [using web-based videoconferencing])	Acquired brain injury	People (including adolescents) with acquired brain injury.
Conti-Ramsden [43]	UK	To compare oral and text-based cell phone use by adolescents with and without specific language impairment.	Journal article (original research)	Cohort study	Structured interview and self-report diary	Mobile phone use (text messages and calls)	Specific language impairment	52 people with specific language impairment. Mean age 17;1, range 16;2 to 18;2 years.
Durkin [12]	UK	To investigate use of computer-mediated communication in young people with a history of specific language impairment.	Journal article (original research)	Cohort study	Structured interview and self-report diary	Email, MSN	Specific language impairment	86 people with specific language impairment. Mean age 17;1, range 16;2 to 18;2 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Durkin [44]	UK	To examine text messaging in adolescents with specific language impairment compared to typically developing adolescents.	Journal article (original research)	Cohort study	Texting elicitation task (replying to a text) and a question on texting frequency	Text messaging	Specific language impairment	47 people with specific language impairment. Mean age 17;1.
Durkin [45]	UK	To compare the uses of home computers by adolescents with and without specific language impairment.	Journal article (original research)	Cohort study	Structured interview and self-report diary	Computer use (e.g., email, MSN, chat rooms, online games, blogs)	Specific language impairment	55 people with specific language impairment. Mean age 17;10, range 16;2 to 18;2 years.
Durkin [46]	UK	To review the implications of different types of advice that might be offered to caregivers of children with language impairment with respect to their use of new media.	Journal article (review)	Literature review	Narrative review	Social media	Language impairment	Children and young people (unspecified) with language impairment
Durkin [58]	UK	To review the appeal of video games to people with autism spectrum disorder, attention-deficit/hyperactivity disorder, and specific language impairment.	Journal article (review)	Literature review	Narrative review	Video games	Autism spectrum disorder, attention-deficit/hyperactivity disorder, specific	Young people (unspecified) with developmental disorders

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
							language impairment	
Durkin [59]	UK	To review the literature on video game uses by children with special educational needs and consider the social potential of game play.	Journal article (review)	Literature review	Narrative review	Video games	Special educational needs (i.e. those who “have learning difficulties or disabilities that make it harder for them to learn or access education than most children of the same age”)	Children and young people (unspecified) with special educational needs.
Durkin [71]	Australia	To compare the cell phone use by adolescents with Asperger's syndrome with that of a group of adolescents with typical development.	Journal article (original research)	Survey	Questionnaire	Mobile phone use (text messages, calls, accessing the Internet,	Asperger's syndrome	35 people with Asperger's syndrome. Mean age 14;2, range 12;0-17;6 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
						taking photographs)		
Fisher [60]	USA	To investigate technology use and access to instruction among young people with intellectual and developmental disabilities.	Journal article (secondary analysis)	Quasi-experimental	Secondary analysis of data from the National Longitudinal Transition Study of 2012	Social media	Intellectual and developmental disabilities (e.g., intellectual disability, autism spectrum disorder, multiple disability)	Young people in grades 7-12 (but up to 22 years of age) with intellectual and developmental disabilities (n = 2700).
Grace [76]	Australia	To discuss the potential benefits and advantages of online participation for young people who use AAC.	Journal article (discussion paper)	Discussion paper	Commentary	Social media	AAC users	Young people (unspecified) who use AAC.
Grace [77]	Australia	To describe changes in experiences of participating in online conversations for AAC users following an e-mentoring intervention.	Journal article (original research)	Quasi-experimental	16 week online e-mentoring intervention	Facebook, email, Skype	AAC users	4 AAC users. Mean age 16;4, range 13;4 to 18;3 years. (Plus 2 adult mentors.)

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Grace ^b [81]	Australia	To investigate the effectiveness of an intervention teaching young AAC users to use the Internet for social connection.	Journal article (original research)	Quasi-experimental	Individualised 1:1 home-based intervention	Social networking and social media (e.g., email, Facebook, Skype)	AAC users	5 AAC users. Mean age 13;3, range 10;6 to 15;6 years.
Holyfield [72]	USA	To assess the impact of participation in an online blog on the quality of communication of young people with autism spectrum disorder.	MA Thesis	Quasi-experimental	7 week intervention involving co-creating an online blog	Online blog (hosted on Google sites)	Autism spectrum disorder	6 people with autism spectrum disorder. Mean age 16.8, range 14-22 years.
Hynan [78]	UK	To investigate the accessibility and use of the Internet and online social media by AAC users.	Journal article (original research)	Qualitative	Semi-structured interviews	Social media (e.g., Facebook, Skype, email, online games, texting)	AAC users	25 AAC users aged 14-24 years.
Kaur [61]	UK	To explore how young people with physical disabilities use the Internet.	PhD Thesis	Qualitative	Participant observation (of young people using the Internet at school/home), in-depth interviews,	Social media (e.g., Instagram, Facebook, instant messaging,	Young people with physical disabilities such as cerebral palsy or muscle wasting conditions	16 people with communication disability aged 14-19 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
					video diaries, home visits	email, online games)	(e.g., muscular dystrophy)	
Kelly [68]	Ireland	To explore the perspectives of adolescents with high-functioning autism spectrum disorder as to their social communication skills.	Journal article (original research)	Qualitative	Semi-structured interview	Social media	Asperger's syndrome or high-functioning autism spectrum disorder	5 people with autism spectrum disorder aged 15-17 years (1 was 15 years, 2 were 16 years and 2 were 17 years).
King [80]	USA	To describe how the abilities of a young person, Kyle, changed across domains between the ages of 2- to 15-years old.	Journal article (original research)	Longitudinal	Longitudinal retrospective case report	Chat rooms, video games	AAC user	1 AAC user (from 2 to 15 years).
Ko [69]	USA	To investigate the online experiences of youth with autism spectrum disorder and how they perceive this to compare to offline interactions.	PhD Thesis	Qualitative	Semi-structured interview	Social media (e.g., email, online games, instant messaging, social networking sites, blogs)	Asperger's syndrome	10 young people with Asperger's syndrome aged 12-18 years (3 were 12 years, 2 were 13 years, 3 were 14 years and 2 were 18 years).

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Mazurek [73]	USA	To examine the amount and intensity of television, video game, and social media use in children with autism spectrum disorder compared to siblings.	Journal article (original research)	Cross-sectional	Questionnaire	Social media (e.g., Facebook, email, texting, video games)	Autism spectrum disorder	202 people with autism spectrum disorder. Mean age 12.1, range 8-18 years.
Mazurek [74]	USA	To examine screen-based media use in young people with autism spectrum disorder.	Journal article (secondary analysis)	Quasi-experimental	Secondary analysis of data from the National Longitudinal Transition Study-2	Email, Internet chat rooms	Autism spectrum disorder	13-17 year olds with autism spectrum disorder (n = 920).
Newman ^b [62]	Australia	To investigate the barriers and facilitators to Internet accessibility for young people with disabilities with respect to Bourdieu's economic, cultural, and social capitals.	Journal article (discussion paper)	Discussion paper	Commentary	Social media (e.g., games, Skype, Facebook, Twitter, videos, email, Livewire, instant messaging)	Acquired brain injury, cerebral palsy, or a physical disability (e.g., muscular dystrophy)	18 people with acquired brain injury, cerebral palsy, or a physical disability. Mean age 13.7 years, range 10-18 years.
Pilling [84]	UK	To investigate the text communication preferences of deaf/hard of hearing people who cannot, or	Journal article (original research)	Survey	Survey	Email, SMS, instant messaging	Deaf/hard of hearing people	381 deaf/hard of hearing people (total sample), of which 10% (n = 38) were aged 15-18 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
		prefer not to, use voice telephony.						
Raghavendra ^c [56]	Australia	To investigate the effectiveness of an intervention teaching the use of social media to young people with communication difficulties, to enhance their social networks.	Journal article (original research)	Mixed methods	Individualised 1:1 home-based intervention	Social media (e.g., Skype, email, Facebook)	Intellectual disability, autism spectrum disorder, cerebral palsy, or another disability (e.g., acquired brain injury)	8 young people with a communication disability. Mean age 15.4, range 11.7-18.3 years.
Raghavendra ^b [63]	Australia	To investigate the effectiveness of an intervention teaching young people with disability to use the Internet for social connection.	Journal article (original research)	Quasi-experimental	Individualised 1:1 home-based intervention	Social media (e.g., games, Skype, Facebook, Twitter, videos, email, Livewire, instant messaging)	Acquired brain injury, cerebral palsy, or a physical disability (e.g., muscular dystrophy)	18 people with acquired brain injury, cerebral palsy, or a physical disability. Mean age 13.7 years, range 10-18 years.
Raghavendra ^c [64]	Australia	To investigate the effectiveness of an intervention teaching the use of social media to	Journal article (original research)	Mixed methods	Individualised 1:1 home-based intervention	Social media (e.g., Skype, email, Facebook)	Intellectual disability, autism spectrum	9 young people with a disability. Mean age 17.0 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
		young people with communication difficulties, to enhance their social networks.					disorder, or another disability (e.g., dyslexia)	
Raghavendra ^b [65]	Australia	To investigate the effectiveness of an intervention teaching young people with disability to use the Internet for social connection.	Journal article (original research)	Mixed methods	Individualised 1:1 home-based intervention	Social media (e.g., games, Skype, Facebook, Twitter, videos, email, Livewire, instant messaging)	Acquired brain injury, cerebral palsy, or a physical disability (e.g., muscular dystrophy)	18 people with acquired brain injury, cerebral palsy, or a physical disability. Mean age 13.7 years, range 10-18 years.
Raghavendra ^c [66]	Australia	To investigate the effectiveness of social media training and online mentoring support in building the social networks of young people with disability.	Report	Mixed methods	Mixed methods with three stages: Stage 1) Internet use survey. Stage 2) Individualised 1:1 home-based intervention. Stage 3) Online e-mentoring.	Social media (e.g., Facebook, instant messaging, Skype, email)	Intellectual disability, autism spectrum disorder, cerebral palsy, or another disability (e.g., acquired brain injury)	Stage 1: 57 young people with a disability. Mean age 15;8, range 10;4-21;11 years. Stage 2: 17 young people with a communication disability. Mean age 16;3. Stage 3: 7 young people with a communication disability. Mean age 16;7.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Raghavendra [67]	Australia	To investigate patterns and frequency of Internet use by young people with complex communication needs.	Journal article (original research)	Qualitative	Semi-structured interview	Social media (e.g., email, instant messaging, social networking sites [eg, Myspace, Facebook], online games)	Cerebral palsy, muscular dystrophy, congenital hydrocephalus	15 people with complex communication needs. Mean age 14.6, range 11–18 years.
Scancarella [47]	USA	To examine the comprehension of sarcasm in both verbal utterances and text messages by children and adults with SLI and their typically developing peers.	MSc Thesis	Experimental	Between- subjects experi- ment with two conditions (text context and verbal context)	Text messaging	Specific language impairment, learning impairment	10 young people (and 5 adults) with specific language impairment/learning impairment. Mean age of children 12;8, range 10;8-14;6 years.
Simoës- Perlant [53]	France	To compare the texts of adolescents with dyslexia dysorthographia with the texts of typically developing peers in a dictation task.	Journal article (original research)	Experimental	Texting and written language elicitation tasks (sending a SMS and writing on paper)	Text messaging	Dyslexia	15 people with dyslexia. Mean age 13.26 years.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Smith [79]	Ireland	To review the changes associated with adolescence (e.g. social and emotional) and discuss the implications in terms of interventions targeting the needs of adolescent AAC users.	Journal article (review)	Literature review	Narrative review	Social media	AAC users	Adolescents (defined as the period between 10-20 years) who are AAC users.
Sohlberg [57]	USA	To investigate the usability of an adapted e-mail interface, TeenMail, for adolescents with learning and communication impairments.	Journal article (original research)	Cross-sectional	Analysis of emails sent via TeenMail	Email	Intellectual disability, autism spectrum disorder, or another learning disability	11 young people with communication disability. Mean age 13;5, range 12;1-14;8 years.
Vezzoli [54]	UK and Italy	To explore the opportunities offered by multimodal literacies for the participation and learning of dyslexic young people in multimodal digital environments.	PhD Thesis	Mixed methods	Phase 1: Semi-structured interview. Phase 2: Workshops and semi-structured interview. Phase 3: Four professional development meetings.	Facebook, Instagram	Phase 1 and 2: Dyslexia	Phase 1: 8 young people with dyslexia. Range 14-16 (mode 15). Phase 2: 16 young people with dyslexia. Range 14-17 (mode 15). Phase 3: 18 teachers of 14-16 year olds.

First author [reference]	Country	Purpose of study	Publication type	Design	Method	Social media platform(s)	Clinical sample population	Participants (clinical sample only, where applicable)
Vezzoli [55]	UK	To explore if and how the multimodal affordances of social network sites mediate participation and new literacies for young people with dyslexia.	Conference proceedings	Qualitative	Semi-structured interview	Facebook, Instagram	Dyslexia	8 people with dyslexia. Range 14-16 years (mode 15).

Notes:

AAC = augmentative and alternative communication. ^a = These papers are part of the same project. ^b = These papers are part of the same project (with one being a subset of the total sample). ^c = These papers are part of the same project.

Appendix 2: Social media in the included papers ($N = 44$).

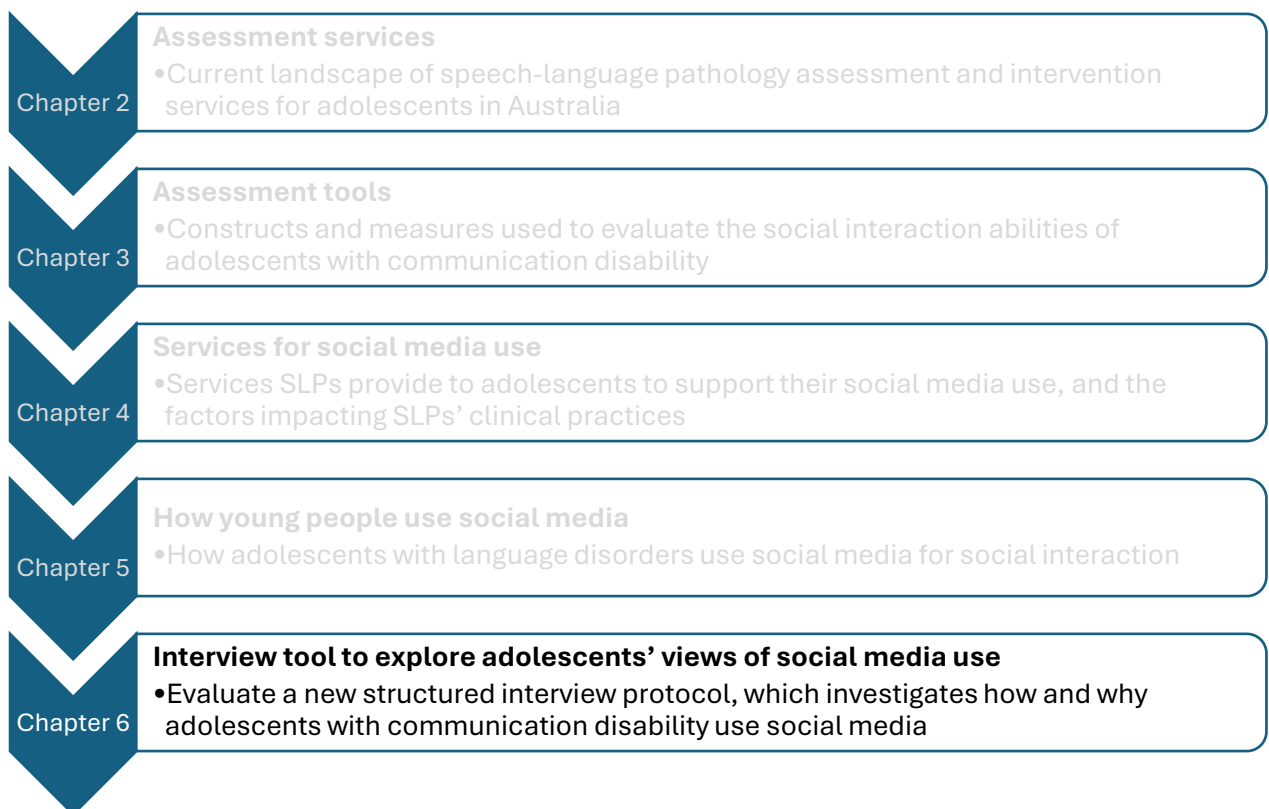
First author [reference]	Social networking sites (e.g., Facebook, Twitter, Instagram, MSN)	Email	Skype	Online games	Texting/ SMS	Instant messaging	Blogs	YouTube	Chat rooms	Forums/ discussion boards	Social media or computer use generally
Alper [70]											X
Barden [49]	X										
Barden [50]	X										
Barden [51]	X										
Barden [52]	X										
Blom [48]					X						
Bosse [75]	X	X	X	X		X	X	X		X	
Bower [85]					X						
Brunner [82]	X		X				X	X	X	X	
Brunner [83]	X		X							X	
Conti- Ramsden [43]					X						
Durkin [12]	X	X									
Durkin [44]					X						
Durkin [45]	X	X		X			X		X		
Durkin [46]											X
Durkin [58]				X							
Durkin [59]				X							

First author [reference]	Social networking sites (e.g., Facebook, Twitter, Instagram, MSN)	Email	Skype	Online games	Texting/ SMS	Instant messaging	Blogs	YouTube	Chat rooms	Forums/ discussion boards	Social media or computer use generally
Durkin [71]					X						
Fisher [60]											X
Grace [76]											X
Grace [77]	X	X	X								
Grace [81]	X	X	X								
Holyfield [72]							X				
Hynan [78]	X	X	X	X	X						
Kaur [61]	X	X		X		X					
Kelly [68]											X
King [80]				X					X		
Ko [69]	X	X		X		X	X				
Mazurek [73]	X	X		X	X						
Mazurek [74]		X							X		
Newman [62]	X	X	X					X			
Pilling [84]		X			X	X					
Raghavendra [56]	X	X	X				X	X			
Raghavendra [63]	X	X	X	X		X					

First author [reference]	Social networking sites (e.g., Facebook, Twitter, Instagram, MSN)	Email	Skype	Online games	Texting/ SMS	Instant messaging	Blogs	YouTube	Chat rooms	Forums/ discussion boards	Social media or computer use generally
Raghavendra [64]	X	X	X			X					
Raghavendra [65]	X	X	X	X		X					
Raghavendra [66]	X	X	X			X	X	X			
Raghavendra [67]	X	X		X		X					
Scancarella [47]					X						
Simoës- Perlant [53]					X						
Smith [79]											X
Sohlberg [57]		X									
Vezzoli [54]	X										
Vezzoli [55]	X										
Total	24	19	12	12	10	9	7	5	4	3	6

Chapter 6 (Paper 5)

How and Why Adolescents with Communication Disability Use Social Media: A pilot evaluation of the Digital Dialogues Interview (DDI)



This chapter presents a qualitative pilot study that investigated how and why young people with communication disability engage with social media, through the development and evaluation of the Digital Dialogues Interview (DDI). Social media offers both opportunities and challenges for young people with communication disability, including those with language and/or literacy difficulties. However, research methods that effectively capture the voices of this population remain limited, with few tools specifically designed to accommodate their profile of communication strengths and challenges. This study addressed a critical gap in the literature by co-designing and piloting a multimodal, digitally delivered structured interview tool that enables young people with communication disability to share their experiences of using social media. In doing so, it advances inclusive research practices by centring the experiences of young people with communication disability in digital contexts.

