Digital technology: Supporting the language and literacy development of ELLs

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Link to Digital Story

Abstract

This paper examines the use of digital technologies in the elementary classroom to support the language and literacy development of English language learners (ELLs). My research took place in Calgary, Alberta and included undergraduate students and a university based researcher. A _Google Forms_ survey and an online interview was used to collect data. The results indicated that technology can be helpful to elementary teachers in supporting the language and literacy development of ELLs because it helps motivate and engage students. Teachers should be cognizant of the disadvantages that arise when using technology in the classroom to support ELLs. These concerns include the possibility that ELLs will become too dependent on technology and their social skills will be at risk with too much technology use. Being conscious of the disadvantages of technology use can inform teaching practices.

Introduction

Technology has become an integral component of teaching and learning in schools, but there is still a great deal of controversy surrounding the use of digital technology in the

classroom. I believe technology can be used to enhance learning, when it is used responsibly by teachers and by students. There are so many wonderful resources that can be found online, and technologies such as ipads and computers can certainly be used to engage students in learning activities. In my previous experience as a student teacher, I have observed how technology can be used as an excellent learning tool for students with learning disabilities. Because of the success of integrating digital technologies into the classroom to help students with learning disabilities, I was curious if there were more opportunities where technology can make such a big difference in student learning.

I was specifically interested in examining whether digital technologies can be used in the elementary classroom to help develop the language and literacy skills of English language learners (ELLs). ELLs are students who are learning English as second language. This question was important to me because I believe that ELLs are often at a disadvantage in regards to language and literacy skill development in comparison to their proficient English speaking peers because they have to learn a new language and meet curriculum requirements. Furthermore, I thought that technology can help teachers better meet the needs of ELLs. I was an English language learning student in elementary school, and I absolutely loved listening to digital formats of children's stories. Digital stories, I believe, were an important part of helping me become a better reader and writer in English, and with the digital world constantly expanding and becoming a bigger part of our lives, I was confident that technology can effectively be used in the classroom to help ELLs develop their language and literacy skills.

In my Bachelor of Education Program at Mount Royal University I have worked in schools, and I have noticed that technology has been implemented into most classrooms. Most of the classrooms that I have visited throughout my experience as a student teacher have had a

SMART interactive whiteboard, so I was curious if teachers were using interactive whiteboard technology to provide ELLs with stimulating images or videos that would help them better understand and make meaning from lessons. Based on my observations of students in the classrooms that I have been placed in for my field study, I have noticed that all of the students have had the opportunity to engage in literacy activities using eBooks, such as Raz-Kids and Tumble Books, so I was also curious if teachers are specifically using digital books with ELLs to help scaffold their language and literacy development. Finally, I also wanted to examine some advantages and some disadvantages of using digital technologies to support ELLs.

Background

I wanted to find out if the digital technologies that I was investigating in my own research have been examined by other researchers, and what suggestions other researchers may have about other technologies that can be used to support the language and literacy development of ELLs. Based on the research that I examined that was published in peer-reviewed journals, it appears that a number of digital technologies can effectively be used in the elementary classroom to assist the language and literacy development of ELLs.

As described by Daniel, Shin Shin, Harrison, and Aoki (2014), "Technology provides multiple roads to learning through its capacity to assure multi-modal instruction for language use in inputs and outputs of all four domains of language - (1) listening, (2) speaking, (3) reading, and (4) writing" (p.36). Furthermore, Daniel et al. (2014) determine that integrating technology into the curriculum can be an effective way of better accommodating the academic needs of ELLs. Digital tools like *Prezi* and *Voki* can be effective because they provide ELLs with scaffolded language support (Daniel et al., 2014, p.38). ELLs generally prefer to engage in

nonverbal activities (Daniel et al., 2014, p.38), and by using these tools, ELLs can still contribute to the classroom learning and feel safe by participating in a written format.

Hur and Suh (2012) outline some of the benefits of integrating digital technologies like the interactive whiteboard (IWB) into ELL classrooms. The IWB connects a computer to a projector, and allows users to access digital material (Hur and Suh, 2012, p.322). According to the authors, "One way to help ELLs acquire new vocabulary and improve English skills is to utilize visual and audio aids (Hur and Suh, 2012, p.321). Teachers can use the IWB to project relevant videos and images when students do not understand new information, and it can also promote learner motivation. "Showing an image allows ELLs to link their native language and English, cultivating their vocabulary skills"(Hur and Suh, 2012, p.323). Making connections between their native language and English can be especially helpful to ELLs for constructing new knowledge because they can use their prior knowledge to help them learn.

