



Attitudes Towards New Technology In Teaching Dyslexics In Singapore: The Case Of The Mimio Teach Smart Bars

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Abstract

Technology has been an important factor in teaching over many years, with recent advances opening up many new opportunities for teachers. However, reactions to this new technology have been mixed. In this article, the attitudes and motivation of teachers to engage with this new technology in teaching small groups of dyslexic children were evaluated. Findings indicated a generally positive attitude towards the use of Mimio Teach Smart Bars, with some evidence for problems in setting up the equipment for some of the participants. The majority of participants intended to use this technology regularly. Moreover, the pupils who had taken part showed generally high motivation towards continued use of Mimio Teach Smart Bars, reflecting their confidence as ‘digital natives’. Implications of these findings for potential improvement in literacy will be discussed.

Keywords: Technology, Educational technologies, dyslexia, technology integration, literacy, technology adoption

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Introduction

The focus of this study is to examine the use of interactive Mimio Teach Smart Bars as instructional tools and to determine their impact on the literacy achievement of dyslexic learners in the Dyslexia Association of Singapore (DAS). Diagnosed dyslexic students and their respective Educational Therapists (EdTs) will be studied on two phases: 1) To evaluate the overall teacher and student perceptions of the Mimio Teach Smart Bars - from training to implementation and 2) To determine the impact on literacy achievements by the DAS students after the use of Mimio Teach Smart Bar technology is implemented in the classroom setting. This paper is on phase 1 and will cover the introduction of the Mimio Teach Smart Bars and the users' perceptions of this technology.

Background of Study

Instruction based on technology has been utilised quite extensively to teach learners with various learning needs since its original conception in the 1970s (Alessi & Trollip, 1991; Gagne, Wagner & Rojas 1981; Mechling, Gast & Krupa, 2007). However, the take-up of new technology within the school system has typically been disappointingly slow, and limited to the use of computer games. This is largely because, while students are termed 'digital natives', indicating their lifelong exposure, adults are typically 'digital immigrants', indicating their need to build emerging skills. A review of the literature (Mumtaz, 2000) suggested that integration of the new technology with existing teacher beliefs is crucial to

acceptance and effective utilisation of these new tools. Three responses have been identified in teachers (Evans-Andris, 1995) avoidance, integration and technical specialization, that can dictate the success or otherwise of new technology. More recently, Teo, 2011 identified a model of technology uptake amongst teachers in Singapore based on five variables (perceived usefulness, perceived ease of use, subjective norm, facilitating conditions, and attitude towards use) and behavioural intention to use technology that proved useful in a study of 592 teachers.

During this period, new methods and pedagogies have been discovered in educational computing and emergent instructional applications have been woven into learning and teaching with ever-evolving instructional and educational technologies. One of these methods is the interactive whiteboard, now known as the "mother" of portable interactive whiteboards. Instead of simply displaying content, these boards present information interactively through the use of other technologies - such as the desktops, laptops, projectors and tablets such as the iPads.

Now, interactive whiteboards are used in many schools either side by side with the traditional whiteboards or even replacing the whiteboards as they have the capabilities to present basically anything which can be presented on a computer, such as instructional software, web-based games and audio-visual materials. Over the last decade, research mainly around the impact and effects of interactive whiteboards has begun to delve deeper

into the dimensions of the instructional processes.

Helping dyslexics achieve has been the primary mission of the Dyslexia Association of Singapore (DAS) since its inception in 1991. With a goal of building a world class organisation dedicated to helping dyslexic people and those with specific learning differences in Singapore, the DAS earmarks monies to support dyslexic children from financially challenged homes.

Singapore's Ministry of Education (MOE) has been supporting students with dyslexia by funding either partially or fully, intervention services for each child enrolled in DAS. Although Singapore now boasts one of the world's strongest school systems as measured by international comparisons of academic achievement, this has not come at the expense of vocational and technical education, at which it also excels.

Theoretical Basis for Study

Two theories that provide the basis for this study are social constructivist theory (Palinscar, 1998) and social cognitive theory (Bandura, 1986).

In this age of academic advancement, the classroom is no longer a place where the educator - who is often seen as the "expert" - fills knowledge into the passive minds of the learners, who wait like empty vessels to be filled. Social constructivist theory calls for a learning environment that has learners actively involved in their own process and pace of learning. This no longer has tolerance for text-book

answers and memorization because in the constructivists' classroom, knowledge is dynamic for both the learner and educator alike and new knowledge is constantly sought and constructed so they are equally empowered. The traditional "sage on the stage" - often referring to the teacher- have now become conduits of the tools for learning - which in current trends take electronic forms such as tablets, projectors, collaborative online platforms and in the case of this study - the interactive Mimio Teach Smart Bars. Educators create a safe and stimulating environment for the learners to probe thoughts and ideas and construct their own meanings by assimilating new and prior knowledge.

Started by Alan Bandura as the social learning theory in the 1960s, the development of social cognitive theory in 1986 states that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviour. To better demonstrate this theory in a classroom setting, it is essential that the educator allow for other influences other than that of formal instruction. For instance, problem or inquiry based learning activities, discussions between peers and teachers fostering understanding of subject matter, employing multiple sources of information, and providing opportunities for students to express their understanding in a variety of ways are all activities which support the constructivist views.

Constructivism presents "teachers as mediators of students and environments, not simply as givers of information and managers of behaviour" (Brooks & Brooks,

1999). Teachers must thus employ strategies such as scaffolding, modelling, and coaching in order to support individual students.

The very thought of a typical teacher's role and responsibilities in the classroom will lead most people to think along the lines of planning instruction, delivering instruction, assessing student learning, and managing the classroom environment. (Stronge, 2007). These are typical ways we know in evaluating what

a teacher does in and outside of the classroom. Teachers have been both taught and later, trained in very traditional ways to address these specific domains (Darling-Hammond, 2006). In this second decade of the 21st century, however, is it not time to reconsider these domains and propose a new description of the term "effective"?

