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TEACHERS' PERSPECTIVES ON MOBILE TECHNOLOGY AS AN INCLUSIVE STRATEGY FOR STUDENTS WITH DYSLEXIA

Megan Blamire & Margaret Funke Omidire

ABSTRACT

There are different forms of support for students with dyslexia. Technology such as the use of iPads is one such. Limited literature exists on teachers' perspectives on the effectiveness of the use of mobile technology to support and include students with dyslexia. The study aimed to investigate teachers' perspectives on the use of mobile technology like iPads as a support and inclusion mechanism for dyslexic students in selected South African schools. The study was a qualitative multiple case study design involving one remedial and two main stream schools and 11 teachers that were purposively sampled. The data collection strategies included focus group discussions, non-participatory lesson observations and semi-structured interviews. Data was analysed using a thematic analysis. The findings revealed that teachers perceive mobile technology like the iPads as a useful support tool that creates interactive inclusive learning and increases the confidence of students with dyslexia. The findings also indicate the challenges, which include the inability to align applications to the required curriculum, unstable Wi-Fi connections and theft of devices. Additionally, teachers raised the concern that many applications designed for mobile devices are currently intended for younger students under the age of nine. To be more useful to students with dyslexia, mobile technology software needs to be aligned with the curriculum and designed for an older demographic.

Keywords: Teachers, Dyslexia, teaching and learning, inclusion, learning support, technology

INTRODUCTION

"New technology tools are introduced to society almost daily, and mobile technology such as the Apple iPad has been at the centre of media attention since its release" (Benton, 2012, p. 2). We aimed to find out if the implementation of mobile technology acting as a support tool has assisted in supporting students with specific learning disorders like dyslexia so that they will have the opportunity to reach their full potential in the classroom environment.Teachers are required to find tools and resources to promote effective learning for all. Schools are encouraged to promote a more inclusive learning environment which means that teachers are required to find support tools and strategies to support students with various learning barriers like dyslexia. The implementation of mobile technology acting as a support tool has assisted teachers in supporting students so that they are given the opportunity to reach their full potential in the classroom environment (Bruggink, Goei, & Koot, 2016)

The South African White Paper 6 on Special Needs Education (DoE, 2001) emphasises the movement towards inclusivity and the recognition of every student's human rights, including the rights of the student with a learning disorder. The policy goes further to suggest that resources

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such as information and communication technologies must be provided (particularly to full-service schools) to accommodate the full range of diverse learning needs. Mobile technology offers teachers the opportunity of teaching in a more inclusive classroom. By using new technology in the classroom, teachers are likely to improve the impact of their lessons and keep their students engaged and up to date with technology (Bruggink, Goei, & Koot, 2016). However, not all teachers experience the age of technology in the same way. It is therefore important that teachers' perspectives are taken into consideration and that the focus on the development of the Net-Generation of students must be refined to incorporate this.

REVIEW OF LITERATURE

Understanding Dyslexia

"Dyslexia refers to a pattern of learning difficulties characterised by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities" (American Psychiatric Association, 2013, p. 67). The relation between reading performance and general intellectual ability has been assumed as of central importance in definitions of dyslexia (Beaton, 2004). However, according to Shaywitz and Shaywitz (2005), dyslexia can be characterised by an unexpected difficulty in reading in children and adults regardless of the possession of intelligence and motivation considered necessary for accurate and/or fluent reading. Similarly, Benítez-Burraco (2010, p. 564) explains that "dyslexia is a learning disorder characterised by a difficulty in recognising written words accurately and fluently, as if there were a significant loss in the ability to decipher or spell them out".