Lopez (2010) examined a Digital Learning Classroom project, which used interactive whiteboard (IWB) technology to improve the learning of ELLs. ELLs' academic achievement levels are often lower than the achievement levels of non-English language learning students (Lopez, 2010, p.901). Lopez reveals that the Digital Learning Classroom could improve the academic performance of ELLs, so that their achievement levels are closer to that of non-English language learning students, specifically in mathematics and reading in grade 3 and 5. However, the author also states that teachers must be competent in subject content, instructional competency, and classroom management skills, and that the Digital Learning Classroom cannot replace fundamental teacher attributions that are essential for the success of students (Lopez, 2010, p.911).

New research has discovered that ELLs cultural knowledge and home language can play an important role in their academic engagement across the curriculum. Ntelioglou, Fannin, Montanera, and Cummins (2014) discuss the importance of multilingualism, multimodality, and multiliteracies in the classrooms that have large numbers of ELLs, and, they describe how a writing assignment using creative writing, drama practice, and digital technologies was used to connect with the students' lives and made it possible for them to use their home languages. Using digital media to create multimodal texts enabled students' to express themselves in different ways not limited to language, and this supported students who were not confident in their spoken language abilities.

Roessingh (2014) examines how task based learning (TBL) and information and communication technology (ICT) are used in elementary classrooms to help motivate and engage students, and create authentic and meaningful language learning opportunities. Roessingh (2014) warns that "It is not the computer itself, or the lab, or the software, or the independent research projects assigned to students that will make the difference; it is how these tools are put to use that needs to be put under scrutiny" (p.7). Roessingh (2014) also discusses some ways that will help pre-service teachers design purposeful tasks for their future English language learning students to support curriculum requirements and language and vocabulary development, including future teachers being competent in the three domains of knowledge: 1) content knowledge (i.e. curriculum), 2) pedagogical content knowledge, (i.e. theoretical understanding of how learning occurs), and 3) practical, pragmatic knowledge (i.e. being able to apply theory to practice) (p.16). Roessingh (2014) explains that future teachers will have to incorporate many components into their lessons in order to successfully meet curriculum requirements and language learning

learning needs (p.16); meaningfully using ICT to best support curriculum and language requirements will be important.

 Skinner and Hagood (2008) explore how digital storytelling can be used to scaffold the English language development of ELLs. Digital storytelling gives students the opportunity to express themselves and their knowledge in multiple formats. Students can use digital software like *MovieMaker, iMovie,* and *Photostory* to create digital texts. Skinner and Hagood (2008) discuss how digital storytelling offers many foundational literacy learning possibilities for ELLs, including story comprehension, decoding of texts, reading fluency, oral and written vocabulary, and the writing process. The authors explain that from a new literacy perspective, "[T]ext is understood as anything that can be read and comprehended or constructed to share meaning and includes reading, writing, speaking, listening and viewing practices" (Skinner and Hagood, 2008, p.13), and they state that "Digital storytelling can be used across grade levels and content areas to address a multitude of foundational and new literacies" (Skinner and Hagood, 2008, p.19). Skinner and Hagood (2008) also propose that when educators use digital storytelling with ELLs, it can help increase the participation levels of ELLs and can help them form their identities as producers of literacy (p.30).

 I discovered through my review of other authors' research that digital technologies can help teachers differentiate instruction and assist ELLs in their learning. Specifically, it appears that incorporating digital technologies into the classroom can provide teachers with multiple ways to present information to students and can also provide students with multiple ways to show their learning. In addition, it also seems that digital technologies can help motivate ELLs and can help them improve their academic performance.

Research Context

Before I started my research I completed the Government of Canada Human Ethics Tutorial, which informed me on how to conduct ethical research. I followed the guidelines described to me in the tutorial to ensure the safety of all of my participants. I conducted my research in Calgary, Alberta. The participants in my study included my peers in my Education 2325 class, other undergraduate students at Mount Royal University, and Hetty Roessingh, a University of Calgary researcher and author of the article, "Teachers' roles in designing meaningful tasks for mediating language learning through the use of ICT: A reflection on authentic learning for young ELLs" (2014), which I referred to in my background context. Roessingh has a large amount of experience with implementing technology to support ELLs. I conducted an anonymous survey to ensure the safety and the privacy of my participants. I received eleven anonymous responses to my online survey, and anyone who completed my survey had to be 18 years of age or older. In addition, I asked Roessingh for permission to publish her name in my manuscript.