The TPACK and the SAMR model stress the essence of such changes. TPACK (Technological, Pedagogical and Content

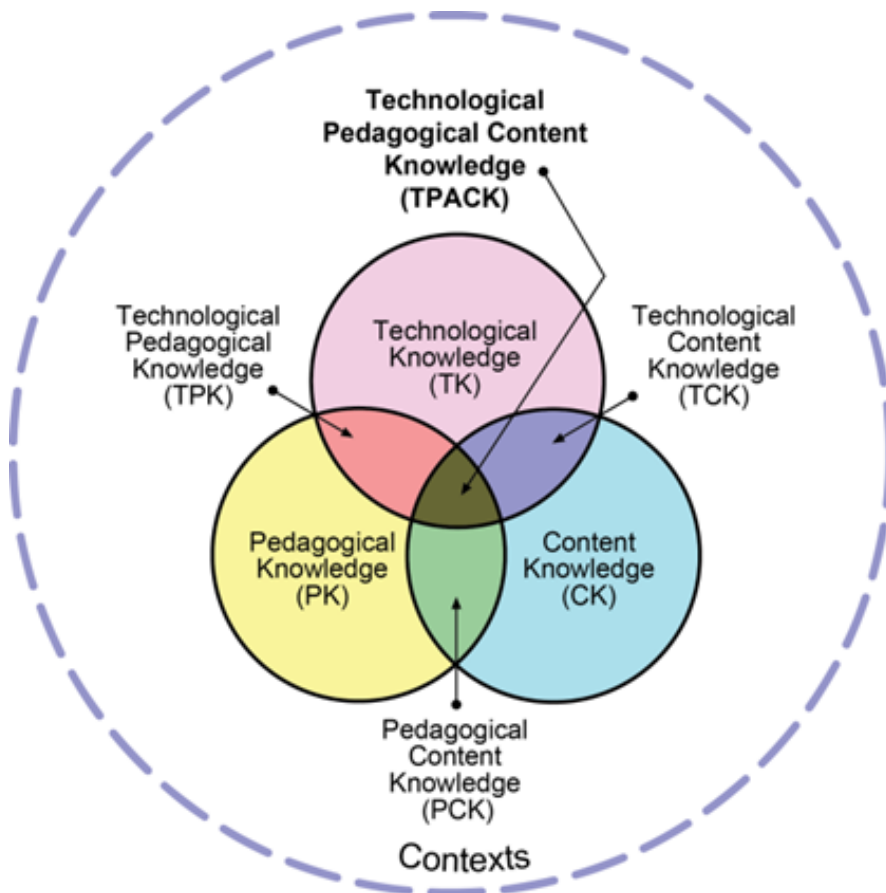


Figure 1—TPaCK (Source: Koehler, M. J., & Mishra, P. (2009))

Knowledge), is a term used by Mishra and Koehler (2006) to encapsulate the educators' knowledge and expertise with respect to the inclusion of information and communication technologies (ICT) into the instructional design of the lesson.

The overlapping area among technological knowledge, content knowledge and pedagogical knowledge depicts TPaCK, indicating that it is a product of the synthesis of these three areas of knowledge. TPaCK assessment rubrics can be referred to when addressing the pedagogical dissonance that educators may face when adopting constructivist approaches to classroom teaching (Windschilt, 2002). TPaCK's importance lies in the development of the competencies of educators in creating that learner-led environment which is usually depicted through problem or inquiry based learning, collaborative learning and knowledge construction.

Advances in information technology will affect the craft of teaching by complementing rather than eliminating traditional classroom instruction. The effective educator acts in a mixture of roles. The educator is no longer the sole knowledge provider but takes on a new role - the facilitator because now ICT tools are becoming omnipresent in almost every classroom or school and new knowledge is instantly available, literally at everyone's fingertips. In a profession that is information-based, educators must acknowledge that information undergoes change. Information known a short while back may no longer be relevant or be very different in this rapidly changing world.

Both areas that educators are required to master, their subject content and the art of delivery, have undergone change no matter when it was any teacher mastered them. Staying up-to-date, relevant, on information and educational technology is now a social imperative. Likewise, learners and their learning approaches have also evolved. So, more than ever, educators have to embrace these changes in order to effectively meet the learning needs of the 21st century learners.

Following close behind is the SAMR model that answers the question on "How effectively am I using educational technologies in my classroom?". It thus provides a framework for the educator to assess for themselves their level of ICT integration based on that particular lesson or activity. Developed by Dr Ruben Puentedura, the SAMR model is a more practical framework that supports TPaCK's application into the classroom. It is also built on Bloom's Taxonomy (Bloom and David, 1956) as the task moves from lower to upper levels of the taxonomy, it also moves from lower to upper levels of SAMR.

The two 'enhancement' levels of SAMR (Substitution, Augmentation) are linked to the three lower levels of Bloom (Remember, Understand, Apply), while the two 'transformation' levels of SAMR (Modification, Redefinition) are associated with the upper levels of Bloom (Analyse, Evaluate, Create). In turn, within each grouping a similar ordering occurs -e.g., Remember-type tasks are primarily associated with S-level uses of the technology, Understand-type tasks are

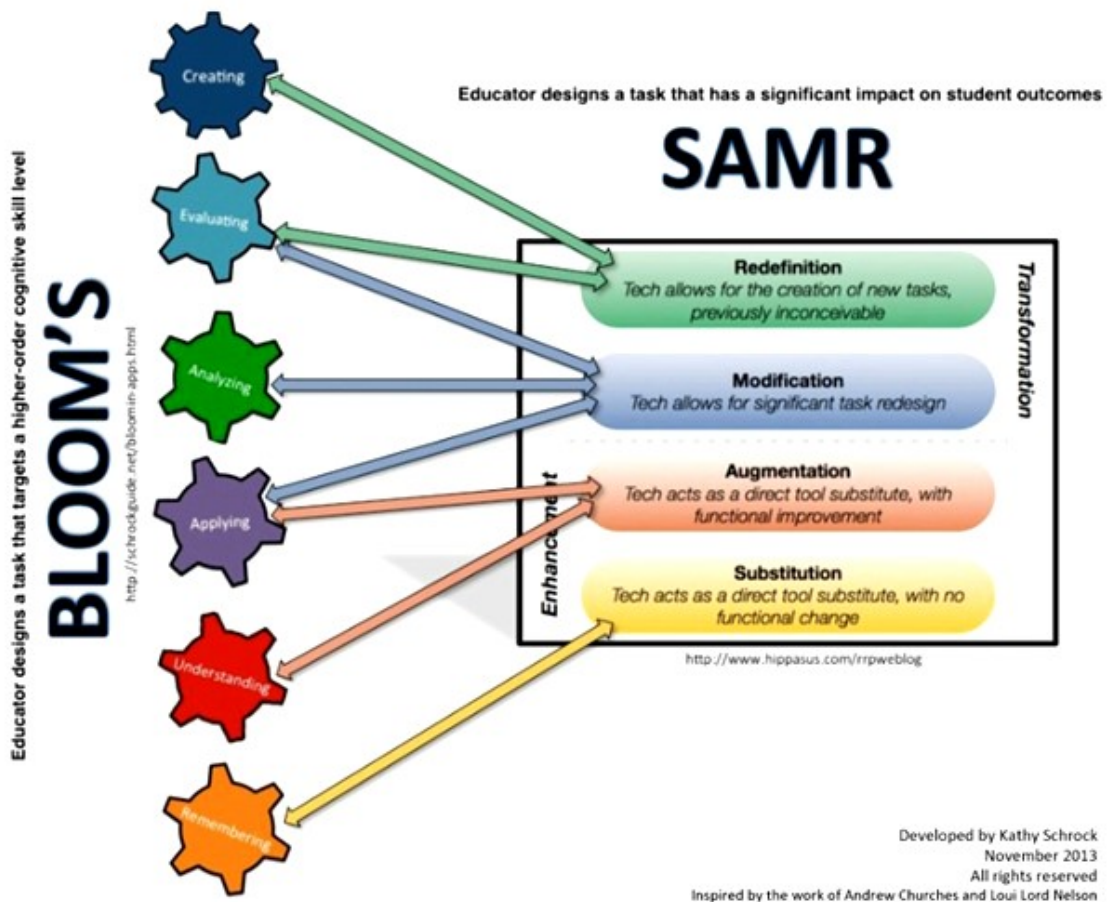


Figure 2—Bloom's Taxonomy and SAMR (Source: Kathy Schrock (2013))

associated with either S- or A-level uses of the technology, and so on.