It seems that most researchers agree that dyslexia can be classified as a specific learning disorder with evident difficulties in literacy and mathematics skills. The American Psychiatric Association (2013, p. 67) states that "dyslexia is an alternative term used to refer to a pattern of learning difficulties characterised by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities"

Students with dyslexia experience the following difficulties in the classroom environment according to Stienen-Durand and George (2014): difficulties in taking notes; difficulties in planning and writing essays, letters or reports; difficulties with reading and understanding new terminology; difficulties in revising for examinations; struggles to communicate knowledge and understanding in examinations; forgetting names and factual information, even when familiar; struggles to meet deadlines; struggles with personal organisation; difficulties when under pressure.

Students with dyslexia may need to compensate for their difficulties by using alternative modes of learning, both in and outside the classroom (Stienen-Durand & George, 2014).
There are many ways in which students can be supported within the classroom; however, for the purposes of this study, we explore fully how these remediation strategies and principles could be effected through the use of technology.

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Integrating technology

Researchers have spent decades debating the use of technology to assist children in the classroom. Even though schools have adopted some form of technology, mobile technology like tablet devices are still fairly new to the world of education. Since the arrival of Apple's iPad in 2010, a more structured approach to the provision of personal devices in schools has become the norm (Davies, 2017). Tablets are among the latest in a long list of current technological tools that have been introduced to classrooms around the world with the hope of facilitating the shift of technology's role from deliverer to the enabler that enriches the learning experience (Tamim, Borokhovski, Pickup, & Bernard, 2015). According to Neumann and Neumann (2014) the optimal use of tablets like iPads may be dependent upon the type of scaffolding used by the teacher and the availability and quality of the applications available for the tablet.

The integration of mobile technology into education has been a slow process due to a number of factors, such as lack of research on the impact and potential benefits of using digital technology (Neumann & Neumann, 2014). The existing body of literature examining mobile learning is small and peripheral, consisting primarily of technical reports and exploratory studies (Larabee, Burns, & McComas, 2014).

Technology-based solutions for students could be considered and integrated into interventions if they provide evidence of effectiveness as an instructional practice and may work best as supporters and facilitators of quality reading instruction rather than replacements for teaching (Larabee et al., 2014). Nowadays, the tablet computer, such as the iPad, equipped with a high-resolution colour display, has become a popular personal digital device (Huang, Liang, Su, & Chen, 2012). The advancement of tablet technologies has enhanced opportunities for developing 21st-century learning skills in students (Varier et al., 2017). Tablet devices provide easy and continual access to technology that overcomes drawbacks associated with dedicated technology/computer labs.

Research in this field is still developing as tablet devices are a fairly new concept, especially in the field of education. The gap in the literature relates to the use of mobile devices for students with dyslexia. It appears that teachers are aware that there is a need for adaptive teaching due to the various needs of students (Bruggink, Goei, & Koot, 2016). More specifically, there appears to be a gap in how teachers perceive mobile device usage for students with dyslexia between the ages of 10 and 12. Neumann and Neumann (2014) believe that the specific lack of reference to tablets like iPads in current education policies may be due to the relatively recent release of these technologies and limited evidence-based research needed to inform educational policy. It is important to take into consideration that not all schools have implemented the use of mobile technology and therefore research in the field of mobile technology as a learning support tool specifically for students with dyslexia is still ongoing.

THEORETICAL FRAMEWORK

The study was guided by Vygotsky's theory of cognitive development. Vygotsky's theory has particular relevance to exploring the learning process facilitated by mobile technology. Vygotsky assumed that advances in technologies have the potential to change how students construct and

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understand the world (Kucirkova, Sheehy, & Messer, 2015) suggesting that mobile technology has an impact on the students' learning experience as it is a new, more advanced *cultural tool* for meaning-making (Vygotsky, Rieber, Carton, & Vygotsky, 1987). In line with Vygotsky's theory, the use of mobile devices such as tablets can facilitate the transmission of information and knowledge about their environment through interactive experiences to students and assist them to make sense of learning (Neumann, 2018).

