

INFORMATION TECHNOLOGY, DYSLEXIA, AND THE DISABLED LEARNER

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ABSTRACT

This paper backgrounds the difficulties that disabled learners encounter and reports on findings of a qualitative study of a dyslexic learner who was studying for the Bachelor of Applied Information Systems (BAppIS). A specific study on a learner with dyslexia was conducted from August to October 2002 at a New Zealand tertiary institution. It was generally considered that learners with dyslexia were disadvantaged and somehow isolated due to their inability to communicate. The purpose of the research was to identify possible technological solutions for disabled learners and communication devices to enable dyslexic learners to communicate more effectively.

It was found that a variety of technological solutions generally assisted the disabled and dyslexic learner to communicate. It was also considered that this communication via a computer might be socially inhibiting.

Keywords

Learning difficulties, technology, mainstream, dyslexic, special needs.

1. INTRODUCTION

New Zealand law states that people with learning difficulties have the right to education and learning. According to a paper from the Ministry of Education Schooling in New Zealand

- "A Guide. Education for Students with Special Needs".

Special education services are available for children with disabilities, learning or behaviour difficulties who need additional resources to those usually provided in regular education settings. Students with special education needs can receive help in a range of settings, including special schools, special education classes in regular schools, and mainstream classrooms. Most students with special education needs attend a regular school. (2001. Para 1).

As a direct result of this legal requirement, more people with learning difficulties are entering into mainstream classrooms throughout our education system. This poses challenges for the learner and the educators.

2 BACKGROUND

Some of the learning problems were recognised early in the twentieth century by a few scholars and teachers but not until the last twenty five to thirty years were plans and programmes implemented for children and adults alike to become part of the normal (mainstream) environment and some procedures put into place for these people to have the right to "appropriate evaluation and help according to their special needs". (Selikowitz 1993, p8). As time has passed it was recognised that most learning difficulties could be addressed whether it was by providing extra tuition or giving a student a 'reader/writer' to sit an exam so that many students with learning difficulties could be placed in mainstream classes.

According to Lai and Macmillan (1992), "Computers can be used to open up learning opportunities for

students with disabilities” (p. 221). These authors give examples of where a computer could most effectively be used and examine the areas of the physical access, and, the learning environment itself. In addition, in a personal conversation with Barbara Morris, on October 15, 2002, a Learning tutor at a tertiary institute also said “many students with learning difficulties find the information technology area ideal for them. They are often learning gifted people that have no problems with logic or other areas, but their problems lie in the area of reading and/or writing and when they get into computing they find their niche in life and they usually blossom.” She added “This is often more with males than females though.”

Roblyer & Edwards (2000) identify some of the current issues that apply to special education and technology. They say that with the integration of many special needs students with learning difficulties into mainstream education there is an awareness of the fact that technology is one of the areas that can help these students but, as some students require special resources, it can become expensive for only a limited few. For the student it can be an expensive exercise if they wish to have the same technology at home. “Hardware/software compatibility problems seem even greater for adaptive devices and special needs software than for other products.” (p309).

Some students with learning difficulties may not be able to afford the technology that they really need to keep learning. It is possible that the parents of these students may be able to get a grant for some of the technology but it still costs money to run the technology and provide the associated consumables.

Mark Brown (1995) emphasises in his article “the computer is a new information and communication technology that is particularly versatile in the classroom. While we should not overlook the old and low-cost technologies in overcoming problems relating to learning, much of the following is devoted to the unique features of the computer” (p10). He gives examples of computer use in education. More and more people are using the computer as a form of communication especially people that have learning difficulties, as they may not be able to communicate well with people for various reasons and they find they can communicate very well using the computer.

Applications are available to help people with dyslexia and other learning difficulties. According to Walker (1998) “Some people find that technology can help them develop strategies for coping with dyslexia. Dictating to a computer, rather than typing can be a boon and by slowing their speech down so that the computer can keep pace, some dyslexics have found they have been more able to recognise the words on

the screen. Computers also allow scope for altering fonts and colours, which may often help.” (p88). This helps dyslexic people both by confidence and the actual learning process.

Users find that communication barriers are dropped when they can ‘talk’ to others and also when they are using computers for searching for information they are learning as well as their skills improve while they are looking and reading. The downside to this is the user can become very attached to their computer and lose any interaction skills they may have as they do not get out and socialise physically with others but rely on chat rooms and the Internet and email for their social contact. Confidence can be seriously eroded by staying behind the computer screen, as it is very easy to hide behind a screen and become anyone you would like to be.

3. METHOD

The study employed a qualitative research method. Semi-structured interviews were the main data collection instrument. Focus was on a dyslexic learner who in addition to attending SPELD (Specific Learning Disabilities Federation) received mainstream education and graduated from a tertiary institution with a Degree program

4. FINDINGS

Matt, (our focus learner) presently runs a successful Web Design business with his partner Steven. Matt is the programmer and Steven is the graphics expert.