It is important to realise that this association between SAMR and Bloom's Taxonomy is not a necessary – or even habitual – coupling. Thus, it is possible to use extremely powerful redefinition-level approaches to make certain types of memorisation tasks possible; conversely, it is also possible to undertake novel create-type tasks that only make basic substitution/augmentation use of the technology.

This begs the question – what has the TPaCK and SAMR got to do with the introduction of the Mimio Teach Smart Bars? Educators must note the SAMR is not a model that they have to move up and that being at the Redefinition level for all classroom activities is not a mandate. Sometimes depending on the task at hand, the Modification or Redefinition is not ideal as that isn't the purpose.

This model is primarily to encourage educators to use technology in different

ways and expand their use and think of how technology can be seamlessly integrated as a learning tool for their students. The Mimio Teach Smart Bar provides a platform for various educational technology tools to come together – projector, laptop and tablets, to add value to the 4Cs – collaboration, creativity, communication and critical thinking (P21, 2007), which are the identified core skills required of the 21st century learner to meet the demands of the digital economy.

The technology is also inclusive towards learners with various learning strengths – tactile, verbal, auditory and visual, the last being most descriptive of the typical dyslexic learners in DAS. By connecting their iPads to the Mimio Teach software, students can have their own working space on their iPads and the educator can have their works projected onto the whiteboard for collaborative discussions or pose questions on the whiteboard and get students to work on it individually on their iPads and then project their responses for a collaborative discussion. Either way, this technology gives every student in the class a voice – even the quietest.

Problem Statement

The purpose of this quasi experimental and quantitative study is to eventually investigate the effect the Smart Bar technology has on the overall literacy achievement of dyslexic students who are receiving remediation in DAS.

This study will compare literacy achievement by dyslexic students who

receive remediation with the use of Mimio Teach Smart Bar technology on a pre-intervention and post-intervention basis. Literacy improvements will be assessed by improvements in DAS Curriculum Based Assessment (CBA) scores. This comparison will not measure the number of students from each sample who made improvements in the CBA; instead, it will measure the growth gains of each student by comparing the two assessments results.

Having stated the eventual purpose, the intermediate investigation in this paper studies the level of adoption, utilisation and user perception of this technology. Most importantly, the environment within which the Smart Bar research takes place, the students' and educators' perceptions in terms of objectives, content, teaching methods and materials; as well as the participants' perceptions of their own competencies are examined.

Recently, DAS rolled out the iPad initiative to equip educators with tablets to enhance classroom instruction as well as an administrative tool. An add-on to the iPads are the Mimio Teach Smart Bars, which would convert the plain traditional whiteboards into interactive surfaces. As phase 1 studies the front-end analysis of the tech-adoption by selected DAS educators, phase 2 will focus on the impact of the technology on the students' literacy achievement.

Research Questions

The primary research questions guiding this study are:

Phase 1:

1. What do the selected DAS educators see as the value of using Mimio Teach Smart Bars in lesson designs and what beliefs do they hold about this technology and its impact on teaching and learning in the classrooms?
2. With the use of this technology, are there any pedagogical links to their educational practices?

Statement of the Hypothesis

The following hypothesis was developed from the problem statement and the literature review regarding the learning styles of dyslexic learners and the limited tools available to present them with enhanced literacy instructions.

Phase 1:

- H1** The introduction of the Mimio Teach Smart Bar technology at DAS will equip educators, in creating interactive lesson materials, with flexibility, efficiency and motivation.
- H2:** The Mimio Teach Smart Bar will be well-received by the DAS educators as it would offer more avenues for collaborative and shared-cognition activities, paving way for a more interactive classroom.
- H3:** Educational therapists will be empowered with the necessary

skills and knowledge to effectively support dyslexic learners who struggle in their acquisition of literacy skills. This can be achieved by identifying, assessing and promoting lessons designed specifically with the Mimio Teach Smart Bar.

Professional Significance of the Study

The importance of this study lies in the value of identifying educational technology tools and methods that will enhance literacy achievement of the dyslexic learner. Recognising the components necessary for sustaining and further developing the literacy skills of the dyslexic learner contributes to the expansion of educational theory.

The implementation of 21st century technological tools as a mode to increase performance in dyslexic learners impacts not only on academia but the progress of societal achievement. Students with potential aptitude must be provided with opportunities to realise and maximise their potential; and the same applies to those who need that extra support in order to realise their potential.

The use of interactive Smart Bars as technological instructional tools may lead to further analysis of technological devices for enhancing classroom learning and instruction in DAS. To date, some studies have been conducted that examine the impact of technology on academic growth. However, when it comes to the discussions on interactive whiteboards and their impact on

academic achievement and performance outcomes, there is still a lack of evidence, apart from research on student motivation and engagement.

Educational therapists must recognise these capabilities of educational technological tools to adjust methodologies, expected outcomes and learning measures suitable for the dyslexic learners if they are to prove effective. With the rapid evolution of devices, educators must make research-based decisions to determine which tools successfully complement the dyslexic learners' learning needs. As DAS seeks to increase dyslexic students' achievements, examining the impact of technology definitely has substantial value in paving the way in creating an ideal learning environment for our dyslexic learners.

An abundance of research exists regarding the special need for an innovative methodology when educating and supporting dyslexic learners. Although opinions may vary in prioritising the tools that are most effective, there is total agreement that the curriculum for dyslexic students and instructional strategies be differentiated from the norm. Dyslexic learners must be afforded opportunities that support as well as challenge capacity in order to realise their full potential (Koshey, Ernest, & Casey, 2009).

Operational Definitions

The constructs in this research are defined operationally as follows:

- ◆ **Ability level** is defined as the intellectual capability of the

individual student based on standardised test scores.

- ◆ **Active engagement** is defined as interactive student participation in the classroom learning process. Inquiry-based and physical activities involve, but are not limited to, discussion, collaborative-learning, presentations and research.
- ◆ **Curriculum-Based Assessment (CBA)** have been developed so that Educational Therapists would have a measurement and evaluation procedure that they could use to routinely make decisions whether to modify their instructions to meet the needs of the students (Deno, 1985). A student who is responding well to the instruction within the banding level will then move on to the next level of the banding. It will also help to guide Educational Therapists to adjust their teaching for students who are not progressing effectively in the programme (Fuchs & Stecker, 2003).
- ◆ **Diagnosed dyslexic student**, hereafter referred to as dyslexic learner, is defined as a student identified with a type of specific learning difference identifiable as a developmental difficulty of language learning and cognition (U.S. Department of Education, 2006). It is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal

memory and processing speed. Co-occurring difficulties may be seen in aspects of language, motor coordination, mental calculation, concentration and personal organisation, but these are not, by themselves, markers of dyslexia (Rose, J., 2009).