The central focus of the study assumes that cognitive development takes place in students with dyslexia by using mobile devices. According to Gonzalez-DeHass and Willems (2012), the major theme of Vygotsky's theory is based on the role that social interaction plays in the development of cognition. Gonzalez-DeHass and Willems (2012) go further by pointing out that Vygotsky believed in tools that are used in cognitive development, namely physical tools and psychological tools. Physical tools are material objects that facilitate the action between the person's hand and the object upon which the tool acts. Psychological tools, on the other hand, are internal mediators between a person's thoughts and the social world that changes an individual's mental functioning (Gonzalez-DeHass & Willems, 2012). Physical tools could very well include mobile technology.

The purpose of the study was to provide a better understanding of what teachers' perspectives are on the use of mobile technology as an inclusive strategy for ensuring that students with dyslexia are supported and able to reach their full potential. The study was guided by the following research question: What are teachers' perspectives on the efficacy of mobile technology such as iPad usage for students with dyslexia between the ages of 10 and 12?

RESEARCH METHODOLOGY

A multiple case study design was used involving 12 participants who were female teachers from three schools (one remedial and two mainstream schools) in Johannesburg North and East Districts South Africa respectively. One remedial school and two mainstream schools were used so that a comparison of the schools could be done. This provided an in-depth explanation of what teachers' perspectives are on using mobile technology for learners with dyslexia in different schools. This in turn improved the scope of the data collected. All the participants were Intermediate Phase teachers. Convenience and purposive sampling were used. The proximity of the schools and their access to and use of tablets for teaching were taken into account.

There were two focus group discussions and after that semi-structured interviews with three participants. Focus group discussions were used as a form of data collection as it suited the needs of the study. Focus group discussions provided a deeper understanding of a group of participants and how they perceived mobile technology usage for students with dyslexia. Focus group discussions were used in the first phase of data collection as they enabled me to explore the perceptions, experiences and understanding of a group of participants who have some experience in common regarding the use of mobile technology (Kumar, 2011). Maree (2013) explains that the semi-structured interview is widely used in research to validate data emerging from other data sources. To gain sufficient data, a series of semi-structured interviews were held with the participants. An observation of a one-on-one lesson with a student with dyslexia took place to observe how mobile technology was incorporated to benefit students with dyslexia.

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Thematic analysis was used to focus on identifying and describing implicit and explicit ideas within the data through themes. All the data was transcribed, coded, categorised and sorted into themes. Ethics clearance was obtained at an institutional level as well as from all relevant authorities and participants before the commencement of the research. This included obtaining informed consent from teachers and principals. The consent forms were clear about the focus of the study and what the procedures of the study were. Confidentially and anonymity of the participants were maintained. Participation in this study was completely voluntary, and the participants had the right to withdraw from the study at any stage.

Table 1: Participant Summary

	Participant	**Occupation**
School A Participants 1-7 (SAP1 – 7)	SAP1	Grade 6 Teacher
	SAP2	Grade 6 Teacher
	SAP3	Grade 5 Teacher
	SAP4	Grade 5 Teacher
	SAP5	Grade 4 Teacher
	SAP6	Grade Teacher
	SAP7	Remedial Teacher
School B Participants 1-4 (SBP1 – 4)	SBP1	Remedial Teacher
	SBP2	Remedial Teacher
	SBP3	IT Specialist
	SBP4	Remedial Teacher and IT Specialist
School C Participants 1 (SCP1)	SCP1	Grade 6 Bridging Class Teacher

RESEARCH FINDINGS

Teachers' understanding of their role in assisting students with dyslexia

Remediation for students with a learning disorder should be based on the potential resources within the school and the wider professional network (Carr, 2006). Participants based at the remedial school explained that students with dyslexia require support both inside and outside the classroom environment.

Participants based in the remedial school believed that part of their responsibility in supporting students with dyslexia was referring these students to a remedial therapist or a learning support co-ordinator where intervention could be received outside of the classroom environment.