The paper presented in this chapter is currently under peer review:

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Author Attribution Statement

As co-author of the above paper and primary supervisor, I confirm that Nichola Shelton made the following contributions, in collaboration with co-authors:

- Conceptualisation
- Formal analysis

- Funding acquisition
- Investigation
- Methodology
- Project administration
- Resources
- Visualisation
- Writing – original draft
- Writing – review & editing

Name: Melanie Keep

Date: 28/11/2025

Title: Digital Dialogues: A Pilot Study to Evaluate a Structured Interview that Explores the Social Media Experiences of Adolescents with Communication Disability

Authors: Nichola Shelton¹, Natalie Munro^{2, 1}, Julia Starling¹, Lyn Tieu³, Rebecca Sutherland¹, and Melanie Keep¹

Affiliations: ¹Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia; ²Faculty of Health, Southern Cross University, Gold Coast, QLD, Australia; ³Faculty of Arts and Science, University of Toronto, Toronto, ON, Canada

Corresponding Author: Nichola Shelton, Level 6, Susan Wakil Health Building, D18 Western Avenue, The University of Sydney, NSW 2141, Australia. E-mail: Nichola.Shelton@sydney.edu.au Phone: +61 2 8015 6011

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Author Contributions: NS, NM, JS, MK led the design of methodology. NS and RS led the data analysis. All authors contributed to the writing of the original draft and subsequent review and editing of the manuscript.

Statements and Declarations: This study was approved by The University of Sydney Human Research Ethics Committee (project number 2023/HE000774). Written parental consent and verbal assent from young people, including informed consent for publication, was provided by all participants. The data supporting the findings of this study are not

publicly available due to ethical restrictions. However, they can be accessed upon reasonable request from the corresponding author, subject to approval by the relevant ethics committee. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. This research was supported by a Nadia Verrall Memorial Research Grant from Speech Pathology Australia. We extend our gratitude to Speech Pathology Australia for their generous support. This study was completed as part of the first author's doctoral degree studies.

Supplementary material:

https://osf.io/23wdq/?view_only=85996df38387426fb59002c0b2ed77a5

Abstract

Purpose: This pilot study aimed to evaluate a new structured interview tool, the Digital Dialogues Interview (DDI), which was designed to amplify the voices of 12- to 17-year-olds with communication disability by examining how and why they use social media.

Method: A three-phase design was adopted. In Phase 1, the structured interview was developed. In Phase 2, a youth advisory group of young adults ($n = 4$) was consulted on the project's design and materials to be used in Phase 3. In Phase 3, structured interviews with adolescents with communication disability ($n = 5$), characterised by language and/or literacy difficulties, were conducted. To evaluate both the feasibility of the DDI and challenges associated with administering it, data were gathered on the usefulness of the data collection procedures and usability of the tool.

Result: The DDI posed minimal challenges for use in qualitative research with young people with communication disability. The primary theme produced through reflexive thematic analysis was that participants use social media to foster connection, while facing challenges including communication difficulties and technology issues.

Conclusion: This project was an important initial step in creating a tool to investigate how and why young people with communication disability use social media. The findings informed adaptations to the DDI and research procedures, highlighting the value of thorough piloting for improving trustworthiness, the depth of data generated, and ultimately listening to the experiences of young people with communication disability.

Keywords: social media; adolescents; communication disability; digital communication; social interaction; interviews

Introduction

One in six mainstream secondary-age school children in Australia are impacted by communication disability (McLeod and McKinnon, 2007), which may be understood as difficulties comprehending and/or producing verbal, nonverbal, and graphic symbol systems (Gillam and Marquardt, 2024). Communication disability may impact a person's speech, language, pragmatics, fluency, and/or voice (American Speech-Language-Hearing Association, 1993). It may be associated with developmental or acquired conditions, for example, developmental language disorder (DLD) or traumatic brain injury, respectively (Simeonsson, 2003; Ylvisaker and Feeney, 2007).

Language disorders are one of the most common forms of communication disability (DeThorne et al., 2023). Young people with language disorders often struggle with various linguistic elements, which impacts their communication. They may have a limited vocabulary or difficulty with word retrieval (Starling et al., 2011); their sentences may be shorter and less complex (Conti-Ramsden et al., 2001; Leonard and Schroeder, 2023); and they may also face challenges in abstract reasoning, logical thinking, and using appropriate discourse structures (Hill et al., 2021). These difficulties can lead to challenges such as emotional and behavioural issues (Forrest et al., 2020; Lindsay and Dockrell, 2012), mental health issues (Botting et al., 2016; Tamayo et al., 2024), reduced employment outcomes (Clegg et al., 2005; Whitehouse et al., 2009), quality of life concerns (Feeney et al., 2017; Johnson et al., 2010), and social and relationship difficulties (Mok et al., 2014; St Clair et al., 2011). Specifically, young people with language disorders often struggle with understanding and using language in social settings, which can make it difficult for them to form and maintain friendships (Ekström et al., 2023; Wadman et al., 2011).

Capturing Voices of People with Communication Disability

Young people with communication disability have a right to express themselves, and have their perspectives valued and acted upon (Lyons et al., 2022). Two recent reviews have examined the methods used in research to elicit the voices of children with communication disability regarding their educational experiences. Bloom et al. (2020) critically analysed six elicitation techniques: The Diamond Rank Sorting Task, focus group elicitation, Talking Mats, The Mosaic Approach, The Ideal School Drawing Technique, and In My Shoes. They found that these tools offered valuable ways to explore children's experiences by incorporating child-centred features, such as visual supports, and enabling participants to express themselves in multi-modal ways, such as by talking, drawing, or sorting. Further advantages include the elicitation of rich data, their ability to include young people with literacy and/or cognitive difficulties, and being liked/enjoyed by the children and young people taking part. More recently, Lewis-Dagnell et al. (2023) reviewed methods used in research with children and young people with complex needs, such as those associated with autism or speech, language, and communication needs. The review identified 14 qualitative papers that used a range of methods, including observation, adapted interviews, adapted questionnaires, Digital Stories, visual elicitation methods (including use of photographs and artifacts), videos, drawings, and sign language. The authors recommended using a “toolbox” of methods, rather than relying on a single method, to elicit the voices of children with communication disability. Such an approach enables children to participate in different ways, by accommodating their communication needs and preferences.

In addition to the challenges of adapting tools originally designed for children more generally for use with those with communication disability, there are broader barriers to the use of these methods. Bloom et al. (2020) argue that these include: the time-consuming nature of some

tools, the degree of assistance required for young people to participate (e.g., in sorting tasks, which require a high degree of reasoning skill), unpredictability (e.g., of focus groups), lack of operational clarity in terms of how to implement a method, lack of usable data generated, the necessity for appropriate training for administrators, and being unsuitable for certain groups (e.g., those with more severe difficulties and those with motor co-ordination difficulties). Furthermore, lack of formal evaluation of a number of these tools means that any evidence about their effectiveness for eliciting voices of young people with communication disability is only suggestive.

In a speech-language pathology context, tools for sourcing data have traditionally been designed for face-to-face administration, although many are now used (sometimes with adaptations) in online contexts (Nelson et al., 2021). Face-to-face methods, particularly in qualitative research, have several limitations, including accessibility issues, and high demands on time and resources (Reñosa et al., 2021). To the best of our knowledge, there is currently no qualitative digital tool that offers participants a multimodal experience by presenting questions in both spoken and written formats, complemented by visual imagery. Such a tool could elicit information in an inherently different way by leveraging the unique capabilities of a digital platform (e.g., Qualtrics) to enhance participation and inclusivity.

The limitations of existing methods for capturing voices of people with communication disability are particularly pertinent when there is a strong mandate to conduct research with people who have communication disability (Lyons et al., 2022). The meaningful participation of young people with communication disability within the speech-language pathology field is developing, but is still not commonplace. Additionally, there is a lack of tools specifically designed to capture the opinions and experiences of young people with

communication disability regarding their use of social media. This study aimed to address this gap in the research by presenting results of a co-designed study that sought to develop a new structured interview tool and utilises the participation and input of young people and young people with communication disability in research.

Social Media Use by Young People

Social media has become a crucial part of the everyday lives of young people (Nesi et al., 2018), with many young people viewing access to it as a fundamental right (Goodyear et al., 2018). In 2024, 90% of 13- to 17-year-olds in the United States used at least one social media app/website, with 46% reporting using the Internet “almost constantly” (Pew Research Center, 2024, p. 20). Social media presents young people with opportunities for social interactions, especially for marginalised/socially excluded populations (Notley, 2009). Research by Raghavendra et al. (2015) found that young people with disabilities, including those with communication disability, wanted to learn how to use social media to connect with others. In the scoping review of social media use in young people with communication disability conducted by Shelton et al. (2024), only 44 papers were found with respect to young people and language disorders. The review found that using social media may be crucial for the social participation and wellbeing of young people with communication disability. While the Shelton et al. (2024) review did not specify how young people’s perspectives were captured, it did report that none used a co-participatory design.

Co-Designing the Digital Dialogues Interview

The National Institute for Health and Care Research (NIHR) defines public involvement in research as, “research being carried out ‘with’ or ‘by’ members of the public rather than ‘to’,

‘about’ or ‘for’ them” (National Institute for Health and Care Research, 2021 p. 1). A review of co-designed research in health (Slattery et al., 2020) identified that the benefits of co-designed research are that the research topics, research questions, and design of materials are more relevant and acceptable to end-users of research. Several frameworks aim to conceptualise both the degree of involvement of end users in the research process and the stages of the research process at which co-design occurs (e.g., Bird et al., 2021; Smits et al., 2020). Here, we use the adapted Involvement Matrix (Power and Morrow, 2024), which evaluates co-design based on the extent of end-user participation in the research process.

Power and Morrow’s (2024) framework presents seven levels of end-user involvement in research. Of these seven levels, the first two (Not Involved and Research Participant) are where end users are either excluded from research processes or take part in data collection only. The next two levels (Listener and Co-Thinker) involve participants as someone for whom we are doing the research; involvement may include being asked to give a one-off opinion. The final three levels constitute co-design (doing research with end users), with the roles of Advisor, Partner, and Decision Maker. This project utilised a youth advisory group as Advisors, whereby they were included on an advisory committee that provided opinions and were told how those opinions would be used.

Purpose and Research Questions

The voices of young people with communication disability are largely excluded from the conversation regarding their social media use. This research addresses a critical gap in the literature through the development of a structured interview tool that seeks to understand how young people with communication disability use social media, why they use it, and what activities they engage in when using social media. The purpose of this research was to

conduct an exploratory pilot study with young people who have communication disability.

The study aimed to pilot the Digital Dialogues Interview (DDI) and evaluate its feasibility for use in a larger-scale study. The study aimed to answer the following research questions (RQ):

- (RQ1) How feasible (e.g., participant engagement, usability of the interview, time/resources) was the DDI to implement in research with young people with communication disability?
- (RQ2) What challenges were encountered when administering the DDI?
- (RQ3) What does the DDI tell us about how and why young people with communication disability use social media?

Method

This project primarily employed qualitative methods, namely a focus group and structured interviews. The research was completed in three phases, as described below. This study was approved by The University of Sydney Human Research Ethics Committee (project number 2023/HE000774).

Researcher Positionality

Researchers' identities shape qualitative research. Guided by an interpretivist paradigm, we recognise that knowledge is co-constructed. Our approach was driven by the goal of understanding the subjective experiences of young people in their social and communicative contexts. NS, NM, JS, and RS are cisgender female speech-language pathologists (SLPs) with experience working with adolescents with communication disability. LT, a cisgender female linguist, specialises in psycholinguistic methods, while MK, a cisgender female

psychologist, focuses on eHealth and social media's impact on wellbeing. AW, a cisgender male undergraduate SLP student, conducted the interviews with young people. The team acknowledges their positionality's influence on the development of the DDI, data generation, and data analysis.

Phase 1: The Development of the DDI

The development of the DDI was informed by literature in the following areas: (a) accessibility of language for young people with language disorders, (b) frameworks of social media use, and (c) communication partners.

Language Accessibility

In developing the DDI, four of the five points in the five-point written language checklist, which is included in the Linking Language with Secondary School Learning (LINK-S) Program (Starling et al., 2012), were applied. These points help simplify written language, to make it more accessible to people with language difficulties. The interview protocol incorporated modification techniques to address text complexity (e.g., using one idea per sentence), accessibility of vocabulary (e.g., use of a glossary to explain key concepts, using simpler terms), clarity of instructions (e.g., bolding key words in instructions), and use of visuals (e.g., use of pictures to support written text). Further, two frameworks informed the development of this tool.

Kaye Framework

The Kaye (2021) framework proposes four categories of social media use: interactive, reactive, broadcasting, and passive. These categories are based on two dimensions. The first

is the level of interactivity (two-way interactive vs one-way non-interactive), and the second is the user's position in the communication (sender vs recipient/audience). Passive social media use includes activities like scrolling through feeds, checking others' accounts, and consuming information, while active social media use involves producing and publishing content, making it more social in nature (Winstone et al., 2023). Consequently, young people's social media use can be for both communicative and non-communicative purposes (Best et al., 2014). There is ongoing debate about whether the terms active and passive are nuanced enough descriptors of social media use (Livingstone, 2015), and we acknowledge that attributes of social media platforms in and of themselves inform the ways in which users interact in online contexts (Davis and Chouinard, 2017). However, these dimensions parallel a user's position in communication, along a continuum from an active sender or creator of content to a recipient consuming the message or content. Additionally, digital health research has shown that the distinction can be meaningful. For example, users have reported differences in depressive symptoms depending on whether they were browsing compared to liking and posting on Instagram (Frison and Eggermont, 2017). The Kaye (2021) framework informed the development of how concepts were presented, how questions were asked, and what response options were offered with respect to the ways in which young people use social media (see Page 19 of the DDI Interview Tool in Supplementary Material).

Circles of Communication Partners

The Circles of Communication Partners (CCP) framework (Blackstone, 2003), while originally developed for use in the augmentative and alternative communication (AAC) sphere, has been used in research with other populations, such as adults with aphasia (Vickers, 2010) and people with Prader-Willi syndrome (Daniell, 2024). The CCP is embedded in the *Social Networks Communication Inventory* (Blackstone and Hunt Berg,

2012) assessment. In this study, the CCP framework informed questions that sought to understand the communication partners of young people with communication disability.

The CCP is composed of five concentric circles, with the person with communication disability at the centre. It can be used to gather information on the variety of communication partners in a person's life, to shed light on the social networks of individuals. Circle 1 (innermost) represents lifelong communication partners, such as family and close relatives (e.g., parents, siblings, spouse, children). Circle 2 denotes close friends and extended family members (e.g., good friends, aunts/uncles, cousins). Circle 3 represents acquaintances (e.g., schoolmates, neighbours, colleagues). Circle 4 denotes paid communication partners (e.g., teachers, health professionals, hairdresser). Circle 5 represents everyone else, that is, unfamiliar people (e.g., people at shops). Raghavendra et al. (2015) added an additional circle to this framework to account for online interactions, hence, Circle 6 represents online communication partners. Online communication partners include individuals with whom a person interacts both offline and online, as well as those they communicate with exclusively online (Raghavendra, Newman, Grace, et al., 2015). While Circle 5 could include those in Circle 6, the specific focus on social media in this study aligned with this additional circle being used.

