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Teachers' Attitudes and Perceptions on Bring Your Own Device Programs in the Secondary Classroom

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TEACHERS' ATTITUDES AND PERCEPTIONS ON BRING YOUR OWN DEVICE
PROGRAMS IN THE SECONDARY CLASSROOM

A Dissertation

by

MICHELLE MARIE CAVAZOS

Submitted to the Graduate College of
The University of Texas Rio Grande Valley
In partial fulfillment of the requirements for the degree of

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TEACHERS' ATTITUDES AND PERCEPTIONS ON BRING YOUR OWN DEVICE
PROGRAMS IN THE SECONDARY CLASSROOM

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May 2019

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ABSTRACT

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The purpose of this research is to investigate teacher attitudes and perceptions of Bring Your Own Device (BYOD) on learning in the secondary classroom. The study was completed as a qualitative narrative inquiry. The study took place in a high school that has had BYOD policies in place since the beginning of the establishment of the campus. The manuscript brings forward the themes and reflections that represent teacher attitudes and perceptions of the BYOD implementation on learning in the secondary classroom.

Keywords: BYOD, secondary, classroom, technology, teacher attitudes, teacher perception

DEDICATION

The completion of my doctoral studies has been made possible through the love and constant outpour of support from my husband David, family, friends, professors, and the community. I would like to dedicate this work to my children Joseph, Ryan, and Kayleigh Cavazos. I hope this can inspire you to do great things in life and remember that there is no limit to what you can achieve.

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TABLE OF CONTENTS

	Page
ABSTRACT	iii
DEDICATION.....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER 1. INTRODUCTION	1
Statement of the Problem	3
Purpose of the Study	4
Importance of the Study	5
Research Questions.....	6
CHAPTER II. REVIEW OF THE LITERATURE	8
Conceptual Framework.....	10
Teachers’ Attitudes and Perceptions.....	15
BYOD Issues in Education.....	17
Parental Involvement.....	19
Socioeconomic Status and It’s Impact.....	20
BYOD in the Classroom.....	22
Students’ Learning.....	25

CHAPTER III. METHODOLOGY	27
Setting of the Study	28
Participants.....	29
Gender.....	34
Age.....	35
Highest Level of Education.....	35
Materials	35
Instruments	36
Research Design.....	37
Data Collection.....	38
Observational Notes and Researcher Field Notes.....	39
Role of the Researcher	39
Trustworthiness.....	40
Credibility.....	41
Confirmability.....	42
Dependability.....	43
Transferability.....	43
Data Analysis Methods.....	44
CHAPTER IV. RESULTS	45
Researcher’s Findings	46
Positive Experiences.....	46
Communication.....	47

Teachers’ Perceptions of BYOD in the Classroom	49
Teachers’ Reflections of BYOD in the Classroom.....	50
Independent Rater Findings.....	52
Independent Rater Coding.....	52
Independent Rater Themes	55
Comparison of Researcher and Independent Rater.....	55
CHAPTER V. DISCUSSION	59
General Discussion	59
Theoretical Implications.....	61
Educational Practical Implications	61
Limitations of the Study.....	62
Suggestions for Future Research	63
CHAPTER VI. SUMMARY AND CONCLUSION	65
Summary	65
Conclusion	66
REFERENCES	68
APPENDIX	75
BIOGRAPHICAL SKETCH	105

LIST OF TABLES

	Page
Table 1 : Conceptual Framework References	11
Table 2 : Participant Demographics	30
Table 3 : Participant Responses on Experience.....	58

LIST OF FIGURES

	Page
Figure 1 : Conceptual Framework of the Study	9
Figure 2 : Participant Years of Experience	33
Figure 3 : Coding by Independent Rater	54
Figure 4 : Comparison of Codes.....	56

CHAPTER I

INTRODUCTION

In a technology driven world, educators are now more than ever getting experience with students bringing their devices to class. In a national study completed in 2016, it was found that nine in ten families, or 94%, have some kind of internet access either at home or through a mobile device (Katz, 2016). This statistic represents how impactful digital technology is to the new generation. “Even among families below the poverty level, nine in ten (91%) are connected in some way” (Katz, 2016, p.5). Families that are considered not able to afford basics, are constantly trying to find ways to stay digitally connected. The impact of technology is noted by Lenhart, Madden, and Hittlen (2015) as they state the amount of technological tools available increases every year. Because of the extensive use of technology and the internet, it is important for educators to investigate the use of this technology and how it will impact student learning.