> *"Receives extra remedial therapy, they go through site words, recognising vowels, vowel sounds and, a lot of very, very basic work"* (SAP3).

In addition, teachers are required to make accommodations like putting key cards on the child's desk or scaffolding the students work for them in the classroom as part of differentiation after gaining insight from the remedial therapist or learning support co-ordinator. Differentiation refers to a philosophy or mind-set that teachers embrace where they understand that there are

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ways to differentiate learning processes that are appropriate at different times in a variety of situations with diverse students (Gregory & Kuzmich, 2014).

> *"They go to learning support and obviously every teacher makes those accommodations in class, you know as part of differentiation"* (SBP4).

The results correlate with Démonet, Taylor, and Chaix's (2004) statement that when teachers work with students with dyslexia, remediation relies heavily on interventions for language, phonology, reading and speech adapted to a student's disorder. It also correlates with Landsberg (2005) because when choosing remediation strategies and methods the teachers take into consideration the students' learning style as part of differentiation.

Participants in the mainstream schools as well as the remedial school both emphasised the importance of differentiating and scaffolding work for the students. Participants explained that part of differentiation is scaffolding the students' work so that they can keep up with the rest of the class and the skills the curriculum requires the child to achieve. The participants based in the remedial school appeared to be differentiating and scaffolding work for most of the students in their classes, whereas the participants in the mainstream schools were doing this for much fewer children.

> *"And what we do we differentiate the children's work, so we scaffold it for them, especially for the dyslexic kids. They would get a less amount of work"* (SAP5).

From the data analysis, it was clear that participants perceive that another part of their role in supporting students with dyslexia is providing them with some form of concession. Concessions involve the allowance of facilitation like a reader, scribe, extra time, etc. Students with dyslexia often qualify to have someone read the questions to them or answer orally and have someone write their answers verbatim.

> *They can qualify for, if they are dyslexic or specifically diagnosed with dyslexia is a reader, where someone can read the questions to them and they answer or a scribe where they provide the answer and someone else writes it down for them, which is usually the case with dyslexia. And often we also give them extra time because it takes them longer to read the passage.* (SAP2)

The findings coincide with how De Bree (2007) defines dyslexia – as a reading and spelling difficulty discrepant with intelligence and educational opportunities. Participants from the remedial schools as well as the mainstream schools made use of concessions like providing a reader or a scribe or giving a spelling concession to alleviate the reading and spelling difficulty that students with dyslexia face.

The Utilisation of mobile technology for students with dyslexia

According to Smith (2012), the purpose of mobile technology in the classroom is practising, reinforcing, reviewing and creating. Teachers utilise the mobile devices in many ways, and one ways it is utilised is for consolidation of a topic or subject being taught. It became clear that some participants used this as a whole class approach rather than just for the student with dyslexia.

> *"We are using the iPads for consolidation of an activity or of a concept"* (SAP5).

According to the participants, one of the main ways in which mobile technology is utilised is across all subjects in the school curriculum to consolidate topics taught.

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> *"By far the majority of our work is pencil/paper tasks but we also have iPad periods once a week, where we use it for different kinds of subject so sometimes we will let write stories, and using the iPad on Kahoot ..., and then all kinds of ..., we'll practise times tables with them, so most of them would use, integrated with some topic that we doing in one of our other subjects."* (SAP2)

It appears that the participants from both the remedial and mainstream schools make use of the mobile technology to consolidate a task and practise skills and concepts that have already been taught which links to the belief of Smith (2012) where the purpose of mobile technology in the classroom is practising, reinforcing, reviewing and creating.

The participants explained that mobile technology could be beneficial, specifically for students with learning disorders, much like dyslexia.

> *"And also, to help with children with learning difficulties because the iPad was meant for everyone, even blind people you know"* (SBP4).

Another way that mobile technology is utilised is as a support or intervention tool where it is utilised by the teacher as well as other professionals.