PANEL ON
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Date of Issue: **13 October, 2015**

Figure 1. Canadian Ethics Course Certificate

Methods of Investigation

I created an anonymous survey using *Google Forms*. I emailed my survey to undergraduate students and faculty members. I analyzed my data from my *Google Forms* survey using charts, and I analyzed the written responses from the survey with tables. I was introduced to Roessingh by my instructor, and I conducted an email interview with her based on her knowledge and experience with how technology can be used to assist ELLs. Roessingh provided me with a research paper and an extensive amount of information about how technologies can be used to support the language and literacy development of ELLs. I analyzed the email interview with Roessingh by reviewing her responses numerous times to focus on the key ideas.

Findings

The survey and the interview that I conducted provided me with an extensive amount of information regarding the use of digital technologies to support the language and literacy development of ELLs. I acquired an insight into the technologies that the participants in my survey and interview were most familiar with and would most likely recommend using to support the language and literacy development of ELLs. Some advantages and disadvantages of using technology in the classroom are also examined. I have displayed the data that I collected from the *Google Forms* survey that I conducted visually in charts and tables, and I feature some of the key finding from my email interview with Roessingh in text.

Undergraduate Student	11	100%
A faculty member	0	0%
Elementary Teacher	0	0%
Other teacher	0	0%
Other	0	0%
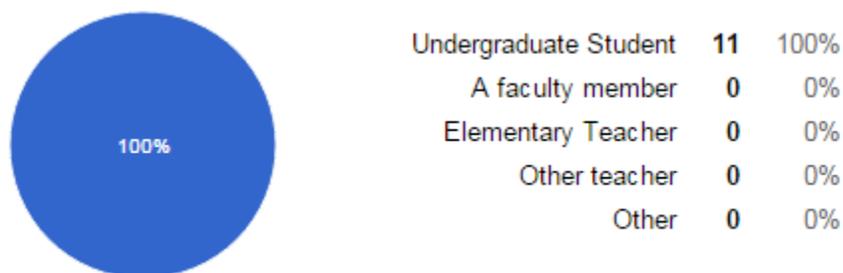
Figure 2. Who are you?

I received eleven anonymous responses from undergraduate students on my survey. It is important to consider that many of the participants in my survey may have little experience in using technology to support the language and literacy development of ELLs. The participants' responses to my survey will most likely be based on their own experiences, their observations in their field study placements, and/or course readings.

How familiar are you with using digital technology with elementary students?

Extremely familiar	0	0%
Very familiar	2	18.2%
Moderately familiar	6	54.5%
Slightly familiar	2	18.2%
Not at all familiar	1	9.1%
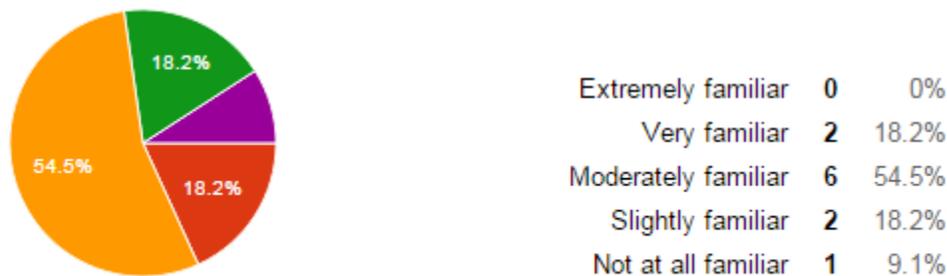
Figure 3. Using technology

I wanted to generally find out how familiar the participants in my survey were with using technology with elementary students. According to the survey results displayed in Figure 3, the majority of the participants had some experience with using technology with elementary students, but only 18.2% of participants were very familiar with using technology with elementary students.

Have you used or observed the use of interactive whiteboard (IWB) technology to help ELLs understand lessons (search the web for alternative ways to show meaning)?