The DDI was so named to highlight three key aspects of the tool: its digital format (utilising Qualtrics), its purpose (to explore the experiences of young people with communication disability in digital environments), and its focus on communication, both in terms of interactions between young people and their communication partners on social media, and the dialogue between interviewer and interviewee.

Structure of the DDI

To account for the anticipated difficulties with language and/or literacy of interview participants, a structured interview schedule was developed. It employed easy-to-understand language and was supported by visual imagery. Additionally, we elected to present the interview in both oral and written format, which meant participants were able to read the questions while they were simultaneously being spoken by the investigator. The DDI was hosted on Qualtrics (qualtrics.com), which is typically a survey tool. However, it was not used in this way. Rather, Qualtrics was chosen as this platform allows questions to be formatted in a particular way, which supports interactive engagement, and supports the use of graphics.

The interview was comprised of nine sections: assent, demographics, rapport building, social media used, communication partners, why participants used social media, activities conducted on social media, what makes using social media hard, and feedback on the structured interview itself (see Table 1). It followed an Information, Activity, Question structure, which was designed to prime participants' thinking about the interview question(s). For example, background information was provided as to what we mean by social media. An activity was then presented, which allowed young people to indicate the social media apps/websites they use. Finally, open-ended interview questions about social media use were presented (see Figure 1). Multiple-choice questions (e.g., for the demographic section) were also included. Activities made use of Likert response questions (matrix tables); pick, group, and rank questions; and rank order drag and drop questions.

Table 1: Number of items in each section of the DDI.

	Structure type		
	Information	Activity	Question
Assent	1*	0	3
Demographics	1	0	7
Rapport building	0	0	2
Social media used	1	1	1
Communication partners	1	1	1
Why participants used social media	1	1	3
Activities conducted on social media	1	1	2
What makes using social media hard	1	1	3
Feedback on the structured interview	1	0	5

* The information in the Assent section was available in two formats: written and video.

Information	Activity																																																												
Here are some examples of social media websites/apps and what people might use them for. <table border="1"> <tr> <td></td> <td>BeReal Photo sharing</td> <td></td> <td>Text messaging Instant messaging</td> </tr> <tr> <td></td> <td>Discord Group chat</td> <td></td> <td>Tik Tok Video sharing</td> </tr> <tr> <td></td> <td>Email (e.g., Gmail) Messaging</td> <td></td> <td>Twitch Live streaming</td> </tr> <tr> <td></td> <td>Facebook Social networking</td> <td></td> <td>WhatsApp Instant messaging</td> </tr> <tr> <td></td> <td>Facetime Video calls</td> <td></td> <td>X (Twitter) Social networking</td> </tr> <tr> <td></td> <td>Instagram Photo and video sharing</td> <td></td> <td>YouTube Video sharing</td> </tr> <tr> <td></td> <td>Reddit Discussion and news</td> <td></td> <td>Zoom Video calls and instant messaging</td> </tr> <tr> <td></td> <td>Snapchat Instant messaging</td> <td colspan="2">You might use other apps/websites. It might be for one of the reasons here, or for something else.</td> </tr> </table>		BeReal Photo sharing		Text messaging Instant messaging		Discord Group chat		Tik Tok Video sharing		Email (e.g., Gmail) Messaging		Twitch Live streaming		Facebook Social networking		WhatsApp Instant messaging		Facetime Video calls		X (Twitter) Social networking		Instagram Photo and video sharing		YouTube Video sharing		Reddit Discussion and news		Zoom Video calls and instant messaging		Snapchat Instant messaging	You might use other apps/websites. It might be for one of the reasons here, or for something else.		What social media apps/websites do you use? • You might use these a lot, just a little, or not at all. Click a button next to the apps/websites below, to show how often you use them. <table border="1"> <thead> <tr> <th></th> <th>Use a lot</th> <th>Use a little</th> <th>Don't use</th> </tr> </thead> <tbody> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td></td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </tbody> </table>		Use a lot	Use a little	Don't use		☐	☐	☐		☐	☐	☐		☐	☐	☐		☐	☐	☐		☐	☐	☐		☐	☐	☐
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Question	Why do you like the social media apps/websites you use?																																																												

Figure 1: Screenshots of the DDI, showing the Information, Activity, Question structure.

Phase 2: Youth Advisory Group

In Phase 2, a youth advisory group (YAG) was recruited via convenience sampling, via the researchers' social media profiles, and snowball sampling. The group consisted of four young adults (two males and two females), aged 20 and 21 years old, of whom two had attention-

deficit/hyperactivity disorder (ADHD) and three spoke a language in addition to English at home. All participants were current students at [removed for peer review].

Participants attended a half-day (4-hours) workshop and were asked for their feedback on both the Phase 3 research design (e.g., recruitment strategies, structured interview) and materials (e.g., information sheet, consent form). This consultation helped to ensure Phase 3 was relevant and appropriate for adolescents with communication disability, by tailoring the research to better meet the needs and preferences of this population.

All YAG members were asked to complete a consent form prior to participation and were compensated AUD\$30 per hour for taking part in the research, in the form of a shopping centre gift card.

The workshop with young adults was conducted as a focus group, facilitated by the first and second authors. Following an introduction to both communication disability and the speech-language pathology profession, the first author introduced the current research and the role of the YAG in it. Topics for discussion were introduced by the first author and included recruitment and consent materials, as well as the structured interview schedule. All participants were encouraged to interact, share their thoughts, and build on one another's responses by the moderators who asked open-ended questions and redirected the conversation if it became off-topic. Both facilitators kept notes to ensure that key points were captured, with the main discussion points/actions to be taken summarised at the end of the workshop to ensure accuracy.

A Mentimeter quiz was employed to support engagement, with questions presented after each discussion topic. For example, following discussion of a video to be used to recruit interview participants, Mentimeter quiz questions included “The graphics of the video are appropriate” and “The length of the video is appropriate,” with YAG participants indicating their disagreement/agreement on a Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Topics for discussion in the workshop, along with Mentimeter quiz questions, are included in the Supplementary Materials.

After the workshop, changes were made to the study and materials to be used in Phase 3. These changes included revision to the recruitment materials, study documentation, and interview tool. Additionally, the YAG participants were provided with the opportunity to give additional feedback on the changes made following their input; no further feedback was provided.

Phase 3: Interviews

In Phase 3, five young people (12- to 16-year-olds) with communication disability, characterised by language and/or literacy difficulties, were recruited via purposive sampling using the researchers’ professional networks to participate in a supported, structured interview. All had received speech pathology services in the past 2 years (reference point = date of recruitment). Interviews took place between February and April 2025. Each young person’s parent/guardian was also invited to participate in a semi-structured interview; their perspectives will be reported in a separate paper.

Participants chose whether to be interviewed in person or via videocall, specifically Zoom. A research assistant conducted interviews with the young people, while the first author

conducted interviews with their parent/guardian. Both the young person and their parent/guardian each received a AUD\$30 shopping centre gift card for taking part in the research.

Participants' assent to take part in an interview was facilitated by a research study information sheet that used easy-to-understand language and was supported by visual imagery. This information was also available as a narrated animated video, which was created in Powtoon and hosted on YouTube (see Supplementary Material). Assent to participate was provided by all participants. Demographic details of the participants are shown in Table 2.

Table 2: Demographic data of participants—young people with communication disability.

<i>ID#</i>	<i>Age</i>	<i>Gender</i>	<i>Aboriginal and/or Torres Strait Islander</i>	<i>Formal diagnosis</i>	<i>Reason for seeing an SLP</i>	<i>Languages spoken at home</i>	<i>Australian State or Territory</i>
YP1	12	Male	No	None	Literacy	English	New South Wales
YP2	13	Male	No	ADD	Language	English and Greek	New South Wales
YP3	16	Male	No	Autism and ADHD	Literacy	English	New South Wales
YP4	13	Male	No	Autism and ADHD	Language and literacy	English	New South Wales
YP5	15	Male	No	Dyslexia	Literacy and speech	English	New South Wales

A soft copy (PDF version) of the interview was provided to participants ahead of the interview to enable them to prepare answers. Interviews were audio or video recorded on Zoom, in accordance with participants' preferences, regardless of whether interviews were

held on Zoom or in person. Zoom's auto-transcription feature was used to generate transcripts of interviews, which were then manually checked and edited, as needed, by the first author to ensure their accuracy and reliability.

Due to the challenges they faced with language and/or literacy, young people were not provided with the opportunity to review their interview transcript. This decision prioritised participants' comfort and aimed to avoid potential misunderstandings or stress during the review process.

To ensure methodological rigour in this phase of the study, several processes were employed. First, we used purposive sampling by inviting individuals who were well positioned to share valuable and relevant insights to participate. Second, regular investigator meetings were held, which facilitated reflexive exploration of conceptual lenses, preconceptions, assumptions, biases, and values. Finally, team meetings, raw data, transcripts, and coding decisions were documented; this helped to ensure transparency by keeping a record of both the research process and outcomes.

Data Analysis

To address the first research question, about the feasibility of the DDI, three types of data were collected. Firstly, participants completing the DDI were asked for feedback on the structured interview itself, with a section of the Qualtrics interview dedicated to questions such as “The pictures helped me understand the questions” and “The questions were easy to understand.” Participants indicated their disagreement/agreement via a Likert scale (1 = *disagree a lot*, 5 = *agree a lot*). These responses are reported in the Supplementary Materials as frequency counts or means but were not subject to further quantitative analysis. Secondly,

interview data were analysed according to three topics, as per the procedure of Malmqvist et al. (2019): “questions to be added,” “questions to be removed,” and “questions to be changed.” Finally, data about how long interviews took and which format was used (i.e., Zoom or in person) were also considered.

To address the second research question, about the challenges associated with administering the DDI, meta-discussions between the research team members were conducted throughout the pilot study. Additionally, recordings of the interviews and the subsequent transcripts were reviewed by the first author, enabling the identification of both instances of good practice and mistakes being made (Malmqvist et al., 2019).

Finally, to address the third research question about what the DDI tells us about how and why young people with communication disability use social media, interview data were thematically analysed using a semantic, inductive approach (Braun and Clarke, 2006). The reporting of results for this research question is informed by the Reflexive Thematic Analysis Reporting Guidelines outlined by Braun and Clarke (2024). Our orientation to thematic analysis aligns with the reflexive approach outlined by Braun and Clarke (2020). Instead of relying on a predefined codebook or coding framework, our process of data coding evolved organically. Consequently, our analysis was inherently contextual, interpretative, and reflexive, culminating in themes that were developed iteratively. The YAG did not contribute to the data analysis process.

Results

RQ1: Feasibility of the DDI

Most interview participants ($n = 4$) agreed that both the information and the activities helped them understand the questions, although one was neutral. Three participants agreed that the pictures helped them understand the questions, while two neither agreed nor disagreed. Three participants agreed that the questions were easy to understand, with a further two participants indicating they “agreed a lot.” Three participants agreed that they “liked being interviewed in this way,” while two were neutral.

Several modifications were made to the DDI following analysis of the interview format, as per Malmqvist et al. (2019). While no additional questions were suggested, it was agreed during meta-discussion amongst the research team that a rapport-building question could be removed due to redundancy. In terms of changing questions, it was decided that Likert responses with only three options were somewhat limiting. For example, responses to the Activity question “What social media apps/websites do you use?” were originally “Use a lot,” “Use a little,” and “Don’t use.” Following piloting, “Use sometimes” was added as an option. Additionally, minor changes were made to some wording: The “I don’t know” option in response to the question, “Why do you use social media?” was changed to “Neither.”

The interviews took between 23 and 46 min to conduct. All participants elected to be interviewed via Zoom. The DDI required the clinician to access an Internet-enabled device and, if remote participation was requested, participants also needed to be able to access Zoom. Participants were not required to access a device for face-to-face interviews.

RQ2: Challenges of Administering the DDI

Examples of good practice included the interviewer showing a genuine interest in participants and their responses through active listening (e.g., verbal responses, body language), the use of follow-up questions, and the voluntary sharing of experiences related to common interests to facilitate rapport building. Further, the interviewer ensured that the different parts of the interview were both identified and presented orally (in addition to being presented in written format on screen), for example by drawing the participant's attention to different parts of the screen and verbally explaining a task.

Examples of areas to improve were also demonstrated. Some instances of complex language being used verbally (e.g., preface, resonates, clarify) were evident, which could be the result of the interviewer's lack of experience in working with young people with communication disability (as an undergraduate student of speech-language pathology). Additionally, there were instances where additional clarification of a participant's response would have been useful (e.g., "Can you tell me more about that?"), but meta-discussions identified that the interviewer was trying to be faithful to the structured interview format. Having completed the pilot, procedures have been updated to confirm that prompts and/or clarification questions may be posed, as needed.

RQ3: How and Why Young People Use Social Media

Three themes with subthemes (detailed in Table 3) were generated in response to the third research question. Results of activities that were completed as part of the interview process are presented in the Supplementary Material.

Table 3: Themes and subthemes generated via thematic analysis.

Themes	Subthemes
Using social media for connection	Purposes of social media use Styles of social media use Private conversations and online risks Social media's role in emotional wellbeing
Other uses of social media	Entertainment Finding information
Challenges of social media use	Communication challenges Technological issues Strategies for problem solving social media difficulties (self-reliance and support from others)

Theme 1: Using Social Media for Connection

Participants primarily reported using platforms like Snapchat, WhatsApp, and text messages to maintain social relationships with friends and both immediate and extended family, whether through personal or group chat channels. Participants highlighted that keeping in touch with people was important, with social media being a way to stay updated on “what other people are up to like your friends” (YP1). YP5 reported, “I like using Snapchat because it just makes me feel more connected to my friends, when I can't be around them.”

Purposes of Social Media Use

Social media was used for a range of purposes: (a) to both give and receive support (for example, checking in on relatives or getting help with schoolwork), (b) to socialise (e.g., “talking to my friends” [YP4]), and (c) to support practical, everyday communication (e.g., “Can you grab some bread?” [YP3]). For example, participants reported using platforms such as text messages and WhatsApp for activities such as arranging to meet friends and checking on the status of school tasks (such as group projects and assignments).

Styles of Social Media Use

Participants reported mainly an interactive type of social media use: “Being able to snap photos of yourself to them [friends] and like them being able to snap those back kind of, makes it more social” (YP5). Examples included using Snapchat to video chat with existing friends and using WhatsApp to help establish new friendships on transitioning from primary to high school. A participant who indicated they primarily enjoyed a passive style of social media use described watching YouTube videos with friends, “we'd all gather around, we'd go for a little bit of a laugh and stuff” (YP2), indicating a social element is possible for this type of social media use. This suggests that social media serves as a link between maintaining connections and having fun; watching videos with a friend or sending a meme to a friend may serve as a way to socialise with others by sharing experiences.

Private Conversations and Online Risks

Participants described “talking” (YP3) via social media as being “private” (YP4) and between “friends that I actually know in real life” (YP2), with such conversations being a way for them to maintain relationships through discussions of shared interests. Meeting new people online was not a typical experience for this group, “it doesn’t happen too much” (YP4), and it was flagged as potentially risky: “they could be catfish” (YP1).

Social Media's Role in Emotional Wellbeing

Social media may be used to support the emotional wellbeing of the user and/or their communication partner. One participant reported using social media for “keeping you up with friends, when you’re a bit sad” (YP2), while another used it as a memory aid to remind a

relative with dementia of their shared experiences: “then, like, he was there. So he remembers” (YP1).

Theme 2: Other Uses of Social Media

Platforms like YouTube and Instagram were used for entertainment, such as by watching videos (whether for personal enjoyment or social interaction) and sharing memes.

Participants reported watching funny videos as being a way that “fills up the time” (YP3) and for “having like a good laugh” (YP2). As reported by YP5, “you can just use it [social media] for so many things like curing boredom and just learning things.” Social media was used both for acquiring knowledge and exploring interests. For example, it could be used to learn about “important things on the news” (YP4) or interests such as metalwork and science (YP2), although there was some awareness that not all information is reliable: “it’s not always accurate” (YP3).

Theme 3: Challenges of Social Media Use

Communication challenges were described, including difficulty expressing oneself (e.g., “we sometimes find it hard to express ourselves” [YP2]) and pragmatic difficulties: “you can't really get the right tone over social media, like by messaging. Yeah. And you don't really, like the social cues aren't really there” (YP5). Social media conventions such as textese (i.e., the register specific to texting) were also highlighted as difficult, for example, acronyms being “a bit hard to figure out” (YP1).

One participant highlighted technological issues as a challenge (e.g., “when I'm typing in my password for things login, I often forget it” [YP4]). However, one participant felt that using

social media was not hard, stating, “so far, to be honest with you, there hasn't been an example of that yet” (YP3).

Two categories of strategies for problem solving social media difficulties were created: self-reliance and support from others. Self-reliance strategies included online searches, incorporating making use of technology such as Alexa to facilitate this, trial-and-error, and either changing or removing the social media platform being used, “either video call or meet in person” (YP5). Only one participant described using family members to help him when he encountered difficulties using social media.

The relevance and complexity of the themes generated demonstrate that the DDI elicits rich data on how and why young people with communication disability use social media. Further, positive feedback from interview participants about the interview tool (e.g., with respect to clarity of questions) alongside researchers’ observations (e.g., on the need for modifications to interview questions) indicate that the DDI is a promising tool for capturing the experiences of this population.