> *"I do know some of the therapists also use iPads, the speech therapist specifically ... yes, some of the remedial therapists as well"* (SAP2).

In addition, some participants indicated that mobile technology could be used to provide support to enhance specific skills like reading and writing.

> *"She would record what she wanted to say and then we would type it out for her* (SAP5)
>
> *'We started with making the kids read to the iPad, to record what it was that they were saying"* (SBP3).

Participants in the remedial school and the mainstream schools recognised that mobile technology not only supported the student with learning disorders, but it provided support for the entire class. In terms of students with dyslexia, in particular, the findings correlate with the opinion of Levine (2013) in that the use of mobile technology can be an essential tool for successful reading remediation and compensatory strategies for students with dyslexia. Participants acknowledged that mobile technology could be a beneficial tool regarding reading as well as writing instruction.

Applications and accessibility options utilised for students with dyslexia

Hutchison and Beschorner (2014) argue that the number of applications and accessibility options available on mobile devices could potentially be overwhelming for teachers to begin selecting applications to use in their classroom and therefore could be a potential limitation to its use.

Participants discussed various applications utilised for students with dyslexia. Interestingly, participants discussed not only applications designed specifically for students with dyslexia but also applications that were designed for every student but used as a support tool. This is interesting as this could point to teachers being open-minded and creative in the way that they utilised mobile technology and the applications that could be downloaded onto the device.

The non-participatory observation data revealed the use of the application and accessibility options on the iPad to assist students with dyslexia. A student with dyslexia was using Dyslexia Quest. One of the students observed was familiar with the programme and was excited to get

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started. The student worked on various skills, such as memory and word identification. At the end of the *quest,* it displayed his progress in each area.

Participants based at the remedial school used the words *Dyslexia Quest* extensively and perceived this application as beneficial to students with dyslexia; they also discussed how it could be used as an intervention tool.

"And that Dyslexia Quest that is on that iPad that the children can use as an intervention" (SAP4).

"Even parents can use Dyslexia Quest if they are trained and they can also still work on the areas because it identifies the strengths and weaknesses of a child" (SAP2).

In addition, participants discussed other applications that were designed specifically for students with dyslexia that were utilised by them, such as Dyslexia Font.

"That is also a font that's specifically easier for children with dyslexia to access". (SAP2).

Reid, Strnadová, and Cumming (2013) also mentioned Dyslexia font and pointed out that it had proved to decrease reading errors of students with dyslexia in particular.

The data analysis indicates that participants based in the mainstream schools had not limited the applications they used to specific applications designed for students with dyslexia. Instead, they found that educational applications, like mind map applications and applications that read to one, could be used as support tools.

"They also have an app that has mind maps, and that mind map app is wonderful for them" (SAP5).

"There's an app that underlines words as they read which helps a childlike that" (SBP4).

Furthermore, participants based in mainstream schools discussed how educational applications like *Explain Everything* and *Text Help* could be utilised for referencing and consolidation during a lesson. The students could make notes during a lesson and then refer back to them.

There's an app called Explain Everything, the children can, as I was saying it underlines, there are pointers that they can use when reading to it, they can actually create their own content in terms of their notes or whatever they are learning in class, they can create themselves with small video clips, small pictures that they animate, so they can know when they refer back to that work. (SBP4)

There's also a wonderful programme called Text Help, which we still need to look at, but in terms of highlighting words, instead of there being like a long explanation, is a picture linked to it and that any text that you throw into Text Help it just ..., which I think is great, where they get the visual understanding of the word rather than having to read text they can understand more. (SBP3)

"And every boy here at the school is ..., they do Reading Eggs and Mathletics". (SBP2)

Accessibility options were discussed by the participants from the remedial school as well as the mainstream schools. They explained that the accessibility options can be utilised to support learning disorders, and they are already built into the device. It is evident in this study that participants perceived the accessibility options of mobile technology as important when supporting students with dyslexia. Participants from all participating schools made specific reference to the reading and audio functions that mobile technology offers.