Yes	3	27.3%
No	8	72.7%
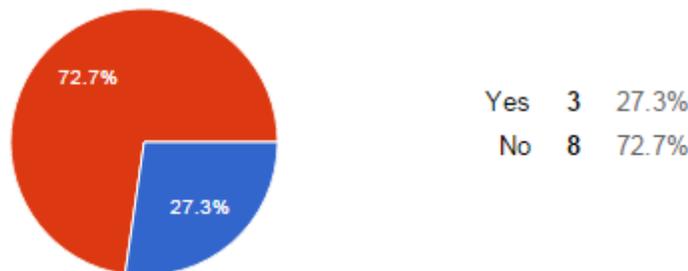
Figure 4. Interactive whiteboard technology

The results in Figure 4 indicate that the participants in my survey were not familiar with

the use of interactive whiteboard technology to help ELLs comprehend the material taught in lessons. Only 27.3% of the participants said they were familiar with the use of the interactive whiteboard to support ELLs. It is important to note that this response could be because the participants in my survey have not been in classrooms where there have been ELLs. However, as displayed in Figure 5, a higher number of participants, 45.5%, appear to be familiar with the use of eBooks to help engage ELLs, so it does seem that eBooks are more commonly used to assist ELLs than whiteboards. Nevertheless, the majority of the participants, 54.5%, revealed that they were unfamiliar with using eBooks to help engage ELLs.

Have you used eBooks or observed eBooks being used to help engage ELLs?

Yes	5	45.5%
No	6	54.5%

Figure 5. eBooks and ELLs

In your opinion, how frequently should teachers use technology in the elementary classroom to support the language and literacy development of ELLs?

Always	2	18.2%
Frequently	5	45.5%
Sometimes	4	36.4%
Rarely	0	0%
Never	0	0%

Figure 6. How frequently should technology be used to support ELLs

The participants in my survey revealed that they thought technology should be used regularly by elementary teachers to support the language and literacy skills of ELLs. As

displayed in Figure 6, 45.5% of the participants agreed that teachers should use technology frequently in the classroom to support ELLs. Only 18.2% of the participants said that teachers should always use technology to support ELLs and 36.4% of participants thought that technology should be used only sometimes by teachers to support ELLs.

What type of digital technology would you most likely use to support ELLs? (you may select more than one)

interactive whiteboard	5	45.5%
computer	8	72.7%
ipad	7	63.6%
ebooks	7	63.6%
Other	3	27.3%
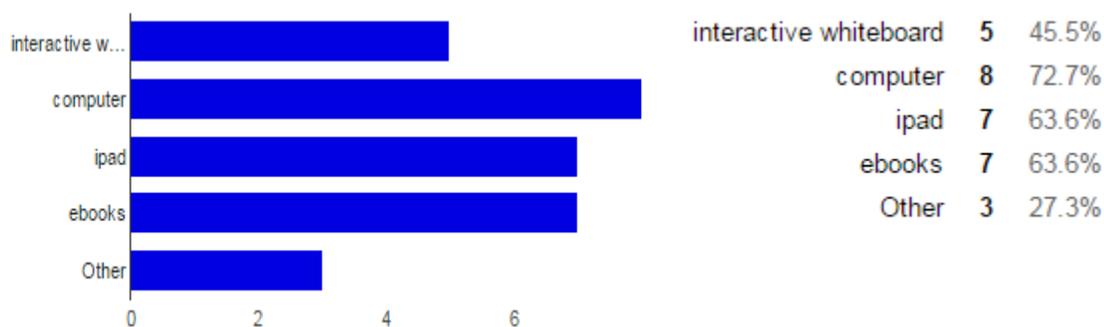
Figure 7. Supporting ELLs with technology

Based on the responses from the participants displayed in Figure 7, computers, ipads, and eBooks appear to be the most popular choice of technology that undergraduate students would use to support ELLs. The interactive whiteboard also seems to be a valid choice. It would be interesting to know what "other" technology participants would prefer to use to support ELLs. In the future, I would consider having participants specify which technologies they would most likely use to support ELLs, if the answer was not provided.