Discussion

This study aimed to: (a) evaluate the feasibility of implementing the DDI in research involving young people with communication disability, (b) explore the challenges associated with its administration, and (c) determine what the DDI tells us about how and why this population use social media. The findings demonstrate that the DDI is both feasible and poses minimal administration challenges. Additionally, it is a promising tool for generating insights

into the social media usage patterns and motivations of young people with communication disability.

Collaborating with a YAG to develop the DDI enabled us to incorporate the viewpoints of a population closely aligned with the target population, ensuring the DDI is appropriately designed for young people with communication disability. Further, in following an Information, Activity, Question format, the DDI was structured to better prepare participants to respond to interview questions. These measures have resulted in the DDI being a feasible tool, which elicits rich insights into the experiences of young people with communication disability.

Our pilot interview data indicated that young people with communication disability are primarily using social media for social connection, particularly with existing communication partners who are friends and family. Their purposes for using social media include giving and receiving support, socialising, and practical communication (for example, letting a parent know their location). Our results indicate that online communication is nuanced and social; it is not simply an active and passive exchange between users. Even when seen as a passive exercise, there may still be an interactive social element to this type of activity, such as watching a YouTube video with friends. Participants' challenges with both communication (e.g., difficulties expressing oneself, pragmatic difficulties such as with tone and social cues, and difficulties such as navigating textese) and technological issues (e.g., remembering login details) were highlighted as negatively impacting this population's use of social media.

The findings of the current study align with existing literature. The scoping review conducted by Shelton et al. (2024) identified that young people with language disorders use social media

to foster social connection, which included online chatting, organising social events, offering social support, finding acceptance and a sense of belonging, and enhancing offline relationships. Notably, these connections mainly involved strengthening existing offline relationships with friends or family, rather than forming new relationships online. Additionally, the review highlighted barriers to social media use by young people with language disorders included (a) the language and/or literacy difficulties of young people and (b) resource limitations, with respect to both technology and the skills or knowledge required for its effective use.

A preliminary model (see Figure 2) has been developed, which summarises the potential relationships between key concepts, based on the themes generated from the five pilot interviews. This conceptual model (Naeem et al., 2023) was developed through the authors' discussions of the themes generated via analysis of interview data and in consideration of findings from the Shelton et al. (2024) scoping review. It holds potential for guiding our future larger-scale study, as the themes and subthemes created during analysis of pilot study data will be examined in greater depth and refined as part of the main research.

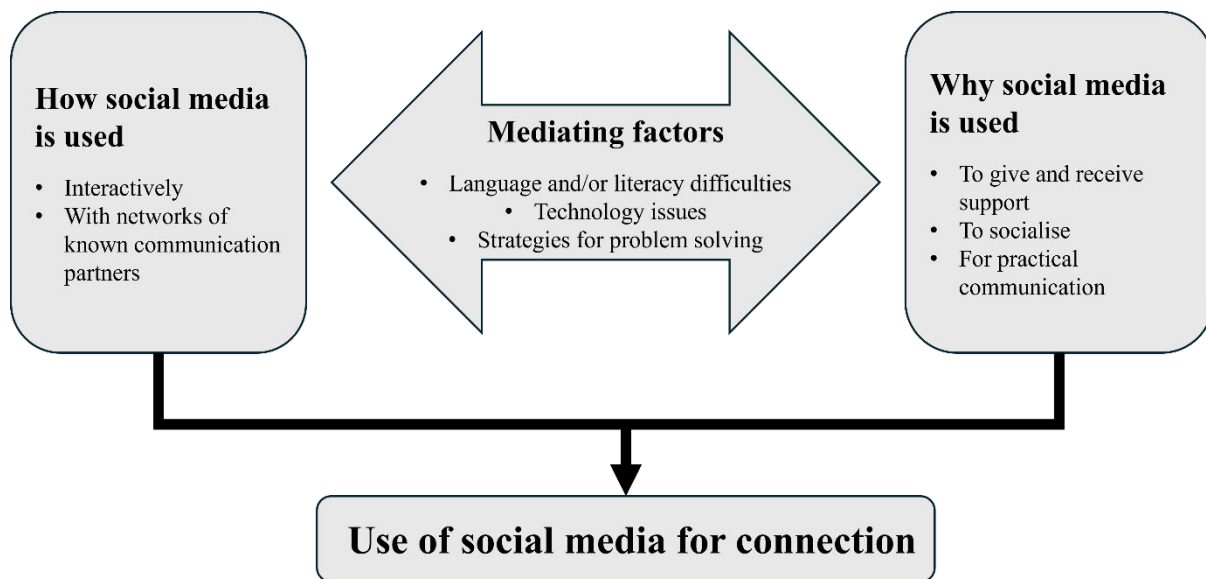


Figure 2: Conceptual model of how young people with communication disability use social media for connection.

The conceptual model details how young people with communication disability use social media for connection. It recognises that how young people are using social media is interactively (Kaye, 2021) with known communication partners, particularly friends and family, as per the Circles of Communication Partners (CCP) framework (Blackstone, 2003). Further, why they are using social media is to give and receive support, to socialise, and for practical reasons. These two dimensions of social media use (how and why) are mediated by the language and/or literacy difficulties of a young person, technology issues, and the strategies (self-reliance and support from others) that a young person makes use of to problem solve any use difficulties.

The findings from this study contribute to refining the DDI to better accommodate the diverse communication profiles of participants with language and/or literacy difficulties. As argued by Gudmundsdottir and Brock-Utne (2010), the piloting process can enhance the reliability and validity of research results. Through careful documentation, reflection, and adaptation,

the piloting process not only mitigates potential methodological challenges but also elevates the overall quality of qualitative research practices.

Our study contributes to improving the methodological literature on qualitative research practices within speech-language pathology. These pilot data underscore the importance of interviewer strategies, such as active listening and follow-up questions, which not only foster meaningful engagement with participants but also demonstrate respect for their lived experiences, ensuring they feel heard and understood throughout the research process. This aligns with previous studies, such as Luck and Rose (2007), which highlight the importance of these strategies in interviewing individuals with communication disability.

Reflections on Co-Designing a Project with Young People

The success of this project, including the role of the YAG as Advisors (Power and Morrow, 2024), validates that co-designing projects with young people is not only feasible but results in outcomes that are more relevant to research participants (Slattery et al., 2020).

A scoping review by Lipton et al. (2025) identified six interconnected domains that influence the engagement of young people in co-designed research: resources, communication, process, agency, investment, and relationships. These domains functioned as both facilitators and barriers throughout this project. Resources played a key role in enabling meaningful participation, with funding allowing for compensation of YAG members and interview participants, staff support provided through a grant-funded research assistant, and existing networks aiding participant recruitment. Communication further supported engagement by using accessible, tailored materials and actively valuing feedback from YAG members.

However, the processes involved in the project introduced notable barriers. Ethics committee requirements mandated specific procedures, such as informed consent, which were necessary but also restrictive, most notably by excluding under-18s from participating in the YAG. The challenges of navigating ethics committee's processes have been documented (Thabrew et al., 2018). The domains of agency, investment, and relationships were complex, acting as both facilitators and barriers. For example, constrained opportunities to hear from the YAG over the course of the pilot reduced the ability for members to reaffirm or change ideas that were initially presented. These learnings highlight the nuanced dynamics of engaging young people in co-designed research and reinforce the need for flexible, responsive approaches that ensure authentic participation to meaningfully integrate young people's voices in the research process.

Limitations and Future Directions

Several limitations of this study warrant consideration. Although two members of the YAG identified as neurodivergent, none reported having a communication disability. Additionally, to meet ethical requirements, all YAG participants were young adults rather than teenagers. For the same reason, young people were not members of the research team and were not involved in the initial construction of the DDI. All participants chose to be interviewed via Zoom, therefore how well the DDI performs in a face-to-face interview format remains to be tested. Further research including participants of diverse genders, Aboriginal and Torres Strait Islander backgrounds, and who are multilingual is also required. Additionally, while participants in this research experienced both oral and/or written language difficulties, they do not represent the full range of severity or types of communication disability; further research should investigate the effects of these variables on the interviewing process.

Conclusion

This project has been an essential first step in the development of a new co-designed tool designed to explore how and why young people with communication disability use social media. Collaborating with a YAG enabled us to integrate diverse perspectives and ensured the DDI was tailored to the target population. Thoroughly testing instruments through a piloting process enhances confidence in the trustworthiness of the data generated, especially when aiming to achieve a deeper level of understanding (Malmqvist et al., 2019). Results of this project have informed adaptations to the DDI tool, along with refinements to research procedures. Young people with communication disability, particularly where oral and/or written language skills are impacted, may benefit from a more structured interview to better support their participation in sharing their voice and experiences in using digital communication.

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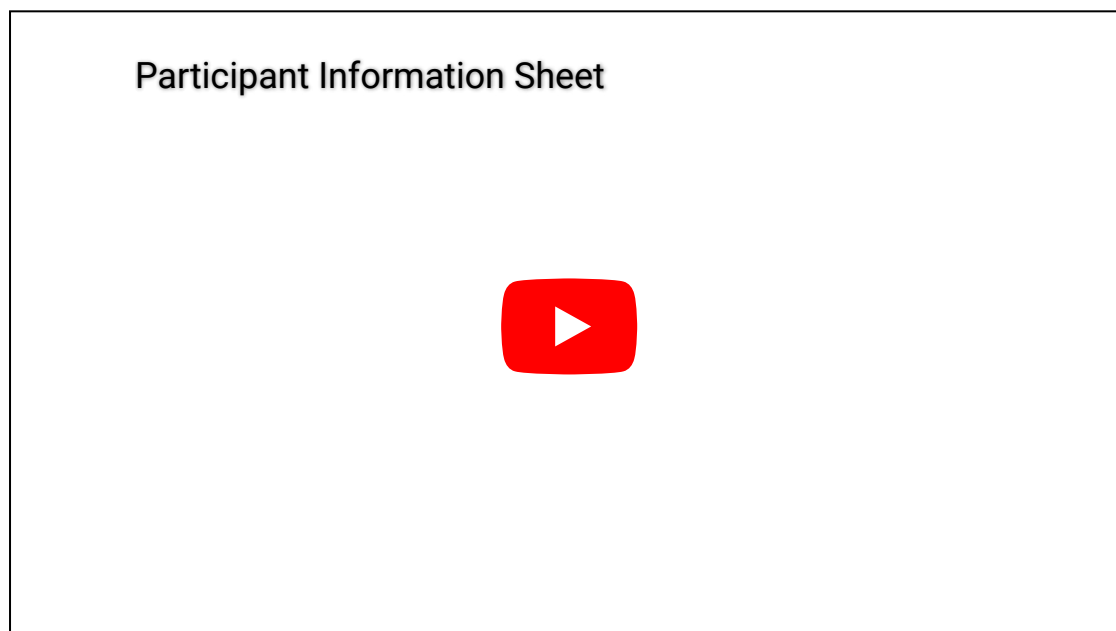
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Participant Information Sheet

Assent block

This video tells you more about our research. Please watch it carefully. It is important that you understand what will happen if you want to take part in this research project.



This is the same information that was in the video. It was also sent to you by email. You can read it again, if you want to.

It is important that you understand what will happen if you want to take part in this research project.

1. What is this about?

We are doing a research project. We want to know if people who have seen a speech pathologist use social media. We are also interested in **how** you use



social media and **why** you use it. To do this, we want to interview young people.

We also want to know what parents think about their child's use of social media. So we would like to ask your parent, or guardian, if they would like to be interviewed, too.

You can take part if:

- You are aged 12 to 17 years old,
- you have seen a speech pathologist in the last 2 years,
- and your parent, or guardian, says you can.



You can decide if you want to take part in the interview or not. You don't have to. It's up to you.

This page tells you what we will ask you to do if you decide to take part. Please read it carefully so that you can make up your mind about whether you want to take part.

We will also ask your parent, or guardian, if they are happy for you to be part of this research project. Even if they say yes, you can still choose to say no.

If you have any questions, you can ask us, or your family, or someone else who looks after you. If you want to, you can call us at any time on: (02) 9351 9390.

2. What will happen if I say I want to be in this research project?

If you decide that you want to be in our research project, we will do an interview. Aaron will ask questions that you can answer.

You will have to ask your parent, or guardian, if you can do the interview. If they say it's okay, we will arrange a day and a time when Aaron can talk to you.



You can choose how to be interviewed. We could use Zoom. You could come to the University of Sydney. You will only need to talk to Aaron once.

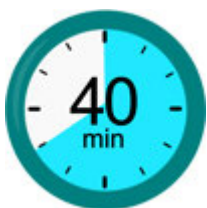


During the interview, there will be questions like: What social media apps or websites do you use? Why do you like the social media apps or websites you use? Who do you usually chat to on social

media?

You can choose which questions you want to answer. If you don't want to answer a question, that's ok. You can stop doing the interview at any time if you don't want to do it anymore.

If you say it's okay, we will record the interview. You can decide if we can record with video or just record your voice. This is so Aaron can remember what we talked about.



3. How long will the interview take?

The interview will take about 40 minutes.



4. Are there good things about doing the interview?

You will get a \$30 Westfield gift card for taking part. Your parent, or guardian, will get a \$30 Westfield gift card, too. You will be helping us to do our research.

5. Are there bad things about doing the interview?



This research project will take up some of your time, but we don't think it will upset you. It will not cost you anything.



6. Will you tell me what you learnt in the research project?

We will ask if you want to know what we learnt in the research project. If you say Yes, when we finish the research project, we will email you and tell you what we learnt.



7. Will anyone else know that I've done the interview?

What you tell us is private. We will write a report about the research project and show it to other people. We won't say your name in the report. No one will know that you were in the research project.



8. What if I change my mind?

If you decide you want to do the interview and then you change your mind later, that's ok. It won't change how we feel about you. All you need to do is tell us that you don't want to be in the research project anymore and we won't use anything you tell us. But this needs to happen before we finish the report about the research project.



9. What happens to my interview answers?

All the information that we have about you from the research project will be stored in a safe place. We will look after it very carefully.



10. What if I have questions?

If you have any questions about the research project, you can talk to Melanie or Nichola. Our contact details are in the version of this document that we emailed to you.



11. What if I am not happy with the research project or the people doing it?

If you are not happy with how we are doing the research project or how we treat you, then you or your parent/guardian can:

- Call the university on: +61 2 8627 8176
- Email the manager at: human.ethics@sydney.edu.au

Can we record this interview?

- If you agree to the interview being recorded, how can we record? You can choose video or audio (sound only) recording.

- ☐ Yes. I agree to video recording.
- ☐ Yes. I agree to audio (sound) recording only.
- ☐ No. I do not agree to this interview being recorded.

Do you want us to tell you what we learned by doing this research project?

- ☐ Yes
- ☐ No

Would you like to do this interview?

- ☐ Yes. I have watched the information video or read the information given.
- ☐ No

Demographics block

How old are you?

- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Are you

- ☐ Male
- ☐ Female
- ☐ Non-binary / other
- ☐ Prefer not to say

Are you

- ☐ Aboriginal
- ☐ Torres Strait Islander
- ☐ Both
- ☐ None of these

Which state or territory do you live in?

- ☐ NSW
- ☐ ACT
- ☐ VIC
- ☐ QLD
- ☐ SA
- ☐ WA
- ☐ TAS
- ☐ NT

If you speak a language at home in addition to English, please say which here.

- If you don't speak another language, leave this empty. You can write more than one language.

Has a doctor or another health professional ever told you you have any of the following?

- You can choose more than one option.

- ☐ Autism (ASD)
- ☐ ADHD
- ☐ DLD or language impairment
- ☐ Hearing loss
- ☐ Dyslexia
- ☐ Other (write below)
- ☐ None of these

In the past 2 years, what has your speech pathologist helped you with?

- You can choose more than one option.

- ☐ Language (speaking/listening)
- ☐ Literacy (reading/writing)
- ☐ Social skills
- ☐ Stuttering
- ☐ Speech (e.g., childhood apraxia of speech)
- ☐ Using voice
- ☐ Other (write below)

Reminder



Text bolded like this are the questions I will ask you today.

- Text that looks like this gives some examples or suggestions. You might think about these things to help answer the question.

Remember: What you tell us is private. No one will know that you were in the research project.

Rapport building block

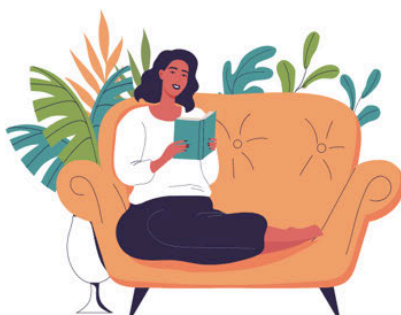
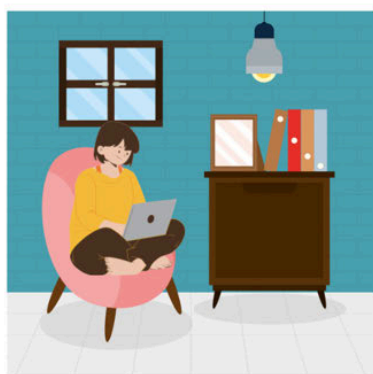
Tell me a little bit about yourself.

- You might like to tell me about your hobbies, your favourite TV shows, or games/sports that you play.



How do you like to spend your spare time?

- It might be doing some of the things in the pictures, or something else.



Social media used block

Here are some examples of social media websites/apps and what people might use them for.