"You know just that one feature of being able to listen to what they've written is great" (SBP3).

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In addition, participants explained how students could let the mobile device read notes and worksheets to them while they followed. This allowed the student to use both audio and visual skills.

"I know that I've also put on certain things on the iPad for kids, like worksheets and also notes and there's another app, I think it's on the accessibility, so it can be read to them" (SAP5).

"I think the audio function where, depending on which app you are using, we use PDF here, even when the child has got some notes from the class teacher, it annotates and reads to the child and underlines" (SBP4).

"It's got the reading function, so what ..., you just turn on in settings they've got a thing where you can highlight text and it reads it to you" (SCP1).

Perceptions on the utilisation of mobile technology

The participants from remedial and mainstream schools cared deeply about how students perceived mobile technology and not only how they, as teachers, perceived it. This became clear when participants reflected on what students felt before discussing their own personal perceptions.

"The kids really enjoy it; they really thoroughly enjoy learning through them" (SAP6).

Participants' discussed how most students enjoy utilising mobile technology because they come from a technology-filled era. Some participants discussed the enjoyment of learning where they felt that students purely just loved learning when utilising mobile technology, or did not realise they were learning.

"He found it interesting" (SAP2).

"They think that they are having fun but at the same time they are learning" (SBP4).

"They love iPads, they love computer work". (SBP2).

These findings relate to the opinion of Levine (2013) in that mobile technology ensures that the students are engaged and teachers can use it to encourage students to become engaged in almost any text. In addition, participants discussed their perceptions of how students take ownership of learning when utilising mobile technology.

"It is actually children who get excited about something and they share it with the teacher" (SBP4).

"It gives children ownership of that learning" (SBP4).

There is a correlation between the findings and what Clarke and Svanaes (2014) say about the fact that if one offers students alternative ways of engaging with texts through a tablet such as an iPad, students will be more engaged and motivated to further their efforts to read. In observing the participants discuss this, they all agreed that students found it more interesting and fun to learn through the iPad.

Most of the participants perceived mobile technology as a helpful and beneficial tool in the learning environment. They perceived mobile technology to be a tool that children related to, which enhanced learning, improved students' work and provided the tools to help the student.

"So, if it's really, if it's up and running and it works yes definitely, and has amazing benefits" (SAP5).

"So, this enabled her to be just part of the class, to be one just like everybody else" (SAP5)

"I think we are all very pro it ..., I think we are all completely on board" (SBP1).

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"And for dyslexic kids, iPads work really well because you can implement the layered curriculum" (SBP1).

"Especially for the dyslexic child, the advantage I think just so outweighs the disadvantage" (SBP1).

In addition, participants discussed how the utilisation of mobile technology reduced anxiety and how children related to mobile technology.

I think it's less anxiety provoking and also, I think that's the world they are coming from. So, they can relate to it, it's interactive, it gives you immediate feedback and stuff so I really think that it's useful for kids with dyslexia, who are used to, or they find it very tedious to always just be reading and you know spelling, is just something different and I think that's always a good thing. (SAP2)

Participants explained that mobile technology provided the students with dyslexia the necessary tools to reach their full potential.

"If they've got that little pad that attaches the keyboard that attaches to an iPad for children who are dyslexic it's a wonderful tool for them to have in class" (SAP4).

"I'm excited in the sense that it comes with tools that help the student and the teacher, it sounds like a lot of work at the beginning, but once you are set up it makes life easier" (SBP4).

"So that redeems them from always having to say, 'I don't know what's going on, I can't keep up', and it stops them from disrupting the rest of the class because now they're bored and can't keep up" (SBP1).

Participants from remedial and mainstream schools view mobile technology as beneficial, especially through the eyes of the student; however, not all participants felt that it was necessarily a helpful tool to have in the classroom. The main reason for teachers not wanting to utilise mobile technology appeared to be due to the responsibility for students carrying around the devices. Some participants felt that the students were not mature enough yet.