- ◆ **Differentiated instruction** is defined as a lesson concept presented in different formats to address the various ability levels within a classroom setting.
- ◆ **Interactive learning** is defined as a process that actively engages a student both mentally and physically in discovering, constructing and understanding information. Self-selected topics and inquiry-based methodology, coupled with problem-solving and cooperative tasks are components of the process.
- ◆ **MOE-aided DAS Literacy Programme (MAP)** provides a comprehensive and quality curriculum to support dyslexic students facing literacy challenges. The MAP Curriculum integrates key essential learning components (such as phonemic awareness, reading fluency, vocabulary, writing and reading comprehension) that are crucial in remediating students with learning difficulties.
- ◆ **21st Century Skill** is defined as an ability that will enable individuals to understand, contribute, compete and thrive in the global economy of

the 21st century. Skills must match the needs of the time period.

Basis for the Current Study

This study addresses the need for and investigates the introduction of Smart Bar technology in the main remediation programme of DAS for dyslexic learners, known as MOE-aided DAS Literacy Programme (MAP). The purpose is to determine if the use of innovative technology will specifically improve and enhance the complex thought process of the dyslexic learner, thus improving the output in terms of reading, spelling and writing.

In Singapore, the Ministry of Education (MOE) has implemented three master plans for ICT in Education spanning from 1997 to 2014. These master plans focused on developing collaborative, problem-solving, and thinking skills through the use of technology and constructivist pedagogy (Teo & Ting, 2010). These master plans entailed large spending on physical and human resources in Singaporean schools that revealed the importance placed by the MOE on preparing students for the knowledge as well as the digital economy. DAS also shares the realisation that the incorporation of such educational technologies in the classrooms would prepare our dyslexic learners to be in sync with the implied demands of the digital economy.

Methodology

Participants

This study uses a descriptive statistics and

analysis approach to examine the introductory contextual perceptions of the Mimio Teach Smart Bars as well as preferences of the educators participating in the study. A group of 45 Educational Therapists who teach literacy at various levels (primary and secondary) participated, of which 40 were females and five (5) were males. These 45 teachers have at least three (3) years of experience in teaching dyslexic learners. Moreover, 144 students also participated, (86 boys 58 girls) indicating how frequently they used the Smart Bar technology and responding to a questionnaire on satisfaction with the experience.

Delivery

Information regarding the study - its objectives, information to access the Mimio software and other relevant instructions were posted on the EdTech Team's Google Site and was shared with the study participants. This was to reduce lengthy emails and also to provide a one-stop platform for reference instead of having to sift through multiple emails to retrieve information. The vendors from VM Education provided training for the DAS educators who were taking part in this study.

Data Collection and Analysis

Digital surveys were sent to the study participants through the use of Google Forms, which allows surveys to be created, conducted and analysed through the web browser without the need of any software. Timestamps would be automatically added to each response

and charts would be immediately generated to represent the data. The data can then be exported to Google Sheets or Microsoft Excel.

The data collection method used in this phase was mainly survey with some focus group discussions in the respective learning centres. The surveys were set up on a Likert scale from 1-5. See appendix 1 for screenshots of the teachers' survey and appendix 2 for screenshots of the students' survey. Data were analysed and bar charts created to indicate the number of teaching staff participating and their response to each question.

The data was then analysed from a sociocultural perspective on teaching, focusing on the strategies that educators employed to tap on the dynamic, manipulable objects of reference and annotative tools made possible by the Mimio Teach Smart Bar software to foster the cognitive, social and physical participation of the learners during the class activity in the DAS classroom. The data from the students was presented as bar charts to indicate the numbers that agreed and their degree of agreement. In all cases data was split into male/female staff and boys/girls.

Results

In the figures on the following pages the results are depicted as bar charts.