What are some advantages for using digital technologies to support ELLs? (you may select more than one)

technology can engage students in their learning   **7**   63.6%
encourages independent learning   **7**   63.6%
provides students with alternative ways to show their learning   **8**   72.7%
unsure   **0**   0%
Other   **1**   9.1%
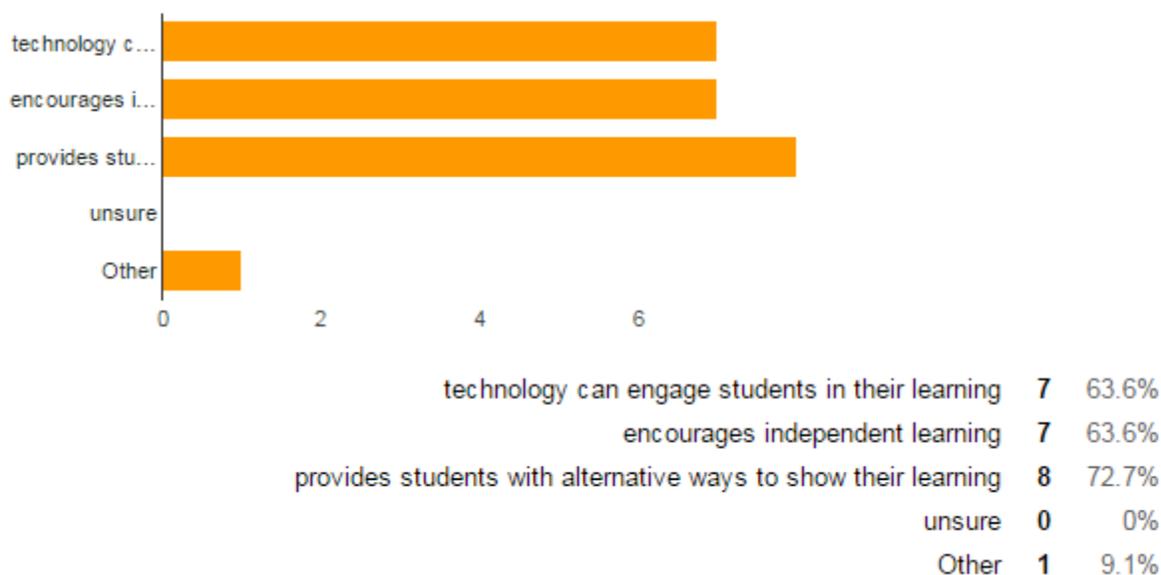
Figure 8. Advantages of using technology

There was strong support in the participants' responses, displayed in Figure 8, indicating that the use of digital technologies to support ELLs does have numerous advantages. The majority of the participants agreed that technology can increase student engagement, foster independent learning, and provide students with a variety of ways to demonstrate their learning. However, the results in the table below reveal that there are also some possible disadvantages for using technology to support ELLs. The disadvantages, which are displayed in Table 1, to consider when using technology to support ELLs that the participants in my survey mentioned were primarily cost and availability, using information that is not accurate, students will become too reliant on technology, and their social skills will be negatively affected.

What do you think are some possible disadvantages for using digital technologies to support ELLs?

Table 1
Disadvantages of using technology

1. Cost and availability
2. Learners could get too accustomed to using digital technologies and might not utilize their social and communication skills as a form of learning as well.
3. Sometimes they will rely too much on that and when given work that doesn't have technology then they'll be too dependent on their digital technology outlets.
4. If the technology is only in English, they may not be able to even start to understand what is being taught. If they aren't able to translate or have a starting point it may be hard.
5. Social skills may be at risk among students.
6. Possibly accessing information that is not reliable. I would be interested to learn more!
7. Some apps will automatically check spelling and grammar mistakes.

Do you know of any other type of digital technology not mentioned that would support ELLs' language and literacy development? Please specify.

Table 2
Other forms of technology

1. Tumble Books. Great read aloud books that highlight the words so kids can follow along.
2. Imaging Learning

Other forms of technologies that the participants in my survey suggested that could help support the language and literacy development of ELLs are displayed in Table 2. Tumblebooks are eBooks for children and Imaging Learning is a software program specifically designed for ELLs and struggling readers. These are both excellent resources that can be used in the elementary classroom to support both the language and literacy development of ELLs and

proficient English speakers. The suggestions provided to me by my peers helped inform my research.

The responses recorded above were all collected from an anonymous survey. I asked an expert, Hetty Roessingh, additional questions, so that I could get more information regarding the use of technology to support the language and literacy development of ELLs. Roessingh (2015) expressed her concern for using technology in the classroom: "Too often it [technology] is seen as a toy rather than a tool, and kids too often over-depend on technology to replace real learning" (personal communication). This statement corresponds with the concern raised by some of the participants in my survey about students becoming too dependent on technology. Furthermore, according to Roessingh (2015), programs that support language learning, such as Rosetta Stone, "have a long way to go, and don't begin to replace a teacher who knows what he's/she's doing" (personal communication).