	BeReal Photo sharing		Text messaging Instant messaging
	Discord Group chat		Tik Tok Video sharing
	Email (e.g., Gmail) Messaging		Twitch Live streaming
	Facebook Social networking		WhatsApp Instant messaging
	Facetime Video calls		X (Twitter) Social networking
	Instagram Photo and video sharing		YouTube Video sharing
	Reddit Discussion and news		Zoom Video calls and instant messaging
	Snapchat Instant messaging	You might use other apps/websites. It might be for one of the reasons here, or for something else.	

What social media apps/websites do you use?

- You might use these a lot, just a little, or not at all. Click a button next to the apps/websites below, to show how often you use them.

	Use a lot	Use a little	Don't use
BeReal			
	☐	☐	☐
Discord			
	☐	☐	☐
Email			
	☐	☐	☐
Facebook			
	☐	☐	☐
Facetime			
	☐	☐	☐
Instagram			
	☐	☐	☐
	Use a lot	Use a little	Don't use
Reddit			
	☐	☐	☐
Snapchat			
	☐	☐	☐
Text message			
	☐	☐	☐

	Use a lot	Use a little	Don't use
TikTok 	☐	☐	☐
Twitch 	☐	☐	☐
WhatsApp 	☐	☐	☐
	Use a lot	Use a little	Don't use
X (Twitter) 	☐	☐	☐
YouTube 	☐	☐	☐
Zoom 	☐	☐	☐
You can add another social media app/website you use here: 	☐	☐	☐
You can add another social media app/website you use here: 	☐	☐	☐
Click to write Statement 18	☐	☐	☐

Why do you like the social media apps/websites you use?

Communication partners block

Now I will ask about who you chat to on social media.

- There are lots of ways of chatting.

Chatting by speaking

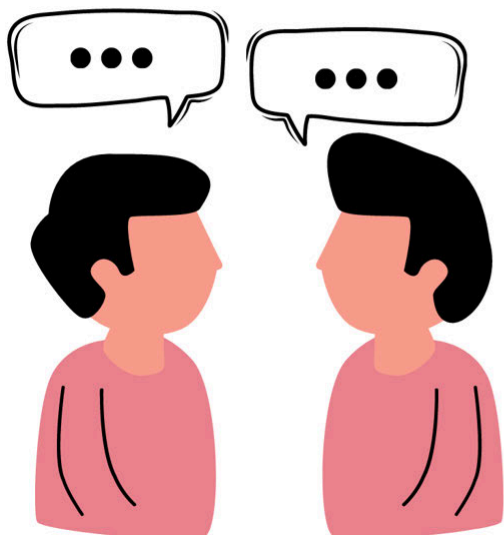


Chatting by writing



- You can chat to different people.

One-on-one chat



Group chat



Here are some people you might chat to on social media.



My family



My friends from real life



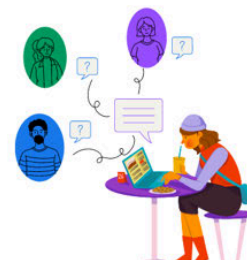
People I know but not well (e.g., classmates)



People that are paid to help me (e.g., teachers)



People I don't know (e.g., famous person)



People I've met online

Who do you usually chat to on social media?

- You might chat to these people a lot, just a little, or not at all. Sort the people you chat to by dragging and dropping them into the boxes

Items	Chat to a lot	Chat to a little
My family		
My friends from real life		
People I know but not well (e.g., classmates)		
People that are paid to help me (e.g.,		

teachers)



People I don't know
(e.g., famous person)



People I've met online



Tell me about a time when you've used social media to chat.

Why use social media block

People use social media for lots of different reasons. Some of these are below.



To keep in touch with family



To learn new things



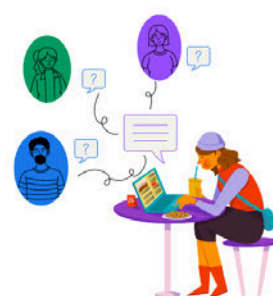
To give or get support



To keep in touch with friends



To find or share information



To meet new people



To feel I belong



To fill time



Because everyone else does



To save memories



To change how I feel



To be more popular

Why do you use social media?

- Click a button next to the reasons below, to show what is most important to you (on the left) and what is not important at all (on the right).

	Most important	Important	I don't know	Not very important	Not important at all
To keep in touch with family 	☐	☐	☐	☐	☐
To learn new things 	☐	☐	☐	☐	☐
To give or get support 	☐	☐	☐	☐	☐
To keep in touch with friends	☐	☐	☐	☐	☐

	Most important	Important	I don't know	Not very important	Not important at all
 To find or share information 	☐	☐	☐	☐	☐
To meet new people  To change how I feel  To fill time  Because everyone else does  To save memories 	☐	☐	☐	☐	☐
To feel I belong  To be more popular 	☐	☐	☐	☐	☐

	Most important	Important	I don't know	Not very important	Not important at all
If you use social media for something else, you can add it here 	☐	☐	☐	☐	☐
If you use social media for something else, you can add it here 	☐	☐	☐	☐	☐

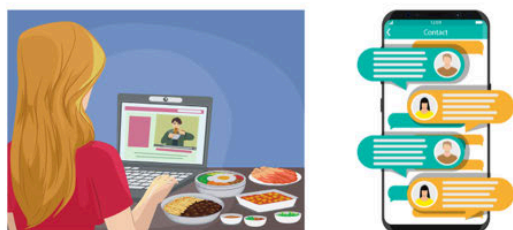
Think about what you put as most important. Tell me a bit about how you use social media to do that.

Is there another thing that is important that you could tell me about?

What are the good things about using social media?

Activities on social media block

Here are some examples of what you can do on social media:

Interactive

e.g., videochatting or highly interactive threads on social networking sites

Broadcasting

e.g., posting a video, photo, or information on your own profile

Reactive

e.g., liking/commenting on someone's post or sharing someone's post

Passive

e.g., checking other people's profiles/posts, browsing, or scrolling through feeds

What do you usually do on social media apps/websites?

- Put these in order from do the most (at the top) to do the least (at the bottom).

Reactive (e.g., liking/commenting on someone's post or sharing someone's post)



Passive (e.g., checking other people's profiles/posts, browsing, or scrolling through feeds)



Broadcasting (e.g., posting a video, photo, or information on your own profile)



Interactive (e.g., videochatting or highly interactive threads on social networking sites)



Think about the one you put first. Tell me about a time when you did this on your favourite app/website.

Would you like to do any of these more?

- Which one (or ones) and why?

What makes using social media hard block

Communication is hard sometimes. This is true both in-person and on social media. Sometimes it's hard to show what you are thinking or feeling. Sometimes it's hard to understand other people.



If you are not sure what a word means, look here for some help.



Offline means NOT being connected to the Internet by a laptop, tablet, phone etc.

Examples of **acronyms** are: TTYL (talk to you later), BRB (be right back), or OMW (on my way).

Tone means the feeling or mood behind the words people use. Tone helps us understand how someone is feeling or what they really mean.

Using facial expressions and body language means using your face and your body to show your feelings and thoughts without saying any words. For example, you might smile to show you're happy. You might nod to show you agree.

What makes it hard to communicate offline, on social media, or both offline and on social media?

- For each of the reasons, choose whether it is hard to do offline, on social media, both offline and on social media, or if it's not a problem for you.

	Offline	Social media	Both offline and on social media	Not a problem for me
Finding the right words to say	☐	☐	☐	☐
Putting words together in a sentence	☐	☐	☐	☐
Knowing what to say and when	☐	☐	☐	☐
Using the right tone	☐	☐	☐	☐
Not having enough time to organise my	☐	☐	☐	☐

	Offline	Social media	Both offline and on social media	Not a problem for me
ideas				
Feeling nervous or uncomfortable about what I want to say	☐	☐	☐	☐
Asking questions to help me understand if I get confused	☐	☐	☐	☐

	Offline	Social media	Both offline and on social media	Not a problem for me
Using facial expressions and body language	☐	☐	☐	☐
Not knowing someone well enough to tell them what I really think or feel	☐	☐	☐	☐
Finding the right words to write	☐	☐	☐	☐
Spelling words	☐	☐	☐	☐
Using emojis	☐	☐	☐	☐
Using acronyms	☐	☐	☐	☐
Having lots of conversations at the same time	☐	☐	☐	☐

	Offline	Social media	Both offline and on social media	Not a problem for me
Understanding other people's sentences	☐	☐	☐	☐
Knowing when someone else doesn't understand me	☐	☐	☐	☐
Understanding the meaning of what	☐	☐	☐	☐

	Offline	Social media	Both offline and on social media	Not a problem for me
people are saying				
Worrying that I won't understand what other people are saying to me	☐	☐	☐	☐
Remembering what has been said	☐	☐	☐	☐
Being distracted by other things	☐	☐	☐	☐
Understanding facial expressions and body language	☐	☐	☐	☐

	Offline	Social media	Both offline and on social media	Not a problem for me
Understanding when and how to reply	☐	☐	☐	☐
Understanding the tone of other people	☐	☐	☐	☐
Understanding the emojis other people use	☐	☐	☐	☐
Understanding the acronyms used by other people	☐	☐	☐	☐
Reading things written by other people	☐	☐	☐	☐
Understanding the meaning of people's written words	☐	☐	☐	☐

Tell me about a time when using social media was hard.

What helped you when using social media was hard?

Is there anything else you would like to add?

Feedback on interview block

The interview today used this format:

- Information
- Activity
- Question

Here is an example of each:

Information

	BeReal Photo sharing		Text messaging Instant messaging
	Discord Group chat		Tik Tok Video sharing
	Email (e.g., Gmail) Messaging		Twitch Live streaming
	Facebook Social networking		WhatsApp Instant messaging
	Facetime Video calls		X (Twitter) Social networking
	Instagram Photo and video sharing		YouTube Video sharing
	Reddit Discussion and news		Zoom Video calls and instant messaging
	Snapchat Instant messaging	You might use other apps/websites. It might be for one of the reasons here, or for something else.	

Activity

What social media apps/websites do you use?

- You might use these a lot, just a little, or not at all. Click a button next to the apps/websites below, to show how often you use them.

	Use a lot	Use a little	Don't use
BeReal 	☐	☐	☐
Discord 	☐	☐	☐
Email 	☐	☐	☐
Facebook 	☐	☐	☐
Facetime 	☐	☐	☐

Question

Why do you like the social media apps/websites you use?

How much do you agree or disagree with these statements?

- Think about the interview format, and the examples above, to help you.

	Agree a lot 	Agree 	Neither agree or disagree 	Disagree 	Disagree a lot 
The information helped me understand the questions.	☐	☐	☐	☐	☐
The activities helped me think about the questions.	☐	☐	☐	☐	☐
The pictures helped me understand the questions.	☐	☐	☐	☐	☐
The questions were easy to understand.	☐	☐	☐	☐	☐

	Agree a lot	Agree	Neither agree or disagree	Disagree	Disagree a lot
					
I liked being interviewed in this way.	☐	☐	☐	☐	☐

Final block

Sometimes talking about this stuff can make people feel sad, angry, worried, or something else.



If you feel like this, here are some ways that you could find some help:

- talk to a person in your family
- talk to a friend
- talk to your doctor
- call Kids Helpline on 1800 55 1800 or go to kidsline.com.au
- If you are Aboriginal and/or Torres Strait Islander, you could call 13YARN on 13 92 76 or go to 13yarn.org.au

Powered by Qualtrics

An MP4 video version of the Participant Information video can be found at:

https://osf.io/k3w2q?view_only=85996df38387426fb59002c0b2ed77a5

Table SM: Results of the activities.

What social media apps/websites do you use? (Number of participants selecting each response)			
<i>Most used platforms</i>	<i>Use a lot</i>	<i>Use a little</i>	<i>Don't use</i>
Text message	3	2	0
WhatsApp	3	1	1
YouTube	2	3	0
Email	2	2	1
Discord	1	3	1
<i>Least used platforms</i>	<i>Use a lot</i>	<i>Use a little</i>	<i>Don't use</i>
X (Twitter)	0	0	5
Twitch	0	0	5
TikTok	0	0	5
BeReal	0	0	5
Facebook	0	1	0
Who do you usually chat to on social media? (Number of participants selecting each response)			
	<i>Chat to a lot</i>	<i>Chat to a little</i>	<i>Don't chat to</i>
My family	3	2	0
My friends from real life	4	1	0
People I know but not well (e.g., classmates)	0	4	1
People that are paid to help me (e.g., teachers)	1	2	2
People I don't know (e.g., famous person)	0	0	5
People I've met online	0	3	2
Why do you use social media? (Likert response score for each item; <i>most important</i> = 5, <i>not important at all</i> = 1)			
<i>Most important reasons</i>			
To keep in touch with friends	4.6		
To keep in touch with family	4.4		
To fill time	4.4		
To save memories	3.8		
To learn new things	3.6		
<i>Least important reasons</i>			
To meet new people	2		
Because everyone else does	2.2		
To be more popular	2.4		
To change how I feel	2.6		
To give or get support	3		
What do you usually do on social media apps/websites? (Rank order task; <i>do the most</i> = 1, <i>do the least</i> = 4)			
Interactive	1.6		
Passive	2		
Reactive	2.8		
Broadcasting	3.6		
What makes it hard to communicate offline, on social media, or both offline and on social media? (Number of participants selecting each response)			

<i>Hardest things to do on social media</i>	
Finding the right words to write	5
Understanding the emojis other people use	4
<i>Hardest things to do offline</i>	
Knowing what to say and when	4
Remembering what has been said	3
Understanding facial expressions and body language	3
<i>Hardest things to do both offline and on social media</i>	
Knowing what to say and when	2
Remembering what has been said	2
Understanding facial expressions and body language	2
Knowing what to say and when	2

Supplementary Material: Youth Advisory Group (YAG) Materials

1) Topics discussed by the YAG

- Recruitment flyer for parents
- Recruitment flyer for young people
- Video to recruit young people to participate in the study (created with Powtoon and hosted on YouTube)
- Participant Information Sheet for young people
- Video version of the Participant Information Sheet for young people (created with Powtoon and hosted on YouTube)
- Digital Dialogues Interview (structured interview for use with young people with communication disability; hosted on Qualtrics)

2) Questions included in the Mentimeter quiz for YAG members

Recruitment flyer for parents

- The wording of the flyer is appropriate for parents.
- The formatting makes the flyer easy to read.
- The images used are appropriate.
- The information on the flyer makes sense.

Recruitment flyer for young people

- The wording of the flyer is appropriate for young people (12-17 years old) with a language disorder.
- The formatting makes the flyer easy to read.
- The images used are appropriate.
- The information on the flyer makes sense.

Video to recruit young people to participate in the study (created with Powtoon and hosted on YouTube)

- The wording of the video (the script) is appropriate for young people (12-17 years old) with a language disorder.
- The graphics of the video are appropriate.
- The information in the video makes sense and is easy to understand.
- The length of the video is appropriate.
- This video makes the recruitment information accessible to young people with a language disorder.

Participant Information Sheet for young people

- The wording of the info sheet is appropriate for young people (12-17 years old) with a language disorder.
- The formatting makes the info sheet easy to read.
- The images used are appropriate.
- The information on the info sheet makes sense.
- The information in the info sheet answers all my questions about the research.

Video version of the Participant Information Sheet for young people (created with Powtoon and hosted on YouTube)

- The wording of the video (the script) is appropriate for young people (12-17 years old) with a language disorder.
- The graphics of the video are appropriate.
- The information in the video makes sense and is easy to understand.
- The length of the video is acceptable.
- The video makes the Participant Information Statement accessible to young people with a language disorder.

Digital Dialogues Interview (structured interview for use with young people with communication disability; hosted on Qualtrics)

- The wording of the interview questions is appropriate for young people (12-17 years old) with a language disorder.
- The formatting makes the interview easy to understand.
- The images used are appropriate.
- The length of the interview is acceptable.
- I would like to be interviewed in this way.

Chapter 7

Discussion, Implications, and Conclusion

This chapter begins with a summary of the key findings of this thesis, taken from the five chapters that are presented as papers (four published and one under review; see Figure 7.1).

Chapter 2: Assessment services	•Current landscape of speech-language pathology assessment and intervention services for adolescents in Australia
Chapter 3: Assessment tools	•Constructs and measures used to evaluate the social interaction abilities of adolescents with communication disability
Chapter 4: Services for social media use	•Services SLPs provide to adolescents to support their social media use, and the factors impacting SLPs' clinical practices
Chapter 5: How young people use social media	•How adolescents with language disorders use social media for social interaction
Chapter 6: Interview tool to explore adolescents' views of social media use	•Evaluate a new structured interview protocol, which investigates how and why adolescents with communication disability use social media

Figure 7.1: Overview of the thesis.

There were five broad aims and thirteen specific research questions addressed in this thesis, as detailed below.

Chapter 2 presented an updated overview of the assessment and intervention services provided by speech-language pathologists (SLPs) to young people with communication disability in Australia, with a particular emphasis on regional differences across states and territories. Specific research questions were:

- 1) What services do SLPs offer to people aged 12-16 years, and how do these services differ across states/territories in Australia?

- 2) What assessment practices do SLPs utilise when working with this population?
- 3) What intervention practices do SLPs utilise when working with this population?

Chapter 3 examined how the social interaction abilities of young people with communication disability are evaluated, including relevant constructs, assessment measures, and their alignment with the International Classification of Functioning, Disability, and Health (ICF; World Health Organization, 2001). The research question, with several sub-questions, was:

- 4) How are social interaction skills measured in research on adolescents with communication disability?
 - a) What constructs have been measured to describe the social interaction abilities of adolescents with communication disability?
 - b) What instruments have been used to measure the social interaction abilities of adolescents with communication disability?
 - c) Which components of the ICF are these measures addressing for adolescents with communication disability?
 - d) What form do the measurement instruments take?

