Introduction

To select a source of data which was suitable for sonification, I researched many different types of data through different websites and tried them on the Max Msp, then focused on Smoking from Risk Factors. Smoking is one of the leading preventable causes of death and disease in Australia, responsible for about 15,000 deaths annually. More than 20,000 Australian school children progressed from experimental to established smoking behavior in 2004-05. The sonification system is designed to represent how smoking prevalence has been seen in age group of 12-15 and age group of 16-17 in the almost 20 years (1984-2005) and a significant fall between 1996-2005. The purpose is to design a feedback of results that allow school students, their parents, teachers even the government to acoustically understand the flow of smoking prevalence through the audio rather than visual and discover the way to keep the prevalence to the lowest level even to 0.

Design Description and Process

According to the Figure 1, there are two significant drops during the whole period. There is a drop between 1984 -1990 in age group of 16&17 where age group 12-15 were rather a curve-shape gradually drop in that period. Also a sharp drop in 2005 in age group of 16&17 and an anther smoothly downwards curve drop in age group of 12-15.

Because age group of 16&17 shows much higher percentage than age group of 12-15, to make it noticeable, the sound would be sharper and higher. Also as observed the curve of age group of 12-15 is much smoother than the other which makes the sound harmonic and rather steady in frequencies as a single tone.

The starting points of both groups are 10% different, but moving to year 1990, the age group of 16&17 is more like a straight line than the other group. I decided to give the age group of 12-15’s curvy line more harmony and group of 16&17 more harsh sound.
I have collected all the data from Tobacco in Australia: Facts and Issues 3\textsuperscript{rd} Edition Chapter 1.6 and created text files to store them for these two different age groups, so that I can import the data into Max Msp with ‘coll’ command and process the data in the application. After import data from text file, the ‘unpack’ command is used to load the data into columns as the values are organized in columns. I need to mention that since the values are in percentage, after I tested a few time of the sounds, it wasn’t very impressive and especially in Route 2 (refers to screenshot on the left) was not very fluctuant as I expected, I modulated the value proportionally so the sound can come out louder and clearer.

Two text data has been developed based on the Tobacco in Australia: Facts and Issues:

\textbf{Route 1 smokeGroup1.txt}: Age group of 12-15
\textbf{Route 2 smokeGroup2.txt}: Age group of 16&17

\textbf{Conclusions}

The evaluation of the system from a personal perspective: The original design aim is reached by having very distinguishable sounds which is designed and developed based on the different values from smoking prevalence graph and table. The basic function of the system, which displays two different and comparable age groups of data in audio is working. However there should be more functions such as compare the two different age groups by channeling left speaker and right speaker, then that would be more efficiently distinguish and map the differences. Also there could be more different data to be inserted to play a more impressive sound to users. Maybe more interactive with images or movies would be a best way showing the data in audio and visual.

The results from the evaluation shows users were able to distinguish the very different expression of the sounds, were able to feel the smoothness and harshness from different groups.

Sound could be useful to display in any education, health documentary or any related quit smoking program to alert how smoking can affect lives and encourage people to quit smoking as early stage.