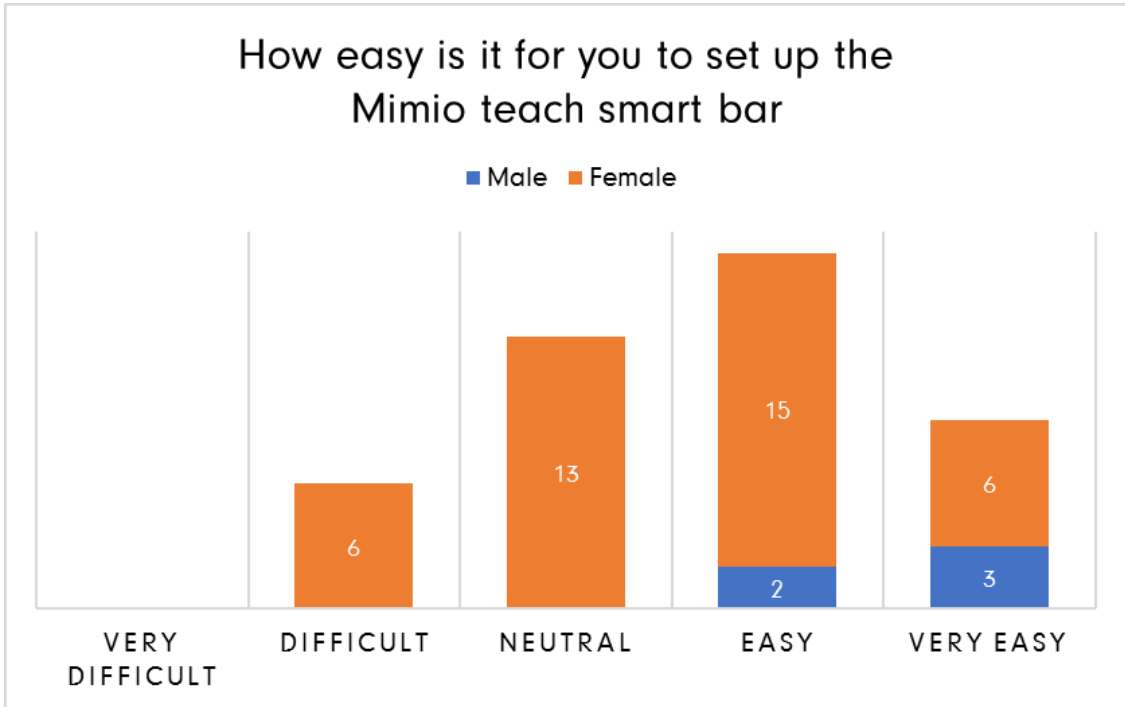


Figure 3. Ease of setting up the Mimio Teach Smart Bar

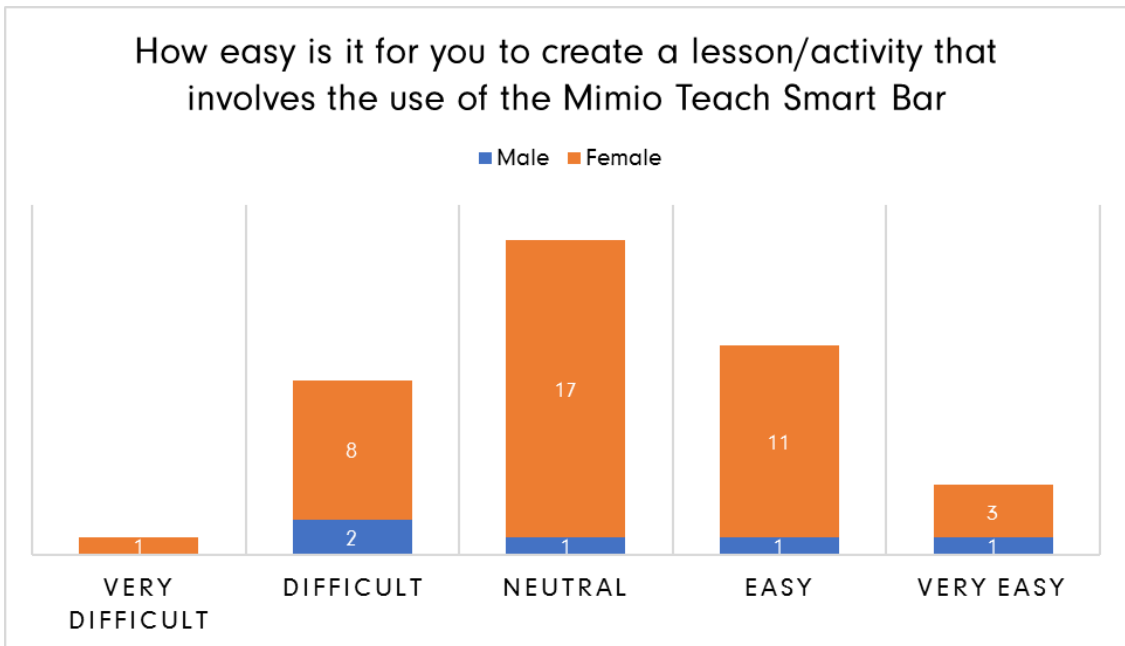


Figure 4. Ease of lesson creation with the Mimio Teach Smart Bar

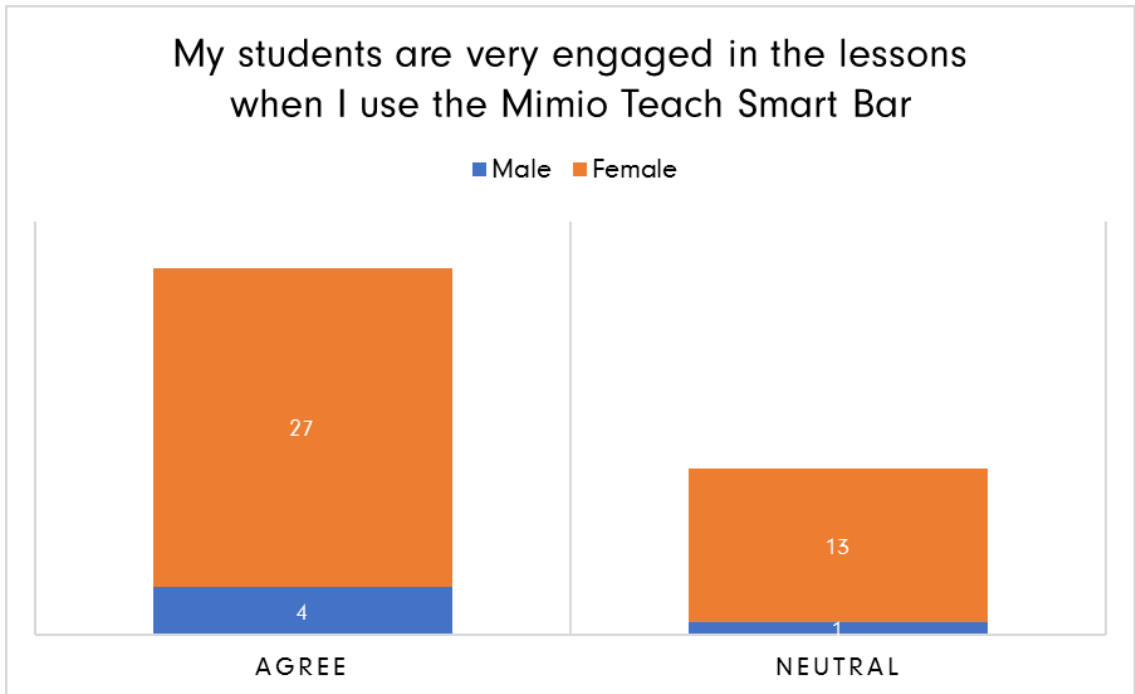


Figure 5. Engagement of Students in lessons when using the Mimio Teach Smart Bar, less distractions (behavior issues, frequent requests for toilet breaks etc)