Chapter 4 presented an overview of SLPs' assessment and intervention practices regarding the use of social media by young people with communication disability. This included identifying the factors shaping their clinical practices. Research questions were:

- 5) What services do SLPs provide that support young people's online communication interactions, specifically with respect to social media use?
- 6) What are the professional practices of SLPs concerning young people's use of social media?
- 7) What factors affect SLPs' practices around young people's use of social media?

Chapter 5 examined how young people with language disorders use social media for social interaction, reviewing existing research to highlight both available interventions and the elements that facilitate or hinder their participation in digital communication. The research questions were:

- 8) What is known from the existing literature on how young people with language disorders use social media for social interaction?
- 9) What interventions involving the use of social media are being implemented for young people with language disorders?
- 10) What are the barriers and facilitators to the use of social media by young people with language disorders?

Finally, Chapter 6 presented the results of a pilot study that evaluated the feasibility of using the Digital Dialogues Interview (DDI), a new structured interview tool, to explore how and why adolescents with communication disability use social media. The following research questions were addressed:

- 11) How feasible (e.g., participant engagement, usability of the interview, time/resources) was the Digital Dialogues Interview (DDI) to implement in research with young people with communication disability?
- 12) What challenges were encountered when administering the DDI?
- 13) What does the DDI tell us about how and why young people with communication disability use social media?

Summary of Findings

Chapter 2 presented the results of a national survey of 96 SLPs working with 12- to 16-year-olds in Australia. This survey was the first since 2005 (Hollands et al., 2005) to investigate

SLP service provision to adolescents. The results of the survey found inequities in service provision across Australia, with SLPs in states that have government-mandated provision of speech-language pathology services in schools more able to provide Tier 1 and 2 services than SLPs in states without government-mandated provision of education-based speech-language pathology services. Further, the survey also revealed that SLPs' assessments are primarily impairment focused. Although 81.4% of respondents conducted interviews and 62.9% used discourse sampling, it remains unclear whether these assessments collected information about a young person at the participation level (i.e., a person's involvement in a life situation; World Health Organization, 2001). This raises questions around the adequacy of existing assessment tools for investigating language domains (specifically pragmatics/social communication), particularly at the participation level.

Chapter 3 presented the results of a scoping review, which included 173 peer-reviewed publications. The unique contribution of this research was the application of three frameworks, the ICF (World Health Organization, 2001) as well as taxonomies by Crumlish et al. (2022) and Denman et al. (2019), to explore the constructs and assessment measures used to evaluate the pragmatic skills/social interaction abilities of adolescents with a communication disability. This research identified 162 unique instruments. In line with the taxonomy of Crumlish et al. (2022), the most frequently measured constructs were (a) pragmatics/social communication and behaviour (language domain), (b) social-emotional abilities (cognition domain), (c) social behaviour/adjustment/adaptive/judgment/processing/inferencing (behaviour domain), and (d) dialogic discourse and functional communication (communication domain). As per the taxonomy of Denman et al. (2019), most of these tools were standardised, norm-referenced, static, and decontextualised. Of 16 unique ICF codes applied to these instruments, 84.5%

were at the activity level. This research highlights that currently, few measures of social interaction/pragmatics are participation focused. Additionally, existing measures prioritise oral language abilities, rather than written language, with implications for the ability of assessments to measure communication in the contexts within which it occurs for young people. This means that participation-level assessments, which capture a young person's social interaction abilities in contemporary communication contexts, are urgently needed.

Chapter 4 presented the results of a sequential mixed methods study. Survey and interview participants ($n = 61$ and $n = 16$, respectively) were SLPs working with 12- to 16-year-olds in Australia. This is the first study of its kind to investigate both the services SLPs provide to adolescents to support their social media use, and the factors impacting SLPs' clinical practices. Thematic analysis of interview data generated three themes regarding SLPs' professional practices: (1) assessment of technology use, (2) treatment using technology, and (3) adaptability. An additional three themes were generated with respect to factors impacting SLPs' practices: (1) client/family factors, (2) SLP factors, and (3) societal factors. The results of this research found that SLPs currently do not systematically address young people's communication needs in social media contexts, as highlighted by the following statement: "Erm, not, no I don't, I've never actually thought about it that way" (i.e., social media use as a context for assessment or intervention; CPI-04). However, when SLPs do offer clinical services focused on a young person's use of social media, they transfer and adapt their knowledge and practices from offline settings. For example, "our goals don't change but our activities change. ... So, if our goals are appropriate written language then that goal can be applied to schoolwork and emails and text messaging" (CPI-16). This underscores the urgent need for professional practice guidelines and professional development, which can support

SLPs in their efforts to address access to social media by young people with communication disability.

Chapter 5 presented the results of a further scoping review, which included 44 peer-reviewed publications. The unique contribution of this study was to fill a gap in the research by focusing on how young people with language disorders use social media for social interaction. The review found that young people with language disorders use social media for social connection, rather than for finding and sharing information. It was also found that interventions targeting social media use can significantly improve the knowledge and skills of young people with language disorders. Such intervention can enhance the social participation of young people with language disorder, highlighting that healthcare professionals should work with families to support access to social media by young people.

Chapter 6 presented the results of a co-designed pilot study. The unique contributions of this study were (a) the use of a youth advisory group as Advisors (Power & Morrow, 2024), who were consulted on the project's design and materials to be used, and (b) the development of the Digital Dialogues Interview (DDI), a structured tool that examines how and why young people with communication disability use social media. This tool was piloted with five participants aged 12–17 years with language and/or literacy difficulties. The results of this research demonstrated that the implementation of the DDI is feasible and can be used with minimal challenges. Reflexive thematic analysis of interview data found that participants primarily use social media for connection. Further, the two dimensions of social media use (how and why) were found to be impacted by a person's language and/or literacy difficulties, technology barriers, and the strategies (self-reliance and support from others) that an individual may employ to address challenges.

Table 7.1 presents an overview of the research questions explored in this thesis, the methods employed to investigate them, and the key findings that were generated. It also highlights the distinct contributions of each individual study to the research literature.

In this final chapter, I discuss three main points, starting with an examination of participation-focused assessments, particularly of pragmatics/social interaction. The discussion then shifts to how the assessment of social interaction in young people with communication disability could be reconceptualised. Finally, social media as a contemporary context for participation for young people with communication disability is discussed. I also discuss implications of this research for both leadership and policy, as well as the theoretical and methodological implications of this research. This chapter ends with a discussion of limitations of the research findings and recommendations for future research directions.

Table 7.1: Summary of the research questions, methods, main findings, and contributions of the thesis.

Chapter	Research Questions	Methods	Main Findings	Unique/Original Contribution
2	1) What services do SLPs offer to people aged 12-16 years, and how do these services differ across states/territories in Australia? 2) What assessment practices do SLPs utilise when working with this population? 3) What intervention practices do SLPs utilise when working with this population?	Survey	- Identified inequities in service provision across Australia - SLPs in states with government-mandated school-based services can provide Tier 1 and 2 interventions more effectively - Assessments are impairment-focused and primarily measure at the activity level rather than participation level	First national survey on SLPs' service provision to adolescents in Australia
3	4) How are social interaction skills measured in research on adolescents with communication disability? - What constructs have been measured to describe the social interaction abilities of adolescents with communication disability? - What instruments have been used to measure the social interaction abilities of adolescents with communication disability?	Scoping review	- Identified 162 unique instruments, with most measures focused on oral language and activity-level assessment - Lack of participation-level measures that support evaluation of communication in contemporary contexts (i.e., social media environments)	Application of three frameworks to code and synthesise existing measures across the extant research that evaluate the pragmatic skills/social interaction abilities of adolescents: ICF (World Health Organization, 2001), Crumlish et al. (2022), and Denman et al. (2019)

Chapter	Research Questions	Methods	Main Findings	Unique/Original Contribution
	c) Which components of the ICF are these measures addressing for adolescents with communication disability? d) What form do the measurement instruments take?			
4	5) What services do SLPs provide that support young people's online communication interactions, specifically with respect to social media use? 6) What are the professional practices of SLPs concerning young people's use of social media? 7) What factors affect SLPs' practices around young people's use of social media?	Mixed methods (survey, interview)	• SLPs in Australia do not systematically address social media communication needs • SLPs adapt offline practices for online contexts • Factors affecting SLPs' practices were categorised into three themes: (1) client/family factors, (2) SLP factors, and (3) societal factors.	First mixed-methods study examining SLP support for adolescents' social media use and factors affecting clinical practice
5	8) What is known from the existing literature on how young people with language disorders use social media for social interaction? 9) What interventions involving the use of social media are being implemented for young people with language disorders?	Scoping review	• Young people primarily use social media for connection rather than information sharing • Interventions targeting social media use can increase young people's social participation • Facilitators to social media use include a supportive social network, while barriers include	First study to systematically gather research evidence around how young people with language disorders use social media for social interaction

Chapter	Research Questions	Methods	Main Findings	Unique/Original Contribution
	10) What are the barriers and facilitators to the use of social media by young people with language disorders?		language and/or literacy challenges	
6	11) How feasible (e.g., in terms of participant engagement, usability of the interview, time/resources) was the Digital Dialogues Interview (DDI) to implement in research with young people with communication disability? 12) What challenges were encountered when administering the DDI? 13) What does the DDI tell us about how and why young people with communication disability use social media?	Pilot study (interview)	- Established feasibility of DDI implementation - Showed social media use is shaped by language/literacy difficulties, technology barriers, and individual strategies for overcoming communication challenges	Development and piloting of the Digital Dialogues Interview (DDI), a new co-designed structured tool for examining social media use by young people with communication disability

Participation-Focused Assessments

As identified via the survey findings presented in Chapter 2, the purpose of SLPs' assessments is, typically, impairment-focused, aiming to identify and characterise difficulties a young person has within specific communication domains. Further, as evidenced by the review presented in Chapter 3, commonly used assessment tools typically measure at the ICF level of activity and are comprised of measures such as standardised tests and structured tasks. Such tools provide valuable information about a young person's abilities in controlled settings, as they focus on an individual's capacity to perform a specific skill. However, this approach provides little insight into a person's overall communicative functioning in their everyday life (i.e., their performance of that skill in a natural setting, which reflects their participation in a life situation, whether online or offline).

The need for assessment approaches to evaluate a person's communicative functioning in naturalistic contexts is well recognised (Adams, 2002). However, current assessment tools often fall short in capturing the nuances of a young person's social interaction abilities that occur in offline and online settings. This gap highlights the urgent need for developing and implementing participation-focused assessment measures of pragmatics and social interaction that capture the strengths and challenges of young people with communication disability. Such assessments would provide a more comprehensive understanding of how young people with communication disability navigate social interactions and participate in their communities.

To address this need, participation-focused assessment tools should be designed to evaluate pragmatic and social interaction skills in the contexts within which they naturally occur.

Chapter 6 presents a new assessment tool, the DDI, which aims to contribute to this goal. The

DDI is a structured interview utilising an Information, Activity, Question format, with questions designed to elicit data relating to a young person's activities and participation. By shifting the focus of the assessment process to participation, SLPs may develop a more nuanced overview of an individual's functioning, better placing them to then implement interventions that enhance social inclusion and improve the quality of life for young people with communication disability. This shift also requires SLPs to advocate for and adopt these new assessment approaches, ensuring that their practice aligns with the goal of fostering meaningful participation in all aspects of life for young people with communication disability.

As shown in Tables 7.2 and 7.3, the DDI tool has been mapped to codes contained within the three frameworks used in Chapter 3: the ICF (World Health Organization, 2001) as well as taxonomies by Crumlish et al. (2022) and Denman et al. (2019). This illustrates how this new assessment measure of social interaction skills evaluates multiple domains and constructs, as well as the structure of the assessment tool.

Table 7.2: How the Digital Dialogues Interview can be mapped to the ICF (World Health Organization, 2001).

Block	Prompt	Prompt Format	Activity or Question	ICF code (informed by responses from the pilot study)
Social media used	What social media apps/websites do you use?	Likert question (Use a lot, use a little, don't use)	Activity	d360 Using communication devices and techniques
	Why do you like the social media apps/websites you use?	Open-ended question	Question	d710 Basic interpersonal interactions d720 Complex interpersonal interactions
Communication partners	Who do you usually chat to on social media?	Pick, group, and rank question (Chat to a lot, chat to a little, don't chat to)	Activity	d730 Relating with strangers d740 Formal relationships d750 Informal social relationships d760 Family relationships
	Tell me about a time when you've used social media to chat.	Open-ended question	Question	d230 Carrying out daily routine d350 Conversation
Why participants used social media	Why do you use social media?	Likert question (most important, important, I don't know, not very important, not important at all)	Activity	d155 Acquiring skills d750 Informal social relationships d760 Family relationships d920 Recreation and leisure
	Is there another thing that is important that you could tell me about?	Open-ended question	Question	d750 Informal social relationships d760 Family relationships d920 Recreation and leisure
	Think about what you put as most important. Tell me a bit about how you use social media to do that.	Open-ended question	Question	d710 Basic interpersonal interactions d720 Complex interpersonal interactions d750 Informal social relationships d760 Family relationships
		Open-ended question	Question	d132 Acquiring information

Block	Prompt	Prompt Format	Activity or Question	ICF code (informed by responses from the pilot study)
	What are the good things about using social media?			d750 Informal social relationships d760 Family relationships
Activities conducted on social media	What do you usually do on social media apps/websites?	Rank order drag and drop (reactive, passive, broadcasting, interactive)	Activity	d360 Using communication devices and techniques
	Think about the one you put first. Tell me about a time when you did this on your favourite app/website.	Open-ended question	Question	d350 Conversation d720 Complex interpersonal interactions d750 Informal social relationships d920 Recreation and leisure
	Would you like to do any of these more? (Which one (or ones) and why?)	Open-ended question	Question	d350 Conversation
What makes using social media hard	What makes it hard to communicate offline, on social media, or both offline and on social media?	Likert question (offline, social media, both offline and social media, not a problem for me)	Activity	d315 Communicating with - receiving - nonverbal messages d325 Communicating with - receiving - written messages d345 Writing messages d350 Conversation
	Tell me about a time when using social media was hard.	Open-ended question	Question	d325 Communicating with - receiving - written messages d345 Writing messages d360 Using communication devices and techniques
	What helped you when using social media was hard?	Open-ended question	Question	d175 Solving problems d760 Family relationships

Table 7.3: How the Digital Dialogues Interview can be mapped to two taxonomies.

Crumlish et al. (2022)	Denman et al. (2019)
Pragmatics/social communication and behaviour (Language domain) Social participation/ interaction/ integration (Broad impacts to participation domain) Contextual functioning (Broad impacts to participation domain) Psychosocial and behavioural functioning (Behaviour domain) Functional communication (Communication domain)	Standardised Descriptive Static Contextualised

Reconceptualising Assessment of Social Interaction in Young People with Communication Disability

The evidence presented in Chapter 2 indicates that the adolescent caseload of SLPs in Australia is heterogeneous, being comprised of young people with a range of conditions co-occurring with communication disability (for example, autism, ADHD) and identities, including those who are culturally and linguistically diverse, Aboriginal and/or Torres Strait Islander, and/or LGBTQI. Despite this, clinical practices remain traditional, being underpinned by an approach that is impairment, rather than activity/participation, focused.

Informed by the results of the scoping review in Chapter 3, it is recommended that SLPs approach the assessment of social interaction abilities in young people by systematically considering four key elements: (a) what to assess, (b) how, (c) where (i.e., in which contexts), and (d) why (i.e., the purpose of an assessment; see Figure 7.2).

First, effective assessment requires a clear understanding of what domains should be evaluated. In line with Crumlish et al. (2022), assessments should encompass domains of language (e.g., pragmatics/social communication), cognition (e.g., socioemotional abilities), and communication (e.g., dialogic discourse and functional communication). This

recommendation aligns with the theoretical framework proposed by Andrés-Roqueta and Katsos (2017), who argue that pragmatic communication is inherently context sensitive and shaped by specific lexical, syntactic, and social-interactional features of the interaction. Their model highlights the dynamic relationship between linguistic pragmatics (structural language and pragmatic competence) and social pragmatics (social cognition). This suggests that pragmatic abilities emerge through the flexible interplay of language structures and social-cognitive processes, modulated by the specific demands and features of an interaction. Reflecting this interconnected, multifaceted view of social communication, the recommendation for what to assess underscores the importance of evaluating across a range of dimensions to capture complexity. SLPs are further encouraged to consider a young person's oral and written skills at an individual's challenge point, for example, by using an expository discourse task (Hill, Whitworth, et al., 2021) to better capture their abilities.

Second, with respect to how to assess, a flexible and person-centred approach is recommended. SLPs could consider using non-standardised, descriptive or criterion-referenced measures that are contextualised and dynamic in nature (Denman et al., 2019). These approaches may facilitate a deeper exploration of how a young person understands and experiences the effects of their communication disability. Specifically, client-focused measures (e.g., interviews and self-rating scales) could offer valuable insights into what a young person perceives to be their communication strengths and weaknesses.

Third, a comprehensive assessment should also account for the varied contexts in which young people communicate. Acknowledging the range of settings in which social interaction takes place, this should include both offline and online environments. The DDI may

contribute to this aim, although it requires further scaling up and testing before being made available for widespread use.

