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Using Interactive Media to Support Reading Skills among Underachieving Children

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This article presents a literature review on improving reading skills, and recommendations for reading skills that prepare children for the world of tomorrow. Remediation should begin as soon as a child is diagnosed as having problems with reading. As the demand for digital know-how has dramatically increased in recent years, interactive media has become a basic tool in today's classroom. Children with weak working memory, and with difficulties in the rapid processing of information, need to be assisted to use digital literacy skills. Underachievers usually show a gap between their functional knowledge and performance potential. In order to prevent this gap from widening, underachievers are advised to work at their own functional level to overcome their deficits. Recommendations are made which are related to interventions that use interactive media as instructional material, and which may underscore an ability or desire to perform independently and more effectively. Three canvases for improving reading skills are suggested, namely, (1) creative canvas, (2) learning tools canvas and (3) reading skills service canvas. We conclude that there is a need for educators to move towards using interactive multimedia as an instructional tool in teaching and learning. Educators need to modify and re-design their educational curricula into an interactive learning environment that might reinforce and strengthen reading skills among underachievers.

Key words: *Reading skills, underachiever, interactive multimedia, instructional materials.*

Introduction

Reading is a crucial educational skill (Arciuli, 2018) for it enables students to learn and enriches their life, especially when good reading foundations during primary school are required (Zhao, Song, Zhao & Zhang, 2018). When a student shows difficulties in reading and writing skills, teachers should plan for an assessment (Łodygowska, Chęć & Samochowiec, 2017) such as a diagnostic test. Early detection is paramount to initiate resourceful interventions within schools that are aiming to improve literacy skills (Green, Tonnessen, Tambs, Thoresen & Bjertness, 2009). Students who struggle with reading tasks may have had emotional consequences, such as low self-esteem and have problems with their academic achievements (Novita, 2016). Implicit learning through exposure to written language will enhance literacy acquisition among students (Witteloostuijn, Boersma, Wijnen, & Rispens, 2017).

Students learn to read using information and communication technology tools, which can also have a positive impact on students with special needs (Noor Aini Ahmad, 2017). Mobile technologies can be used as important tools to support learning and help students increase their potential (Madeiraa, Silvaa, Marcelinoa & Ferreira, 2015). Teachers need to plan for and seek appropriate instructional materials for the teaching and learning process, which as much as possible should match students' abilities so that they might have a more effective, meaningful and enjoyable learning experience (Manisah Mohd. Ali & Muhammad Nazeri Saidena, 2015). There is an extreme need for educators to move towards the use of interactive multimedia as an instructional tool in teaching and learning, especially when it involves reading skills among underachievers. Thus, underachievers benefit from the existence of multimedia in education, which through adjustment and modification, enables them to improve their reading skills performance. Multimedia interaction also extends and supports learning and reading skills in valuable ways which may increase educational opportunities for underachievers to become good readers.

Literature Review

Reading skills

Reading is merely a process that transforms printed texts to speech (this behaviour usually occurs while students are reading the printed texts) or printed text to meaningful statements. Reading activities include several cognitive processes which start with letter recognition, word recognition and many more (Nicolielo-Carrilho, Crenitte, Lopes-Herrera & Hage, 2018). If reading difficulties are not identified and dealt with in the early grades in school, they may result in substantial risks and affect future learning (Mammarella, Ghisi, Bomba, et al., 2014).

Students with early reading difficulties have been shown to encounter difficulties in their academic achievement (Metsala & David, 2017). Students with deficits in grammar,

vocabulary and text processing will face difficulties extracting meaning from the printed texts they are reading (Catts, 2003). During the transition from preschool to kindergarten and first grade, identifying and spelling single words accurately might be difficult, as this process involves writing skills and oral language skills (Nielsen, Andria-Habermann, Richards, Abbott, Mickail & Berninger, 2017). Lower ability students in mainstream settings need more interventional activities in order to meet their individual needs (McMurray & Thompson, 2016). Thus, educators must develop creativity and improvisation in their teaching methods and use multimedia to help develop their students' reading skills, abilities, and readiness for learning.