4.1 Matt’s Story

Information gained from an interview revealed that Matt was diagnosed as a dyslexic when he was 10 years old. The British Educational Communications and Technology Agency (BECTA), state that:

According to the Dyslexia Institute:

Dyslexia is a specific learning difficulty that hinders the learning of literacy skills. This problem with managing verbal codes in memory is neurologically based and tends to run in families. Other symbolic systems, such as mathematics and musical notation, can also be affected. (2001. para 1).

To assist Matt with his learning his mother, who was very supportive, enlisted the aid of SPELD (Specific Learning Disabilities Federation).

As a result of attending SPELD Matt went through school feeling “he was different to other children as he had to have help with reading, and writing and other skills that the other children seemed to find easy”. Matt reported that he “felt vulnerable to the criticism of others. Subsequently I withdrew into myself, I felt very isolated, totally alone. My learning was not going anywhere so in the third form I left school and did one year with the Correspondence School. This was not successful, as I did not have the ability to write properly”.

The following year Matt attended a tertiary Institute and entered a communications course that offered basic computing skills and there a different world opened up to him. Whilst working with computers Matt found something that would help him with spelling and grammar and his confidence grew. At the end of this course Matt applied for and obtained a job in a pet shop. This suited Matt as he liked animals - they never talked back or put him down.

After twelve months the pet shop closed down and he went back to a tertiary Institute and entered a media studies course. This course involved computers using high-end graphic packages to edit film and video. He really enjoyed using the computers as computers used logic and this made sense to him. Matt loved the world of film and video but found he could not cope with the artistic aspect as he was still trying to learn to write properly. During this time Matt purchased a computer, which he used mainly for games and typing assignments. Matt said, “Learning to type was a huge mission but with the aid of a typing tutorial (electronic) I persevered and learned to at least find my way around a keyboard reasonably well.”

Following on from the completion of his Media course Matt applied for and was accepted into a Bachelor of Applied Information Systems (BAppIS) degree. This was his dream - working on computers all day and understanding most of what was being taught. Matt did extremely well with programming and Internet related papers. These papers were the foundation for developing the business that he and Steven run today. This business was established whilst Matt was still studying, therefore management and accounting papers suddenly took on new meaning for him. Whilst management and accounting were not Matt’s greatest strength, he persevered and is a capable manager of his business.

4.2 Matt’s Project

The last thing that a student does in the BAppIS degree is a project and this entails the creation of some type of information systems application for a customer. For his project in 2001 Matt designed,

developed and implemented an Intranet for the Learning Centre at the tertiary institution. This Intranet was for students with learning difficulties. They would be able to access it to help them with areas of difficulty in their study. For example, Matt developed a thesaurus that was based on similar rules for phonetic spelling to enable students to use it to develop their writing skills. He has also developed a search facility that is extremely tolerant of poor spelling. This has been a great success in the trial period

5. DISCUSSION AND CONCLUSIONS.

The popularity of computers in homes and schools has generally helped people with learning difficulties all over the world. Using computers to help with spelling and grammar has been of some advantage to some learning disabled. The development of specialised software applications has not only helped students in this way, but also helped remove the communication barriers that go hand in hand with a learning problem. The growth and popularity of the Internet has also improved the communication process. Other areas of Information Technology that are beneficial to students with learning difficulties are talking books, tape recorders, digital diaries, and calculators to name a few.

5.1 Positives and Negatives of using Computers for Matt

According to Matt the impact of computers and information technology on people with learning difficulties have, in the last ten to twenty years, benefited people like him to be able to become a “well respected, successful businessman who is able to have time to have a private life”. “The emphasis is on respected!” he adds.

The negative side of computing, according Matt, was “time”. Computers seemed to take up most of his waking moments. He was referring to surfing the Internet, the playing of computer games and the use of chat rooms. This left little time when an assignment was due and “if it wasn’t a programming or Internet assignment there was more effort required and motivation could be a problem then.”

All else being equal, Matt’s chances of becoming a successful in business twenty to thirty years ago would have been much reduced, as access to computers in the seventies was quite limited. He attributes his success to the chance of being able to have access to a computer and for Matt that computers were logical that it was easy for him to use and enjoy

using them. The fact that he enjoyed using computers enabled him to learn so much more than he would have in a conventional learning environment. This is an example of the positive impact of computers with people that have learning difficulties.

Communication is a real problem with a lot of people that have learning difficulties. The use of computers can open up communication channels, although there could be problems with people not being able to type; possibly due to some physical incapacity or the sheer frustration of having to learn the skill.

6. CONCLUSION

In this paper I presented a general view of how technology can aid disabled learners. The specific focus of this paper was on a dyslexic learner who used computers to assist with communications and learning capability. The applications available for people with special needs today are many and varied; nevertheless, cost can be a limiting factor when considering some of these applications.

Matt's story illustrates that the impact of technology on people with learning difficulties is mainly positive as it opens a new world for them, especially in the area of communications. However, there are always the negatives that is the social aspect as many people with learning disabilities are likely to have little confidence, therefore they may 'hide' behind the computer. In addition, some students with learning difficulties may not be able to afford the technology that they really need to keep learning.

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