Finally, the purpose of assessment (i.e., why assess?) should extend beyond identifying impairment. It is recommended that SLPs seek to understand a young person's participation in their daily life, recognising their strengths, challenges, and the role of communication partners. This broader focus reframes assessment as a foundation for strengths-based management of communication disability, better positioning SLPs to support a young person through their meaningful engagement in the process.

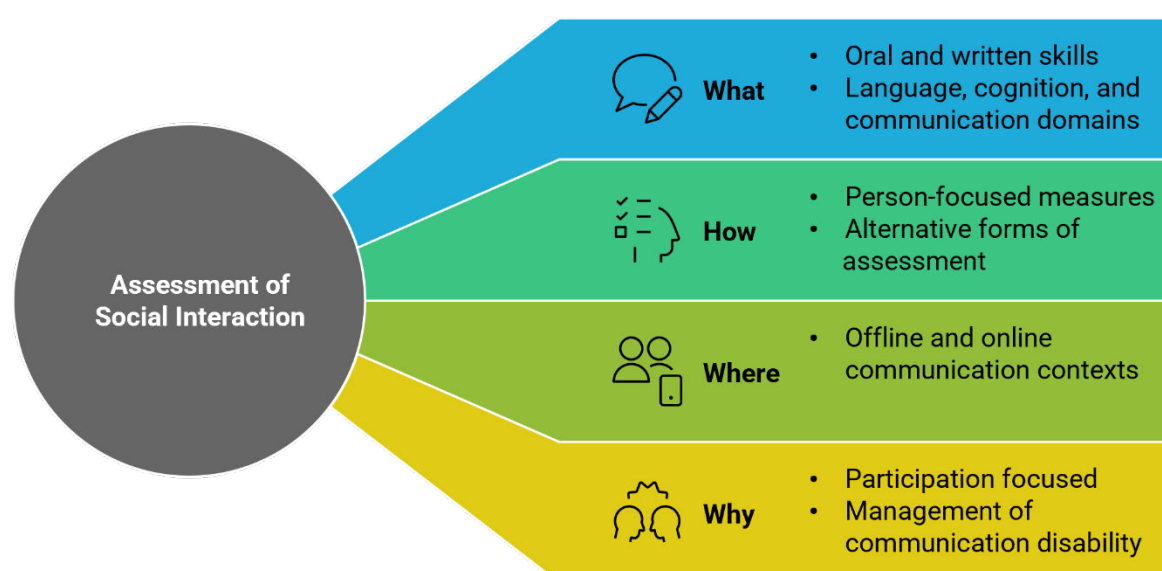


Figure 7.2: Assessment of social interaction for young people with communication disability.

Equipping SLPs to Effectively Support Social Media Use

To support young people with communication disability to use social media, Australian SLPs need to be familiar with the social media platforms/tools that young people are interested in using. Therefore, SLPs need to develop an understanding of the features and dynamics of popular social media platforms, as well as the communication modes they support (e.g., text,

images, videos, voice messages). In being familiar with these tools, SLPs can support young people to navigate social media safely and effectively by providing technical training (i.e., how to complete tasks on social media) and/or communication training (i.e., suggestions for appropriate social media use) to enhance a young person's digital communication skills after consideration of their linguistic, social, and operational competence.

In turn, this suggests a need for professional development and practical training opportunities for SLPs to learn how to assess and provide support for a young person's use of social media. Such training could also cover the ethical and privacy issues related to social media use by a young person, including topics such as cyberbullying, responsible posting behaviour, and protecting personal information. Brunner et al. (2022) conducted a scoping review on social media skills and safety in people with acquired brain injury. Their findings highlighted that interactive training addressing concerns such as cybersafety, how to use platforms, and how to connect with others was urgently needed. Further, university programs could consider incorporating the teaching of digital literacy and social media use into their curricula, to better prepare SLP students for work in this context.

To effectively implement changes in practice, it is crucial to examine the personal characteristics and attitudes of SLPs. As discussed in Chapter 4 and consistent with diffusion theory (Rogers, 2003), these factors, alongside workplace context and other service-level influences, shape SLPs' approaches to young people's use of social media. According to diffusion theory (Rogers, 2003), innovation adoption follows a predictable pattern, starting with a gradual uptake before gaining momentum as more individuals embrace the change. The likelihood of someone adopting an innovation depends on various factors, including attributes of the innovation itself, the adopter's personal characteristics, attitudes, knowledge,

and beliefs, and the impact of their organisational environment (Greenhalgh et al., 2005). Interviews with SLPs revealed how both knowledge and workplace context shape their clinical practices: “I don’t understand a lot of the, the social media platforms in depth. I know the basics and that’s it” (CPI-06) and “look, I guess because of my work situation, erm, that hasn’t really been a focus” (CPI-07). Consequently, whether learnings from professional development and training opportunities will be implemented in practice with young people depends on how these individual and contextual factors interact to support or hinder change.

Social Media as a Contemporary Context for Participation

As evidenced by the scoping review presented in Chapter 5, social media is a powerful tool with the capacity to facilitate an individual’s participation and one that young people with communication disability are using. Social media platforms, for example Snapchat and Instagram, offer asynchronous communication and have more informal rules around use of grammar and spelling. This allows users to take their time to compose messages, which can be particularly beneficial for those who struggle with real-time communication due to language and/or literacy challenges. This flexibility can help level the playing field, providing a more inclusive environment where young people with communication disability can engage more comfortably and confidently. Additionally, as the results of the pilot study presented in Chapter 6 suggest, social media can serve to strengthen social networks in the contexts within which they occur, enabling individuals to connect with peers and family, share experiences, and participate in activities.

The results presented in Chapter 4 indicate that SLPs in Australia are currently not adopting a systematic approach to supporting young people’s communication needs in social media contexts. The lack of access to, or support for using, social media may constitute a socially

constructed disability (Goggin & Newell, 2003). When young people with communication disability are not provided with the necessary tools or guidance to navigate social media, they may be excluded from important social interactions and opportunities for participation. This exclusion may exacerbate feelings of isolation and hinder a young person's ability to develop essential skills in the contexts within which they occur. Therefore, it is crucial to address these barriers through targeted interventions that equip young people with the skills and resources they need to effectively use social media.

By advocating for the use of social media by young people with communication disability, SLPs can help ensure this population has the opportunity to participate fully in contemporary social contexts. This advocacy might include educating families and caregivers about the benefits of social media use, and developing tailored intervention plans, such as parent coaching for supporting their child's use of social media, or a peer-coaching program. By leveraging the potential of social media, a more inclusive environment may be fostered where young people with communication disability are empowered to participate fully and confidently in a context that plays to their communication strengths.

Implications of the Studies

This section discusses the implications of the studies for both SLP leadership and policy, as well as theoretical and methodological implications for research.

Implications for Leadership

There is an urgent need for professional practice guidelines that address the use of social media by young people with communication disability. As social media is now an integral part of daily communication for this population, it is essential for SLPs to have a clear

framework to inform their practice. Such guidelines should provide SLPs with the necessary knowledge to support their clients in developing their communication skills in a digital context and to navigate social media platforms effectively.

Guidelines may cover topics such as: a definition of social media, a framework for assessing social media use by young people, principles for intervention in this context, identification of stakeholders (for example, the young person, their family, friends, and communication partners, whether known or unknown), and ethical and legal considerations (including the role of the SLP, for example, with respect to advocacy). Moreover, professional practice guidelines could advocate for the benefits of social media in promoting participation among young people with language disorders.

Implications for Policy

Speech Pathology Australia (SPA) and SLPs must play a crucial role in advocating for government-mandated provision of speech-language pathology services to remove systemic barriers that limit access. This advocacy will ensure that all adolescents with communication disability have access to the support they need, regardless of their location or socioeconomic circumstances. Without appropriate access to SLP services, many young people with communication disability may face additional challenges in various aspects of their lives, including emotional and behavioural issues, difficulties in social interactions and relationships, mental health struggles, employment barriers, and overall reduced quality of life (e.g., Clegg et al., 2005; Feeney et al., 2017; Forrest et al., 2020; Mok et al., 2014; Tamayo et al., 2024). Government-mandated school-based services can help ensure equitable access to speech-language pathology assessment and therapy. Such services are critical for

reducing disparities in educational and social outcomes and fostering a more inclusive society where every young person has the opportunity to thrive (Ebbels et al., 2018).

Supporting adolescents' academic and social success through SLP services can improve outcomes in education, employment, and independent living for young people with communication disability (Dubois et al., 2020). Professional bodies such as the Australian Curriculum, Assessment, and Reporting Authority (ACARA) and SPA recognise that SLPs are uniquely positioned to support adolescents with communication disability, thereby lessening the potential disadvantages associated with it, which has positive implications for the community (Utley & Hopf, 2021). This social justice approach to public health (Braveman & Gruskin, 2003) not only benefits the individuals directly involved but also leads to significant cost savings for healthcare and education systems (Heckman, 2006). Continuing to systematically address communication disability into adolescence, to support later-developing language and social skills, can reduce the need for more intensive and costly interventions later in life, making this proactive approach both economically and socially beneficial.

Social Media Use in Young People with Communication Disability: A Conceptual Model

Through reflexive thematic analysis of the pilot interview data presented in Chapter 6, a conceptual model was developed showing how young people with communication disability use social media for connection. This model details two dimensions of social media use (how and why) being mediated by several factors; these three concepts will be discussed in turn. First, young people with communication disability use social media for connection, in line with the interactive category of social media use as per the framework proposed by Kaye (2021), and primarily to communicate with familiar communication partners such as friends

and family, aligning with the Circles of Communication Partners (CCP) framework (Blackstone, 2003). Second, their reasons for using social media include giving and receiving support, socialising, and for practical communication. Finally, mediating factors include a young person's language and/or literacy challenges, technology issues, and the strategies they employ, including self-reliance and seeking support from others, to overcome any difficulties in use.

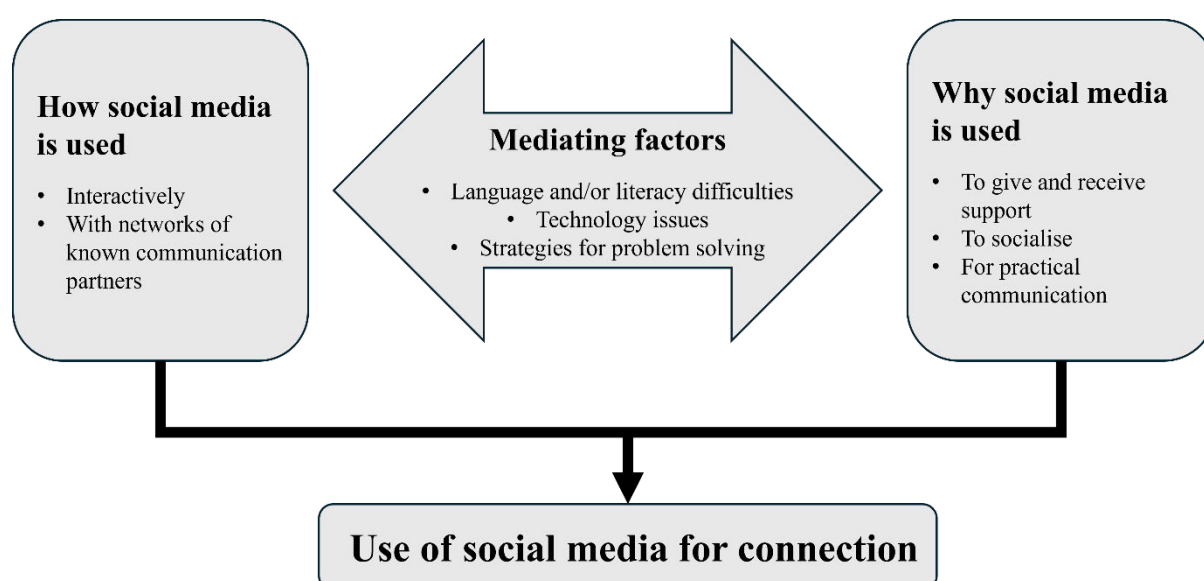


Figure 7.3: Conceptual model of how young people with communication disability use social media for connection.

This model captures both the complexities of social media use and the potential of social media platforms to serve as tools for communication and relationship building, being at the intersection of the constructs of social media and disability. It integrates both existing frameworks (Blackstone, 2003; Kaye, 2021) and builds on contemporary literature (Shelton et al., 2024) to provide insight into the unique experiences of young people with communication disability and their use of social media for fostering social connections. This model challenges researchers to engage with underrepresented groups, namely young people with communication disability, to better understand the impact of social media as a medium

for inclusion and participation. It also sheds light on how social media can be used for inclusion and participation, which also has implications for policy and advocacy.

Social Media Ban

The issue of young people's access to social media, alongside discussion of both their safety and privacy in doing so, has been the subject of debate (Livingstone & Third, 2017), including from a legal perspective (Costello et al., 2016). Australia is one of several countries that have either implemented, or are considering, restrictions on social media access for under 16s. For example, France, Germany, Italy, South Korea, and Greece have legislated measures to regulate social media access for young people, while the UK and Norway are among those debating stricter regulations (Mallett, 2024). The Australian federal government approved the *Online Safety Amendment (Social Media Minimum Age) Act 2024* in late 2024, which introduced a mandatory minimum age of 16 for accounts on certain social media platforms (eSafety Commissioner, 2024). This law, which will be reviewed after 2 years, requires social media platforms to take reasonable steps to prevent young people under 16 years from having accounts on certain social media platforms (The Parliament of the Commonwealth of Australia, 2024).

While details about how this act will operate and which services will be affected are still being finalised (with age restriction requirements to take effect in December 2025), the intention of this act is to restrict young people from accessing certain social media platforms, such as Snapchat, TikTok, Facebook, Instagram, X (formerly Twitter), and others (NSW Government Premier's Department, 2024). It is expected that services used for health care and education, such as Messenger Kids, WhatsApp, YouTube, Kids Helpline, and Google Classroom, will be exempt from the legislation (Britton, 2024).

Submissions to parliament expressing opposition to the bill raised various concerns, including that it “would have a disproportionate and negative effect on vulnerable and marginalised young people” (Environment and Communications Legislation Committee, 2024, p. 16).

Based on the research presented in this thesis, I was able to submit a statement to parliament opposing the bill (Shelton & Munro, 2024). My submission (see Appendix C) highlighted that young people with communication disability use social media for connection and value this form of interaction. Further, removing their access to social media platforms could isolate this population from essential support. This submission highlights that this research has the potential to provide important insights and frameworks for this and other similar legislation being proposed internationally.

It is essential to recognise that this Act does not prevent young people with communication disability from accessing all social media; however, they may be inordinately adversely impacted by this legislation in relation to their peers, with implications for their participation. In this context, it is even more essential that SLPs support young people to have the choice of accessing social media in compliance with the new regulations.

Methodological Implications of the Research

With respect to the pilot study presented in Chapter 6, it was recommended by the Youth Advisory Group (YAG) that all recruitment and participation materials explicitly state the value of the gift card people would receive for taking part in the research. They believed this information was necessary for participants to make an informed cost-benefit decision. In line with this recommendation, research materials specifying the gift card value were submitted to the university’s Human Research Ethics Committee (HREC) for review. In addition to emphasising the YAG’s strong feedback, our rationale for including the monetary value was

supported with reference to the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council et al., 2023). This document outlines that informed consent requires that participants are fully aware of what their participation entails, including any benefits they will receive, and that the customs and practices of the community in which the research is being conducted should be respected.

Despite the YAG's recommendation, as a demographic closely aligned with the study's participants, the HREC decided that the monetary value should be removed from all recruitment materials, citing concerns about coercion. This decision highlights a tension between incorporating co-designers' insights in consumer-centred research and institutional review board interpretations/implementation of ethical guidelines. Existing governance and approval mechanisms are typically developed for more traditional research approaches, while co-designed research is emergent and adaptive (Goodyear-Smith et al., 2015). To reconcile co-design practices with institutional ethical requirements, Goodyear-Smith et al. (2015) recommend that ethics committees should (a) support members to understand diverse research approaches (e.g., through formal training), (b) provide guidance to members on how to evaluate co-design applications, and (c) value and credit research practices that promote equitable collaboration.

Limitations of the Studies

As with all research, this thesis has been constrained by practical boundaries, resulting in several limitations. These limitations have been documented in the relevant sections of the papers that are published/under review but are also summarised here.

Limitations of Studies Involving SLPs

Limitations of studies involving SLPs are detailed in Chapters 2, 3, and 4; these highlight several key overarching limitations. First, the samples of the respective papers may have biased the results through either small sample sizes and/or lack of diversity of samples (Gréaux et al., 2025). This may reflect the pragmatic approach to recruitment used in this thesis. Second, the assessment measures used for data collection (survey and semi-structured interview) were specifically developed for the purpose of this thesis. While these tools were piloted, they were not subject to validation processes, which may have introduced bias into the data analyses and results. Finally, the scope of the research was limited to a particular context: Australian SLPs working with young people with communication disability. Given the culturally specific nature of social interaction, this focus may impact the generalisability of the findings, for example to populations such as SLPs who speak other languages but also SLPs more broadly who practise in other countries. While beyond the scope of this thesis, it would be important to extend the practice-based survey and mixed-method studies to SLPs working in other contexts.