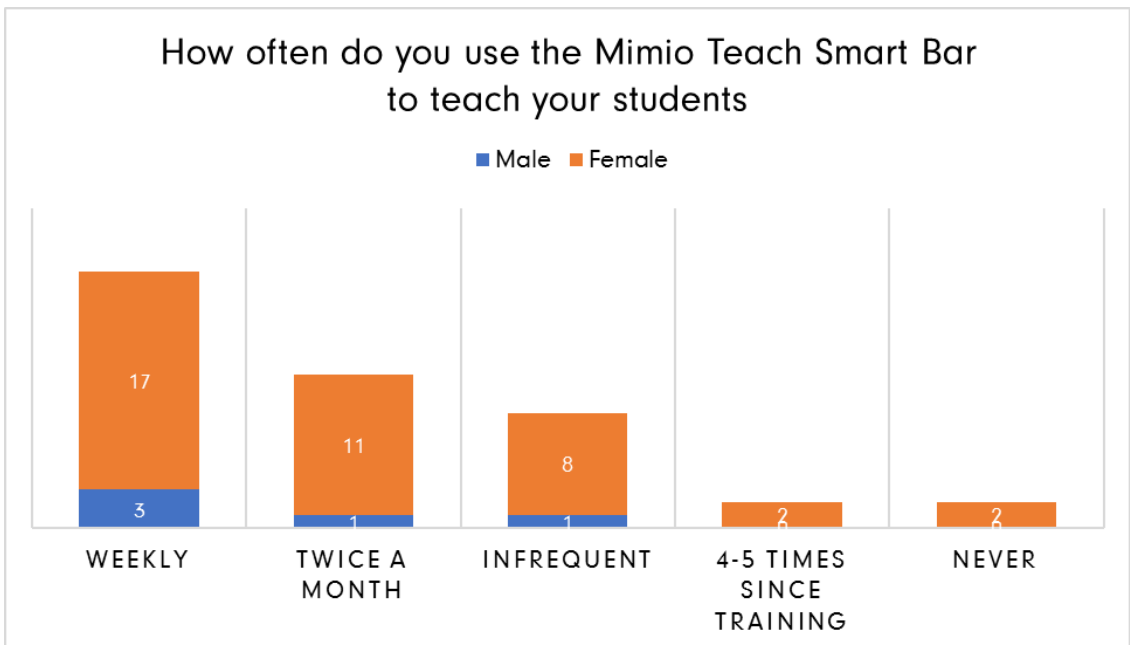


Figure 6. Frequency the Mimio Teach Smart Bars are used in lessons

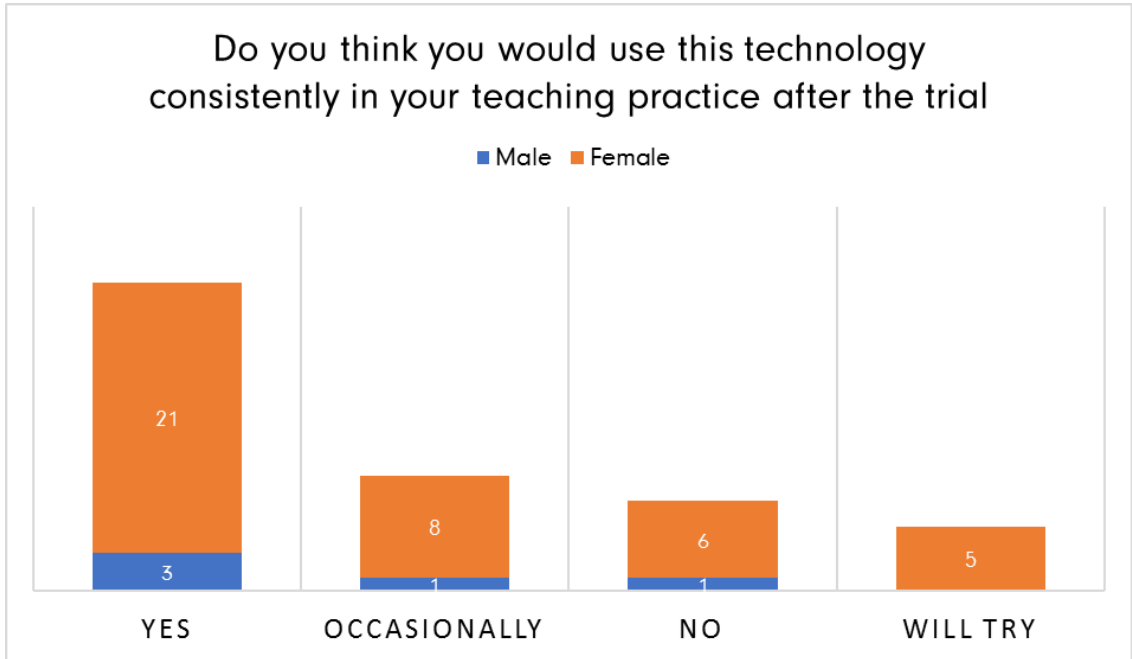


Figure 7. Consistency of expected use of the Mimio Teach Smart Bar after the trial.