Technology has been a focus of education development in recent years. “Improving education is an immense complex global challenge” (Butler, Marsh, Slavinsky, & Baraniuk, 2014, p. 331). Technology can help this complex global challenge because it has become so prevalent in everything that we do. While technology implementation efforts in the classroom are increasing, it is difficult for teachers to find and achieve the technology integration process (Tonduerm, Braakm, Ertmer, & Ottenbreit-Leftwich, 2016). Technology implementation can have a wide range of variability. The focus of this study narrows in on the use of Bring Your

Own Device (BYOD) programs in the secondary classroom. Teachers' perceptions and attitudes towards BYOD in the secondary classroom are the driving force behind this study.

Teachers are going to be the bridge between students and any kind of learning material or experiences (Ian & Lowther, 2010). Teachers are in charge of their curriculum and are also responsible for how they carry it out and make it engaging for learning. Most students spend more time at school with their teachers than they do with any other adult figure. Therefore, teachers have a large responsibility in the upbringing of the children in the community (Hargreaves, 2000). In the community, teachers are regarded as playing a large role in not only student education, but also in how students develop their character and their life skills (Lumpkin, 2008). One of those life skills specifically being the use of technology and how to effectively use it (Goldin & Katz, 1996). While all of these responsibilities lie in the teacher's hands, we should seek more to hear what they have to say about carrying out these initiatives in their classrooms. After all, teachers are getting the first-hand experience considering they are the ones implementing the programs.

Since teachers are with the students the most throughout the day, realizing their attitudes and perceptions on Bring Your Own Device (BYOD) programs will help us to understand exactly what the students are experiencing (Ian & Lowther, 2010). Teachers' viewpoints are the gateway for parents and administrators to understand the first-hand accounts of what happens in the classroom. Since the teachers' viewpoints are so critical, it is crucial to study and discuss the programs that they are implementing in their classrooms. How are the BYOD programs being implemented? How do teachers feel about implementing them? What kind of experiences are they having? The students get the first-hand experience from the teacher lessons that are

provided, including those lessons that have students using their own devices for learning. National programs have been introduced all over the world to support the global technology advancements and increasing use (Albirini, 2004).

Statement of the Problem

While there are multiple studies on the use of technology, parental and economic support, and technology integration, teachers' attitudes and perceptions seem to be left out of the research. Al-Zaidiyeen, Mei, and Fook (2010) discuss how teachers' attitudes play a major role and predictor in the determination of the use of new technologies in the classroom and other educational settings. While there are many studies, as evidenced by the literature review, regarding technology in the classroom, BYOD program studies are more difficult to find. Because of the lack of information on teacher attitudes and perceptions on Bring Your Own Device programs, it is imperative that their stories and perceptions are shared through.

The specific school that has been selected for the study is mainly composed of students who are Hispanic and have low socioeconomic status. Katz (2016) stated that "Most low- and moderate-income families have some form of Internet connection, but many are under-connected, with mobile-only access and inconsistent connectivity" (p.56). The demographics of the research study site also give perspective into teachers attitudes and perceptions in areas where not every student has digital access.

Multiple efforts have been made to increase the use of devices and technology for learning at both the campus and home levels. In the month of October 2017, 300 of the 1100

students at the selected campus were chosen based on socioeconomic status and other factors to either receive an android tablet and/or phone, or hotspot internet service, from Sprint. The campus has BYOD policies in place and is defined as a BYOD campus. Although there has been implementation of BYOD policies and technology at the campus, such as BYOD guidelines and implementation policy, the implementation and the use of the program varies. These policies can be referenced in Appendix E, F, and G. Please note that the student/parent agreement is available in English (Appendix F) and in Spanish (Appendix G). This study serves to provide information to the educational community on what teachers think of the implementation and effectiveness of BYOD. The policies, procedures, implementation, and overall thoughts which have not been previously studied are the focus of the study.