"It's quite taxing on the teacher to make sure that they are cared for properly'. (SAP5)

'You know you do feel scared, oh my gosh, these iPads children walking around with them" (SAP5).

"I think they're not mature enough to have iPads all day" (SCP1).

Challenges relating to the utilisation of mobile technology

Participants from both remedial and mainstream schools appeared to be experiencing the same challenges that were beyond their control. They appeared to find it challenging when devices were not charged, Wi-Fi was inaccessible, or the curriculum could not be linked to the applications available on the device. Participants expressed a need for devices to be charged before the lesson takes place but often, they arrived, and they were not charged. They also expressed their main concern of not having access to Wi-Fi.

"But then I always find as well that sometimes you get them and they are flat" (SAP1).

"It's infrastructure and unfortunately our school is in a place where we are looking at optic fibres and all the other things, but we not at that stage yet" (SAP5).

"Little basic like practical things like Wi-Fi doesn't work that day, or the airdrop doesn't work" (SCP1).

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This relates to the findings of a study conducted by Varier et al. (2017) where all teacher participants described experiencing a learning curve for using the device at the beginning of the implementation period, and teachers and students expressed concerns over lack of internet access.

Participants expressed their frustration in linking the curriculum with activities they wanted to do on the device.

"Because the main challenge was linking the curriculum and the technology" (SBP4).

These findings correlate with Larabee et al. (2014), who state that teachers must meet curricular expectations and teach skills consistent with various educational standards within the constraints of time and available resources. Participants appeared to agree that the majority of the applications available for mobile devices were more beneficial for younger students and not as much for older students.

"And some of that is more baby apps to be honest, foundation phase apps .... (SAP1).

But yes, a lot of the apps I've also found, because I teach Grade 6 and Grade 7, are a lot more for younger children. There's a lot of maths apps out there and English apps, but it's very basic. There's not a lot out there for older students. (SCP1)

Another challenge that appears to be evident when utilising mobile technology is classroom management and conceptual challenges. Most participants found the devices were a distraction resulting in challenges with classroom management. Participants that were pro using mobile technology found it challenging to change the mind-set of other teachers.

I could check that none of them were playing Mine Craft and doing their own thing on the iPads because that's what they tend to do if you are not walking around'. (SAP1)

'Somehow as much as the school has put in measures and controls to make sure they don't play games at school, it happens. (SBP4)

Clarke and Svanaes (2014) also found that teachers who were surveyed reported that having a personal device constantly available made the temptation to chat to friends or play games too much to resist for some students.

Participants expressed the challenges of changing the mind-sets of teachers. They believed that the problem was not the students, but it in fact resided with the teacher who was not comfortable using new technology.

"Some teachers are still struggling with the computer, the normal computer, so adding on the iPad then is quite challenging" (SBP4).

"I think the biggest issues ..., is not the kids use of the iPads it's us teachers who are not trained and comfortable with it' (SBP1).

"Teachers have developed their pedagogy, and now you've actually got to change their thinking and that's hard" (SBP3).

This correlates with Clarke and Svanaes (2014) as they found that one of the main concerns around introducing technology into schools has been teachers' levels of knowledge and confidence. Therefore, it appears that for greater acceptance of mobile technology among teachers, perhaps more intense training should take place in schools.

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DISCUSSION

The findings of the study correlate with the principle of supporting students with dyslexia in the classroom mentioned by Stienen-Durand and George (2014) who believe that the students should have the opportunity to over-learn through multiple differing and complementary learning modes to compensate for weak retention. The findings also relate to the view of Smith (2012), who believes that mobile technology's main purpose in the classroom is for practising, reinforcing, reviewing and creating.