Interactive multimedia

Most of the young, technology-driven generation are predisposed towards digital literacy as they have grown up with digital devices as part of culture (Ahmed & Nasser, 2015). The internet has drastically changed the media landscape, and multimedia stories for education can be created by combining graphic animations with text, video, image and audio (Van Krieken, 2018). Music and audio enrich animated pictures and simultaneously present narratives that integrate nonverbal information with language to promote better understanding (Bus, Takacs & Kegel, 2014). Multimedia has radically changed the way people live and think (Li, Zhu, Ma, Zhang & Zong, 2018). Thus, multimedia has had a strong influence in enhancing underachieving children's patterns of reading. It provides opportunities for underachievers to extend their studies according to their respective needs and intelligence. Multimedia also influences education, enabling educators to plan and prepare learning tools for underachievers which optimise their reading skills. By providing computers in classrooms, educators could engage underachievers to acquire, and further, their reading skills.

Instructional materials

Technology encourages more students to be attracted to learn reading skills through 3D visual images (Noor Aini Ahmad, 2017). Personalised augmented reality (AR), based in educational settings, should consider didactical and pedagogical components (Bacca, Baldiris, Fabregat, Kinshuk & Graft, 2014). AR helps students learn better and further develop their learning skills. It also allows teachers to do impromptu tests, implement active learning situations and encourage cooperative environments within the classroom (Rezende, Albuquerque & Ambrosio, 2017). Noor Aini Ahmad (2018) suggested a Learn Literacy through Augmented Reality (LitAR) module to four categories of students (including underachievers), designed to increase their reading skills.

Assistive technology is one way to eliminate learning difficulties among students with learning disabilities (Vaughn & Wanzek, 2014). A combination of media in intructional materials could

enrich knowledge delivery and increase the students' competency in education (Dalle, 2017). Peer tutoring, systematic instruction, self-directed learning and technology usage are all evidence based practices useful in developing literacy skills among students with learning disabilities (Nabil Almalki, 2016) and underachievers. Computer-based technology and adaptive technology allows students to become active learners in the classroom (Noor Aini Ahmad, Anis Fatima Savugathali &Yasmin Jeffry, 2016). Reading difficulties among students with special needs has been a concern of many teachers and parents. Implementing early reading activities in schools, and at home, may encourage students to get involved in various reading environments (Noor Aini Ahmad, Mashitoh Hashim, Zaidan & Zaidan, 2017). Interactive multimedia helps students learn new information about the world around them (Noor Aini Ahmad & Shahin Choo Liyana, 2017). Thus, underachievers that develop their reading skills through interactive multimedia are supported to have positive learning experiences, both in the classroom and at home. Technology helps them recompense for challenges in learning, especially in the area of reading skills.

Recommendation

This article suggests three canvases on teaching reading skills, namely, (1) creative canvas (Diagram 1) whereby teachers teach problem-solving using teaching methods and types of technology-assisted learning that anchor key activities during reading skills activities, (2) learning tools canvas (Diagram 2) which provides information on children's needs and abilities (the teacher or parents use this canvas to identify the child's problems before they choose the learning tools necessary for the development of reading skills), and (3) reading skills service canvas (Diagram 3), which is used to specify the services provided to enhance reading skills among children, as well as the support provided using either technology-assisted learning or other learning tools, along with the guidance to be provided by teachers and parents.

Diagram 1: Creative canvas

<table>
<tr><td rowspan="2">Gain Creators</td><td>Teaching Methods</td><td rowspan="2">Key Activities</td></tr>
<tr><td>Technology-Assisted Learning</td></tr>
</table>

Diagram 2: Learning tools canvas

Children Needs	**Reading Skills Problem**	**Choose Technology-Assisted Learning Aids**
Children Ability		**Usage**

Diagram 3: Reading skills service canvas

Service	**Guidance**	**Support**

Conclusion

Educators need to re-design or modify their educational curricula into an interactive learning environment that can strengthen and reinforce reading skills among underachievers. How could this be achieved? This article suggests that by using interactive multimedia tools, educators may be able to better plan effective teaching and learning activities in order to achieve learning outcomes. Interactive multimedia also helps social interactions between educators and underachievers. Reading is a complex behaviour influenced by cognitive and social factors. All readers need to have knowledge of the oral language as reading could not evolve without it. Knowledge of phonological awareness among underachievers is considered a crucial factor in oral and reading skills and can decrease the struggle in academic performance. It is proposed that underachievers would benefit from interventions in word recognition, phonological awareness and reading comprehension performance using interactive multimedia tools, in order to help develop their future reading skills.

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