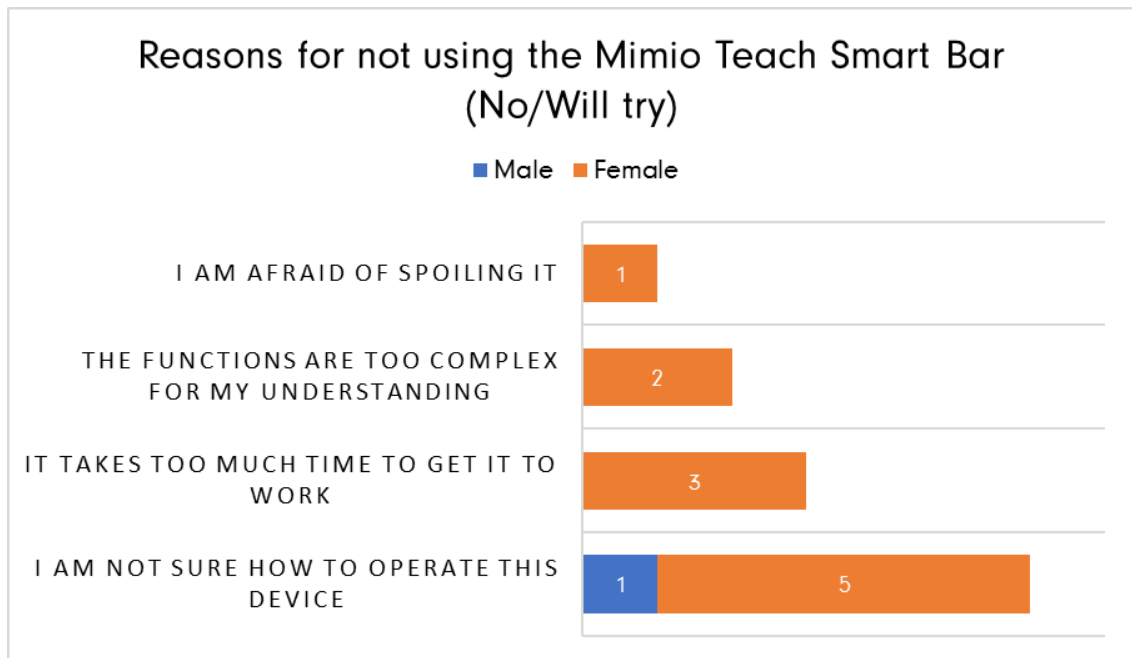


Figure 8 Reasons for the barriers to use the Mimio Teach Smart Bar

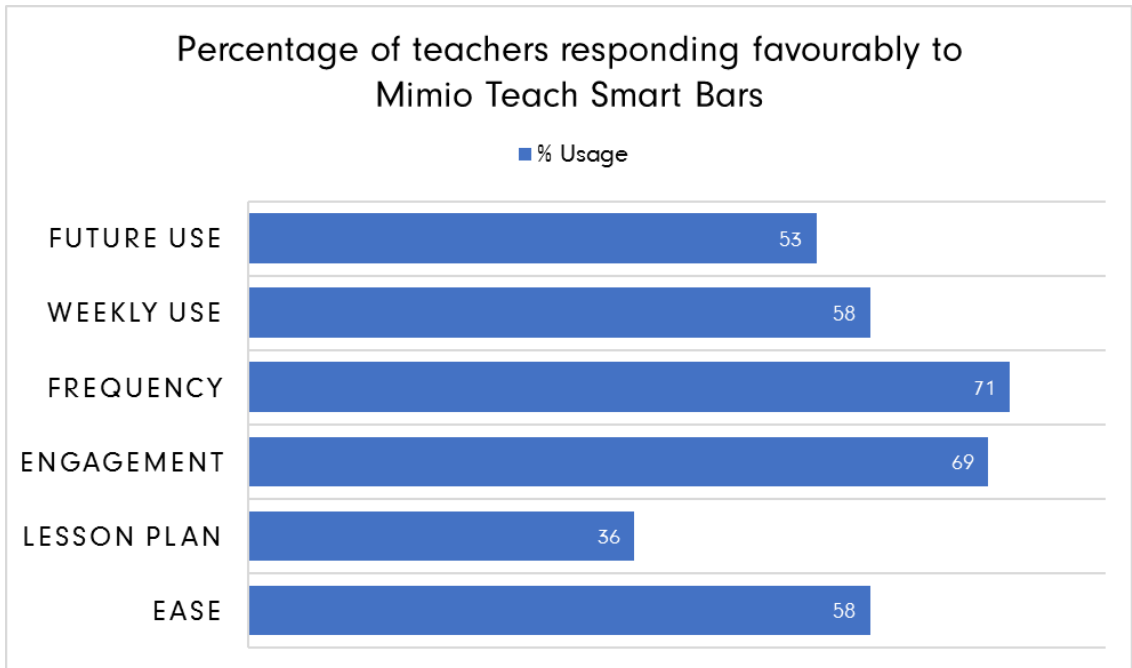


Figure 9. Percentage of teachers responding favourably to Mimio Teach Smart Bars

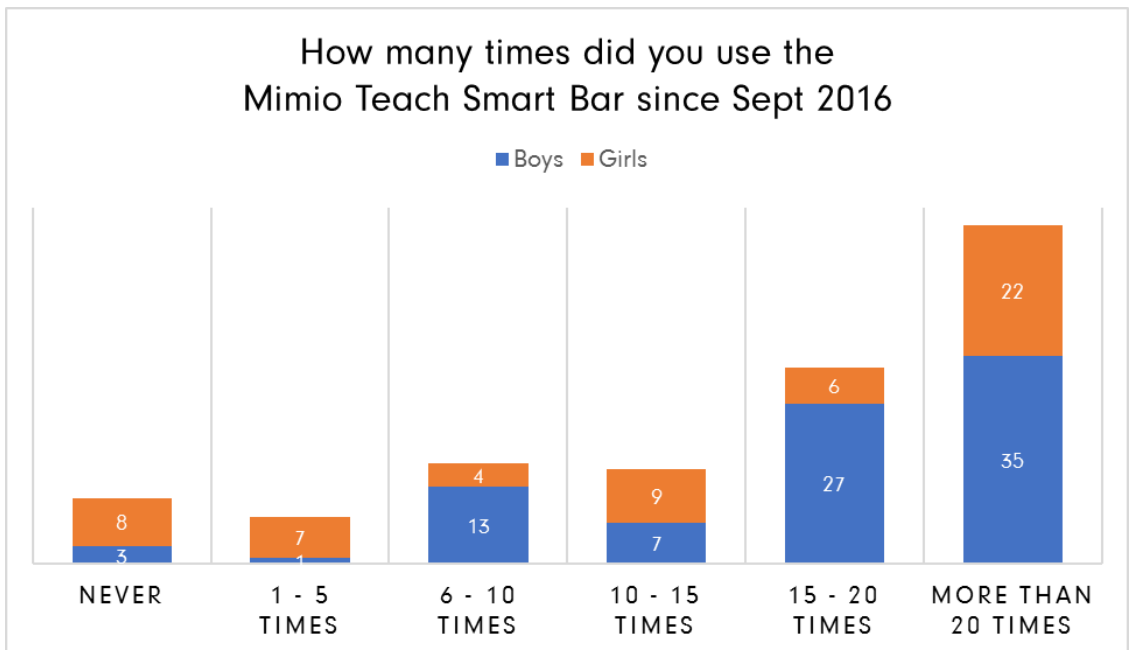


Figure 10. Frequency of use of the Mimio Teach Smart Bars reported by DAS Students

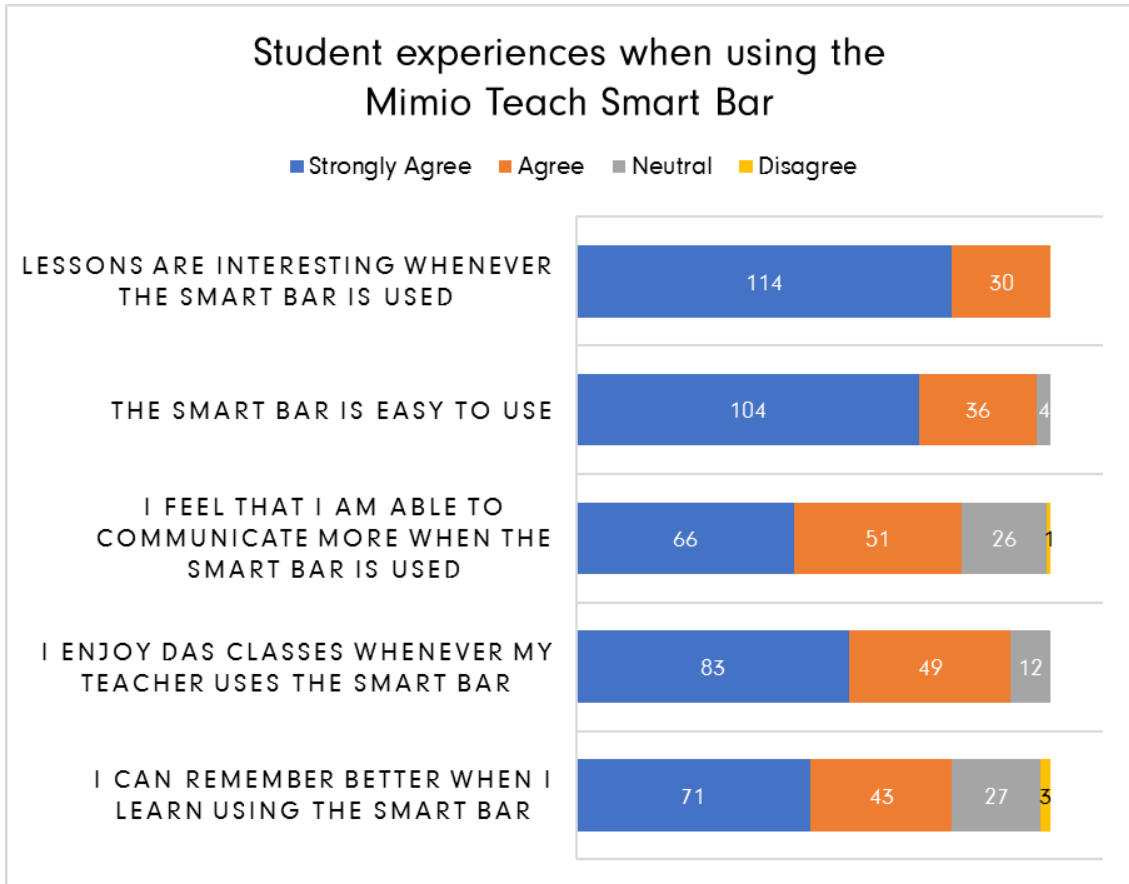


Figure 11. DAS Student experiences when using the Mimio Teach Smart Bar

Discussion

In a survey of 45 teaching participants on the use of new technology in the form of Smart bars, the majority of the participants produced a positive and constructive response to this innovation. Moreover, the pupils who had participated in the pilot study on the usefulness of the Mimio Teach Smart Bars indicated that they had found this a rewarding experience, and this was endorsed by their teachers in terms of the pupil engagement.