Limitations of Studies Concerned with Young People

Limitations of the scope of studies concerned with young people's use of social media are detailed in Chapters 5 and 6. Both studies presented in these chapters are constrained by a focus on certain populations of young people with particular presentations of communication disability, namely language disorder (including conditions associated or co-occurring with this). As a result, female, multilingual, and Indigenous participants are largely underrepresented.

Recommendations for Future Research

The findings of this thesis lead to several key recommendations for future research. First, research should prioritise the development of practical, participation-focused assessment tools that allow SLPs to effectively evaluate the social interaction skills of adolescents. These tools should be designed to comprehensively assess young people's strengths and challenges in navigating interactions across diverse settings. Integrating technology into assessment tools, such as by considering social media interactions, would help ensure that such measures capture young people's skills in the context within which they occur.

Second, as evidenced by the results of this thesis, the digital participation of young people with communication disability is a crucial area for research, as it encompasses a significant aspect of this population's social lives. Diversity in research populations is essential to capturing a broad spectrum of experiences among adolescents with communication disability. Including underrepresented groups, such as female, multilingual, and Indigenous adolescents, would ensure that studies reflect varied perspectives and capture the full range of experiences of social interaction broadly and with respect to social media use specifically. Using qualitative research methods, such as interviews, can uncover deeper insights into adolescents' lived experiences. Furthermore, understanding the roles of both caregivers and healthcare providers in supporting digital inclusion is vital to help young people navigate the complexities of digital participation while minimising risks and fostering positive social interactions.

Third, it is vital to conduct research focused on how best to equip SLPs with skills to support adolescents in their digital participation, including social media use. Such research should seek to understand the barriers to service provision and address the training needs of SLPs in

supporting young people with communication disability in their social interactions, particularly within online environments. This includes understanding systemic challenges such as access to resources and constraints related to workload or service delivery models. Additionally, personal and professional factors, such as gaps in knowledge, attitudes, confidence, or training, should be investigated to identify areas for change and improvement.

Concluding Remarks

This thesis examined the services provided by SLPs to young Australians, constructs and measures used to evaluate the social interaction abilities of young people, SLPs' practices around young people's social media use, how adolescents with communication disability use social media for social interaction, and the feasibility of the Digital Dialogues Interview for research involving young people with communication disability. The evidence presented in Chapters 2–6 demonstrated inequities in speech pathology provision across Australia, with an identified gap in tools that SLPs can use to support their work in assessing social interaction and pragmatics at the participation level with this population, particularly with respect to young people's use of social media. In presenting the assessment framework for social interaction in young people with communication disability, the Digital Dialogues Interview tool, and the conceptual model for how young people with communication disability use social media for connection and interaction, it is my hope that young people will be included in the design and process of assessment, and that future research will seek to better understand the perspectives of young people with communication disability, specifically regarding their experiences and interactions with social media.

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Appendix A

Ethics approval

Tuesday, 19 March 2019

Dr Natalie Munro
Disability and Community; Faculty of Health Sciences
Email: natalie.munro@sydney.edu.au

Dear Natalie,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

Project No.: 2019/079
Project Title: The Connections Project: Clinical practices of Australian speech pathologists
Authorised Personnel: Munro Natalie; Keep Melanie; Shelton Nichola; Starling Julia; Tieu Lyn;
Approval Period: 19/03/2019 – 19/03/2023
First Annual Report Due: 19/03/2020

Documents Approved:

Date Uploaded	Version Number	Document Name
18/03/2019	Version 2	Appendix A Survey of SLPs v2 (clean)
07/03/2019	Version 2	Appendix B PIS v2 (clean)
07/03/2019	Version 2	Appendix E Invitation to speech pathologists v2 (clean)
07/03/2019	Version 2	Appendix F Email reminder v2 (clean)
07/03/2019	Version 2	Appendix H Newsletter announcement v2 (clean)
07/03/2019	Version 2	Appendix G Social media posts v2 (clean)
12/12/2018	Version 1	Appendix C list of third parties
12/12/2018	Version 1	Appendix D Email to third party organisations

Special Condition/s of Approval

- The interview component of this study proposed in the original application submission has not been approved as part of this protocol

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).

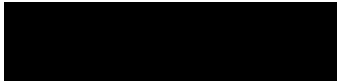


- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other 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.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,



Associate Professor Michael Skilton
Chair, Health Review Committee (Low Risk)

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 \(2007\)](#) and the NHMRC's [Australian Code for the Responsible Conduct of Research \(2007\)](#)

Thursday, 12 September 2019

Dr Natalie Munro
Disability and Community; Faculty of Health Sciences
Email: natalie.munro@sydney.edu.au

Dear Natalie,

Your request to modify this project, which was submitted on 09/09/2019, has been considered.

This project has been approved to proceed with the proposed amendments.

Protocol Number: 2019/079

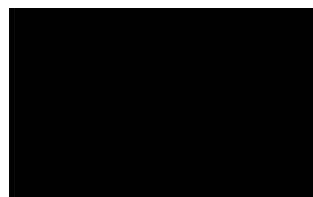
Protocol Title: The Connections Project: Clinical practices of Australian speech pathologists

Documents Approved:

Date Uploaded	Version Number	Document Name
06/09/2019	Version 1	Appendix I SLP interview guide
06/09/2019	Version 1	Appendix J SLP interviews PIS
06/09/2019	Version 1	Appendix K SLP interview consent form

Please contact the ethics office should you require further information.

Sincerely,



Associate Professor Mark Arnold
Chair
Modification Review Committee Chair (MRC 2)

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HUMAN RESEARCH ETHICS APPROVAL

The University of Sydney confirms that this project meets the requirements of the National Statement on Ethical Conduct in Human Research.

Project identifier:	2023/HE000774
Project title:	The Connections Project: The 'Hows' and 'Whys' of Social Media Use by Young People with Communication Disability
Application version:	1.04
Chief Investigator:	Associate Professor Melanie Keep
Project team:	Dr Lyn Tieu Mr Aaron Wong Dr Julia Starling Professor Natalie Munro Ms Nichola Shelton Dr Rebecca Sutherland
Project start date:	13 Nov 2023
Project end date:	13 Nov 2027
Date of issue:	Thursday, 14 November, 2024

Project summary

To explore social media use by 12- to 17-year-olds with communication disability. In Phase 1, a youth advisory group (18-22 years) will be consulted on the project's design. In Phase 2, structured interviews will be used to understand the how and why young people use social media. Parents/carers of the young people will also be asked to separately complete a semi-structured interview, to explore factors influencing their decision-making around their child's use of social media. Project outcomes will inform the development of service delivery recommendations, which will have implications for the practices of SLPs working with people with communication disability.

Summary of amendments

All materials relating to Phase 2 have been updated. Details are listed in an attachment.

Documents approved

Document type	File name	Document version	Application version
Other	Appendix A List of third party organisations.docx	1	1.02
Recruitment or advertising material	Appendix B Email to third party organisations.docx	2	1.02
Recruitment or advertising material	Appendix C Follow up email to third-party organisations.docx	2	1.02

Document type	File name	Document version	Application version
Recruitment or advertising material	Appendix D Email invitation to be sent by third parties.docx	2	1.02
Recruitment or advertising material	Appendix E Newsletter announcement.docx	2	1.02
Recruitment or advertising material	Appendix F Social media posts.docx	2	1.02
Recruitment or advertising material	Appendix G Flyer parents.jpg		1.03
Recruitment or advertising material	Appendix G Flyer parents.png		1.03
Recruitment or advertising material	Appendix H Flyer young people.jpg		1.03
Recruitment or advertising material	Appendix H Flyer young people.png		1.03
Survey or questionnaire	Appendix I Recruitment Qualtrics.pdf		1.02
Other	Appendix J Powtoon (video) links.docx	3	1.03
Participant Information Statement (PIS)	Appendix K PIS young people interview.docx	2	1.02
Participant Information Statement (PIS)	Appendix L Participant Information Statement parents.docx	2	1.02
Participant Consent Form (PCF)	Appendix M Parent consent form.docx	2	1.02
Interview or focus group plan	Appendix N Interview for young people.pdf		1.02
Interview or focus group plan	Appendix O Interview with parents schedule.docx	1	1.02
Recruitment or advertising material	Appendix S Message to 3rd party orgs to post participation invitation.docx	2	1.02

Conditions of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted on or before the anniversary of approval and a final report 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).
- Researchers working on this project must be sufficiently qualified by education, training, and experience for their role, or adequately supervised. Changes to the project team must be reported and approved.



- Researchers must disclose any actual, potential or perceived conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Research data and primary materials must be retained and stored in accordance with 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.
- If your research project is a clinical trial and is being sponsored by the University or is to be conducted on a University of Sydney site, you must comply with additional University governance requirements prior to commencing your Clinical Trial.
- The University 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.

Ethics Committee Representative

Chair

On behalf of the University of Sydney

The University of Sydney HRECs are constituted and operate in accordance with the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research (NHMRC). All personnel named on the project should be acquainted with these documents.

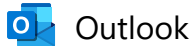
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Research Portfolio
Level 3, Michael Spence Building (F23)
The University of Sydney
NSW 2006 Australia

T +61 2 9036 9161
E human.ethics@sydney.edu.au
W intranet.sydney.edu.au/ethics

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Appendix B

Permission to publish



iasl20:Clinical practices of speech-language pathologists working with 12- to 16-year olds in Australia

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Type of use: Academic

Article title: Clinical practices of speech-language pathologists working with 12- to 16-year olds in Australia

Article DOI: 10.1080/17549507.2020.1820576

Author name: Nichola Shelton1*<https://orcid.org/0000-0003-3162-8338>, Natalie Munro1<https://orcid.org/0000-0002-5870-6378>, Melanie Keep1<https://orcid.org/0000-0001-9516-0303>, Julia Starling1<https://orcid.org/0000-0001-7909-6102> & Lyn Tieu2<https://orcid.org/0000-0003-2794-79771> Faculty of Medicine and Health, University of Sydney, Sydney, Australia2 Office of the Pro Vice-Chancellor (Research & Innovation), School of Education, MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Sydney, Australia

Journal title: International Journal of Speech-Language Pathology

Volume number: 23

Issue number: 4

Page numbers: 394–404

Year of publication: 2021

Name: Nichola Shelton

Street address: Susan Wakil Health Building, The University of Sydney

Town: Camperdown

Postcode/ZIP code: 2141

Country: Australia

Email: Nichola.Shelton@sydney.edu.au

Telephone: +61 2 8015 6011

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Let me know if you have any questions.

Best Wishes,

Karen Weis
Karen Weis
Publishing & Content Services Manager
Manager, Library and Information Resources Center
American Speech-Language-Hearing Association



From: Nichola Shelton <nichola.shelton@sydney.edu.au>
Sent: Wednesday, August 20, 2025 9:46 PM
To: Permissions Asha <Permissions@asha.org>
Subject: Permission to include published paper in a thesis

Hello,

We have recently had a manuscript published in LSHSS:

Shelton, N., Munro, N., Starling, J., Tieu, L., & Keep, M. (2025) Assessment of the Social Interaction Abilities of Adolescents With Communication Disability: A Scoping Review. *Language, Speech, and Hearing Services in Schools*. https://doi.org/10.1044/2025_LSHSS-24-00081

I am requesting permission to include this paper in my PhD thesis, which I plan to submit later this year. The thesis will be included in the university's repository (<https://ses.library.usyd.edu.au/>) as an open deposit.

Please let me know if any additional information is needed.

Thank you,
Nichola

Nichola Shelton | Lecturer & Speech Pathologist
MSLP CPSP
Speech Pathology | Sydney School of Health Sciences | Faculty of Medicine and Health
THE UNIVERSITY OF SYDNEY
Susan Wakil Health Building | The University of Sydney | NSW | 2141
E Nichola.Shelton@sydney.edu.au
I work part-time (Tuesday, Thursday, Friday)



Do speech–language therapists support young people with communication disability to use social media? A mixed methods study of professional practices

Author: Lyn Tieu, Julia Starling, Melanie Keep, et al

Publication: International Journal of Language & Communication Disorders

Publisher: John Wiley and Sons

Date: Dec 24, 2022

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Article DOI: 10.1080/09638288.2024.2325039

Author name: Nichola Shelton*, Natalie Munroa*, Julia Starlinga, Lyn Tieubcd & Melanie Keepaa Faculty of Medicine and Health, The University of Sydney, Sydney, Australiaab Faculty of Arts and Science, University of Toronto, Toronto, Canadac MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Sydney, Australiaad Department of Linguistics, Macquarie University, Sydney, Australia

Journal title: Disability and Rehabilitation

Volume number: *

Issue number: *

Page numbers: *

Year of publication: *

Name: Nichola Shelton

Street address: Susan Wakil Health Building, The University of Sydney

Town: Camperdown

Postcode/ZIP code: 2141

Country: Australia

Email: Nichola.Shelton@sydney.edu.au

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Appendix C

Submission to parliament

Nichola Shelton
Level 6, Susan Wakil Health Building
D18 Western Avenue
The University of Sydney
Camperdown, NSW 2006

Submission to the Committee of the Online Safety Amendment (Social Media Minimum Age) Bill 2024

1) Challenges of Communication Disability: Imagine a world where communication feels like an insurmountable challenge. This is the reality for people with communication disability— a wide range of issues, including language, speech, reading, and writing difficulties. In Australia, the prevalence of low language skills in school-aged children is between 6.4% and 8.04% (Hill et al., 2023). Speech-language pathologists transform lives by helping individuals of all ages manage communication disability; this includes not only addressing issues with oral and written language skills but also helping people to access and participate in social activities across both offline and online, including social media, environments.

2) Importance of Social Media: Social media are digital technologies that enable social networking, and/or the creation and sharing of user-generated content (Aichner et al., 2021). Young people view social media as a means by which to foster a sense of social connectedness to others through participation in online communities (Marsden et al., 2022). This involves using digital tools (e.g., apps, websites) to maintain social communication and relationships with peers, family members, and other individuals (Rose & Morstyn, 2013). The use of social media can offer benefits such as increased opportunities for social contact and support (Reid Chassiakos et al., 2016).

3) Benefits of Online Interaction: Online communication can positively impact young people's wellbeing by influencing the time they spend with existing friends (Valkenburg & Peter, 2007). Additionally, social media can be particularly valuable to young people with disabilities (including communication disability) who may feel excluded, marginalised, or lacking in support (National Academies of Sciences, Engineering, and Medicine, 2023).

4) Communication Disability and Social Media Use: Scholars at The University of Sydney recently conducted a comprehensive review on "Social Media Use by Young People with Language Disorders" ([Shelton et al., 2024](#)). We report on how young people with communication disability engage with social media and the unique challenges they face. We found that:

- Young people with communication disability use social media for social connection and social interaction. This typically involves improving existing (offline) relationships rather than establishing relationships online.
- Young people engage in activities such as chatting to people, planning social activities, finding acceptance/a sense of belonging, being a source of social support, and supplementing offline relationships.
- Social media use can offer people with communication disability significant benefits by helping them feel less isolated and alone (Hemsley et al., 2024).

5) Importance of Social Media Skills: For young people with communication disability, achieving success as communicators during childhood and adolescence is crucial for their preparation for adulthood. If they do not learn to use social media during their teenage years, when will they? To

Submission to the Committee of the Online Safety Amendment (Social Media Minimum Age) Bill 2024

transition successfully into adulthood, it is essential for them to have opportunities to build social networks, especially with peers, in the environments where these interactions will occur.

6) Recommendations: Social media legislation could improve the online safety and social media experiences for young people with communication disability. However, taking away under-16s' access to social media could isolate them from support that they value and use. We make the following recommendations to support the digital participation of young people with communication disability:

1. **Inclusive Design:** Social media platforms must incorporate inclusive design principles to ensure accessibility for young people with communication disability. This includes supporting features like text-to-speech/speech-to-text and visual aids.
2. **Parental Resources:** Provide resources and education for parents and caregivers on how to support safe and effective social media use for young people with communication disability. This includes guidance on balancing safety concerns with the need for social interaction.
3. **Research and Development:** Development of evidence-based programs and resources to support this population to access social media.

We thank the committee for considering the needs of this age group and respectfully request active consideration of our recommendations.

Ms Nichola Shelton
Speech Pathologist, PhD candidate, The University of Sydney

Dr Natalie Munro
Professor of Speech Pathology, Southern Cross University

- Aichner, T., Grünfelder, M., Maurer, O., & Jegeni, D. (2021). Twenty-Five Years of Social Media: A Review of Social Media Applications and Definitions from 1994 to 2019. *Cyberpsychology, Behavior, and Social Networking*, 24(4), 215–222. <https://doi.org/10.1089/cyber.2020.0134>
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- National Academies of Sciences, Engineering, and Medicine. (2023). *Social Media and Adolescent Health*. The National Academies Press. <https://doi.org/10.17226/27396>
- Reid Chassiakos, Y. L., Radesky, J., Christakis, D., Moreno, M. A., Cross, C., Council on Communications and Media, Hill, D., Ameenuddin, N., Hutchinson, J., Levine, A., Boyd, R., Mendelson, R., & Swanson, W. S. (2016). Children and Adolescents and Digital Media. *Pediatrics*, 138(5), e20162593. <https://doi.org/10.1542/peds.2016-2593>
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- Valkenburg, P. M., & Peter, J. (2007). Online Communication and Adolescent Well-Being: Testing the Stimulation Versus the Displacement Hypothesis. *Journal of Computer-Mediated Communication*, 12(4), 1169–1182. <https://doi.org/10.1111/j.1083-6101.2007.00368.x>