Participants from remedial and mainstream schools viewed mobile technology as being most useful when it is utilised as a support tool, particularly for students with dyslexia. It became very clear that participants perceived that part of their role of being a teacher was to provide support for students with dyslexia. Various support strategies were identified in the results, such as concessions as well as remedial therapy or learning support. From the data analysis, it emerged that the participants realised that mobile technology was used for many of those support strategies; for instance, the use of a scribe as a concession. Instead of a person being utilised as a scribe, many participants mentioned how they would let students with dyslexia type work out on the device, thereby eliminating the scribe and utilising the device instead.

Another support strategy utilised by teachers was referring students to a remedial therapist or working as a team using a multidisciplinary approach. In a few instances, participants mentioned how the remedial therapist or the speech therapist would utilise mobile technology during their one-on-one sessions. It, therefore, became clear that mobile devices were being utilised by other professionals as part of a support strategy for students with dyslexia.

Participants perceived mobile technology as an interactive learning tool that allows for the consolidation of topics and subjects taught. They mentioned how students find it interesting to learn with mobile technology. Furthermore, participants found that students have fun while learning to the point where they do not realise they are still learning. Teachers utilised mobile technology specifically to make learning more interactive by making use of educational applications or programmes like Kahoot, Maths games and Book Creator. More one-on-one interactive applications like Dyslexia Quest were also utilised by teachers and remedial therapists.

It became clear that by utilising mobile technology, teachers were able to make lessons more inclusive and interactive for students, thereby facilitating concept formation for the student with dyslexia to grasp a concept. This task was not without its challenges, though, as teachers perceived many of the applications to be more suitable for the younger age group rather than the older age group. This particular challenge made it difficult for teachers to link the curriculum to the mobile device and this resulted in a limited number of applications utilised.

It appears that teachers perceive mobile technology like the iPad as a way of encouraging students to be more interested and engaged in lessons taught through mobile technology. This correlates with the findings of Levine (2013) who explains that mobile technology ensures that the students are engaged and teachers can use devices to encourage them to become engaged in almost any text. This also relates with the findings of Clark and Luckin (2013) who state that mobile technology enhances learning experiences and transforms teaching practice.

The findings of the study relate to The International Dyslexia Association (2013) that describes an effect of dyslexia as displays of frustration and limited success, despite countless

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hours spent in special programs or working with specialists which consequently affects a student's self-image and can result in depression. Interestingly participants appeared to try their best to eliminate this effect through the use of mobile technology.

Participants in this study viewed mobile technology as a beneficial tool as it increased the confidence of the students with dyslexia. They found that using devices like the iPad in teaching made the student with dyslexia much happier as a child. Mobile technology allowed students to be able to read independently as opposed to having the teacher read to them. Furthermore, participants found that utilising mobile technology allowed the student to be a part of the class as it prevented students from falling behind. Students with dyslexia can keep up with the rest of the class when taught with the help of a device. Participants viewed mobile technology as a type of technology to which their students could relate. They also found that using a device like an iPad was less anxiety-provoking. Furthermore, they were able to bring out the creativity in students by utilising mobile technology.

CONCLUSION

Teachers that participated in this study raised the concern that many applications found are intended for younger students in the Foundation Phase (Grade 1-3) rather than students in the Intermediate Phase (Grade 4-7); there is thus a need for applications to be designed for older students and these should be curriculum compliant.

The findings of this study indicate that teachers perceive mobile technology as beneficial in supporting the student with dyslexia. These perceptions are important as they contribute to existing literature and provide insight into how teachers support students with dyslexia using a new technology. Although the utilisation is perceived as an important learning support tool, the teachers that participated in this study made it very clear that it does not come without its challenges. This indicates the need for training and infrastructure. With the correct training and infrastructure in place most of the challenges that teachers face could be eliminated.

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ABOUT THE AUTHORS

MEGAN BLAMIRE
University of Pretoria
Mdblamire@gmail.com

MARGARET FUNKE OMIDIRE
University of Pretoria
Funke.omidire@up.ac.za