If we consider the figures for percentage acceptability in Figure 9 above, it can be seen that the most positive responses from the teachers are on frequency of use of the Smart Bar technology with 71% using it at least once a fortnight. This figure is closely matched by the engagement that the teachers identified in their students whilst engaging with the Smart Bar, 69%. Indeed 58% of the teachers had used the Smart Bar weekly in their lessons. However, if we consider the literature on the use of this technology we find that creating my lesson plan on

the Mimio Teach Smart Bar was the greatest barrier to success and although the majority of the teachers (58%) found it relatively easy to setup, a number noted their difficulties.

If we consider in greater depth the reasons for their difficulties, the data indicates that a proportion of the teachers had difficulty in setting it up (with only 36% finding it easy or very easy). This again is consistent with the literature which suggests that technology can be underused. Again, the difficulty in setting up lesson plans may suggest that teachers are using the game format more frequently than the lesson format and this may be why the students are enjoying the Mimio Teach Smart Bars so much. Further research would be needed to establish whether this was indeed the case.

If we consider the impact of gender on the teachers results we find that an equal percent of males and females found the system difficult to setup. This would not be as predicted by the literature which always suggests that men have great facility and the use of technology. However, if we consider the ease of setting up the system we can then see that all men found this comparatively easy. Turning to the lesson plan creation it can be seen that several men found this difficult and this difficulty in conjunction with potential issues in setting up the system may mean that they are less willing to engage with this plan regularly. This may be seen in the future intention data, which indicates that one of the five male teachers surveyed is not keen on future use.

Turning now to the interest that students have shown in using Smart Bars it may be seen from figure 10 that the majority of the students engaged regularly with the Smart Bar Technology with the opportunity to use this technique frequently. 31.4% of the boys and 10.3% of the girls indicated that they used the Mimio Teach Smart Bars within 15 to 20 times since September 2016. 40.7% of the boys and 37.8% of the girls indicated that they used the technology more than 20 times in the same time period. The interest shown has clearly been identified by the teachers who noted enhanced engagement in the Smart Bar pupils.

If we now consider the reasons for this increased engagement from figure 11 above it can be seen that the highest and strongest agreement is with the statement that lessons are more interesting when presented with the use of the Mimio Teach Smart Bars, as indicated by 114 - Strongly Agree (SA) and 30 - Agree (A) by all 144 students. 100% agreement is unusual in research of this type, and this augurs well for improvements in literacy with the use of this technology. There was also strong agreement that the Mimio Teach Smart Bar was easy to use (104SA, 36A), that there was increased lesson satisfaction (83SA, 49A) and that they remember better (71SA, 43A) with the Mimio Teach Smart Bar technology.

The findings in this pilot study are in-line with the findings of a recent study by Blue and Tirota (2011) where they reported that the interactive whiteboard provides an interactive environment that contributes to the sustenance of learners' attention, engagement and also

increased the levels of motivation in the learners, especially so for the learners with learning differences.

In conclusion, although there were some concerns from the teachers about the ease-of-use and setting up of the smart bars it seems that pupils are particularly excited and engaged in their use. In the next phase at this research we shall report the findings from a longitudinal study of the impact of the Mimio Teach Smart Bars on student learning. It would be interesting to evaluate whether staff who were most committed to using Smart Bars were most effective in teaching using this technique. It will also be interesting to see whether there is a gender bias towards boys being more successful interacting with Smart Bars than girls. It is clear however that technology is an important way forward for learners particularly those with difficulties because a computer is always positive no matter how many times a learner struggles to be successful. Moreover, this group of students have been particularly enthusiastic in their response to the use of the Smart Bars. Further research will reveal whether that enthusiasm can successfully accelerate their learning or whether they continue to struggle despite the advances in technology. Whatever the outcome of the ongoing research, it is clear that their motivation to succeed is enhanced by the opportunity to interact with the Smart Bars.

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APPENDIX 1—MIMIO TEACH SMART BAR QUESTIONNAIRE—PHASE 1

Dear Educational Therapists,
EdTech would love to hear your thoughts or feedback on how we can improve your experience!

Indicate your Gender Male Female

How often have you been using the Mimio Teach Smart Bars to teach your students?

Never
 Once Only
(since the trial began)
 Monthly
 Twice a Month
 Weekly
 More than Once a week
 Other

Do you agree that the Mimio Teach Smart Bar makes your students more interested in the lesson / activity?

Yes No Maybe

I can see that my students can retain information better (longer and clearer) when taught interactively through the Mimio Teach Smart Bars

Strongly Disagree Disagree Neutral Agree Strongly Agree

My students are very engaged in the lessons when I use the Mimio Teach Smart Bar and there are less distractions now (behaviour issues, frequent requests for toilet breaks, etc)

Strongly Disagree Disagree Neutral Agree Strongly Agree

On a scale of 1 to 5, how easy is it for you to create a lesson/activity that involves the use of the Mimio Teach Smart Bar?

Very Difficult 1 2 3 4 5 Very Easy

On a scale of 1 to 5, how easy is it for you to set up the Mimio Teach Smart Bar?

Very Difficult 1 2 3 4 5 Very Easy

We are making arrangements for Phase 2 (Mimio Teach Smart Bars to be used with iPads). How would you like the training to be presented?

- Send me a video tutorial, please. I will email you if I need help
 Send me a video tutorial, please. And then let's fix a date for a face-to-face focus group discussion
 I prefer to come down to REX for a face-to-face training
 Other: _____

Do you think you would be using this technology consistently in your teaching practice after the trial?

Yes No Maybe

Feedback Type Comments Questions Bug Reports Feature Request

Feedback

APPENDIX 2—MIMIO TEACH SMART BAR QUESTIONNAIRE—PHASE 1

Dear Students,
We would love to hear your thoughts or feedback on how we can improve your experience with the Mimio Teach Smart Bars!

Indicate your Gender

Male

Female

About how many times did you get to use the Mimio Teach Smart Bar Since September 2016?

Never

1–5
Times

6–10
Times

11–15
Times

16–20
Times

More than
20 Times

Please rate each of the items regarding your experience with the Mimio Teach Smart Bar.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can remember better when I learn through the Smart Bar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy DAS classes whenever my teacher uses the Smart Bar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel that I can communicate more and better when I use the Smart Bar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Smart Bar is easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lessons are interesting when the Smart Bar is used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feedback