Roessingh (2015) stated that she was not familiar with the use of interactive whiteboard technology in any Calgary Board of Education school, and she thought that Smartboards are actually "being phased out" (personal communication). If this is the case, the future use of interactive whiteboard technology to support ELLs is not optimistic. However, Roessingh (2015) said that

> [B]eing able to project images onto a whiteboard is easily done, whatever tech tool you're using. The use of visual representations, whether these are charts, maps, timelines, well chosen photos, etc. are all very, very important in mediating language and content information. There are tons of learning tasks that can be designed through the use of these: story retelling, explanation of how something 'works,' writing about a sequence of events using a visual support or scaffold … the list is endless (personal communication).

Technology tools are not the only way to support and enhance learning. Roessingh (2015) provided an example in which she did not use technology tools to scaffold the learning of ELLs: "When I just had a pile of poster paper and marker pens, we generated our own timelines and used these to structure and support a writing assignment" (personal communication). Roessingh (2015) did, however, acknowledge that "technology makes learning more in the moment . . . and can be "motivating" and "exciting" (personal communication). Roessingh (2015) also stated that "There is an endless supply of fabulous quality video available . . . online at no cost . . . the trick is to structure worthwhile learning tasks to exploit this stuff [online videos] for language learning, concept information and strategies development" (personal communication).

As indicated by both my survey results and the response from Roessingh, the interactive whiteboard technology is not as actively used in classroom to support the language and literacy development of ELLs. In addition, my findings suggest that technology tools are not necessarily the most effective way to support and enhance learning. As Roessingh (2015) stated in our online interview, "Nothing replaces a really, really great book" (personal communication), when developing language and literacy skills.

Conclusions and Recommendations

Digital technologies can be beneficial in the language and literacy development of ELLs; however, it is important to remember that there will also be disadvantages to using technology in the classroom. The participants in my study identified some disadvantages with using technology to support the language and literacy development of ELLs, but I think if teachers and students use technology responsibly in the classroom, some of the disadvantages recorded could be minimized. Teachers should set rules and teach students how to be responsible users of technology. The disadvantages that could be minimized by teacher supervision and guidance

include students becoming too dependent on technology, students' social skills being at risk because they use too much technology, and the concern that students will access information that is not reliable. Nevertheless, further research is needed to examine the disadvantages with using technology to support ELLs.

I was unable to definitively identify whether teachers are using eBooks to help engage ELLs mainly because the sample size in my *Google Forms* survey was very small, and all of my participants in my survey were undergraduate students who most likely have limited experience working with ELLs in an elementary classroom setting. Therefore, I would recommend further research in the use of eBooks to help engage ELLs. My survey results regarding the use of interactive whiteboard technology to help ELLs understand lessons indicated that the interactive whiteboard was not a significant resource that teachers use to support ELLs, and Roessingh confirmed that she was also unfamiliar with its use in schools. Therefore, I would recommend using alternative solutions, like iPads, charts, or photos to support ELLs comprehension of content area instruction.

This study was extremely informative in regards to signifying how technology can be used in the classroom to support ELLs and provided me with numerous suggestions on what tools and strategies to use with students who are learning English. Teachers must be competent in curriculum content and have the ability to implement various strategies and supports to best meet the needs of ELLs, otherwise the use of technology to support the language and literacy development of ELLs will not be a sufficient support. Using technology in the classroom can increase student engagement and motivation, but teachers must use it effectively as a tool and not simply as a means to engage students; technology cannot replace great teaching!

Based on the feedback that I received, I plan to further examine the ways in which digital

technologies can be used to support the language and literacy development of ELLs, so that I can strategically and effectively implement technology into the classroom to enhance learning and successfully meet curriculum requirements and the language learning needs of ELLs. Digital technologies can be extremely useful to teachers to support the language and literacy development of ELLs, but technology should not be the only resource teachers use to support ELLs because non-tech tools, like graphic organizers, and implementing different strategies are also important to use when supporting ELLs. Despite the concerns that were raised throughout my research about using technology to support ELLs, I remain optimistic that when technology is used responsibly, it can be used effectively to support the language and literacy development of ELLs.

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