Purpose of the Study

The purpose of this study is to investigate teacher attitudes and perceptions towards BYOD learning and implementation in their secondary classrooms, because these components affect the focus of all education, student learning. The reasoning behind this study is to find out if the different factors involving student learning, with regard to technology in the classroom, are affected and if they are portrayed in the teachers' responses. Discovery of teachers' perceptions and attitudes towards BYOD programs in secondary classrooms can give educators a glimpse of what is currently happening and foster ideas of how to create further and future change and innovation in the classroom.

Christensen (2002) states that need based technology integration techniques allow for teachers to have a rapid and positive experience with technology, which in turn produces positive effects on student outcomes in the long term. Student learning continues to be the main focus of education. Irby (2017) states that understanding the reality that teachers face about the use of technology and their perceptions can help administrators to make informed decisions regarding their campuses. Making sure that BYOD programs support that through teacher attitudes and perceptions will help to continue the growth that is needed with the advancement of technology.

Importance of the Study

The importance of the study lies in the addition of this research to the educational community, while adding an understanding of the teachers' attitudes and perceptions regarding BYOD learning. Specifically, there is also importance to understanding how BYOD plays a role in learning at an institution that is mostly Hispanic and low SES. These factors create a unique situation for this study that allow for multiple factors to be addressed.

Teacher stories and narratives that consider the implementation of BYOD in their classrooms and in their campus environment will help other educators to understand what lies ahead. Also, looking back on these experiences, other educators can consider how to implement technology with a different mindset and discover new ways to innovate with BYOD in their classroom. The global change of increasing technology is not estimated to slow down anytime soon (Albirini, 2004). With that trend, teachers and educators should consider what has been done in the past and what can be done moving forward. Ian and Lowther (2010) discussed the

importance of understanding the direct and indirect effects of teacher's individual perceptions on technology use and how it directly effects the students in the classroom.

Because of the constant and growing technology demand that has been placed on teachers, considering how they feel about implementing these initiatives will guide future growth and development. Baylor and Ritchie (2002) discussed the use of technology in the classroom and how teacher morale is affected by the use. Researching and discussing how teachers' perceptions and attitudes are affected allows for further plans and actions to take place.

Research Questions

The purpose of this study is to investigate teacher attitudes and perceptions towards BYOD learning and implementation in their secondary classrooms, because these components affect the focus of all education, student learning. Based on previous research, the following research questions were created:

1. What are teacher's attitudes and perceptions towards the implementation of BYOD in the secondary classroom?
 - 1.1. What are your first thoughts when thinking of the words Bring Your Own Device in the classroom?
 - 1.2. How has BYOD been beneficial in your classroom?
 - 1.3. How has BYOD been a hindrance in your classroom?

2. What are teacher's attitudes and perceptions towards the implementation of BYOD in the secondary classroom?

2.1. How do you feel about training that you received regarding BYOD integration for your classroom?

2.2. If there was something about BYOD in the classroom that you could change, what would it be and why?

The research questions for this study provide a comprehensive view of teachers attitudes and perceptions of BYOD programs in the secondary classroom.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to investigate teacher attitudes and perceptions towards BYOD learning and implementation in their secondary classrooms, because these components affect the focus of all education, student learning. It is the basis for the following research question: 1. What are teacher's attitudes and perceptions towards the implementation of BYOD in the secondary classroom?

This chapter provides a review of the existing body of theory and research as it pertains to the primary elements of the study. The first section of the chapter provides a historical overview of BYOD; the second section will discuss literature relevant to the theoretical framework of the study; the third section will review literature on teachers attitudes and perceptions; the fourth section will review literature on BYOD in education; the fifth section will review literature on SES and Parental Involvement; and the sixth section will review literature on BYOD implementation. The final section will discuss the literature regarding student learning.

This literature review provides the specific importance for the purpose of this study. The review of this literature also addresses specific areas such as the impact of technology in the classroom, support systems, impacts on students and teachers, parental support, socioeconomic status, and issues in education technology implementation. These areas of literature support the need for understanding teachers attitudes and perceptions towards BYOD programs in secondary schools.

The following figure (figure 1) shows the conceptual framework of the study. This conceptual framework represents the relationship that teacher attitudes and perceptions have regarding BYOD in education, SES and parental involvement, BYOD implementation in the classroom, and student learning. These concepts will also be addressed throughout the review of the literature.

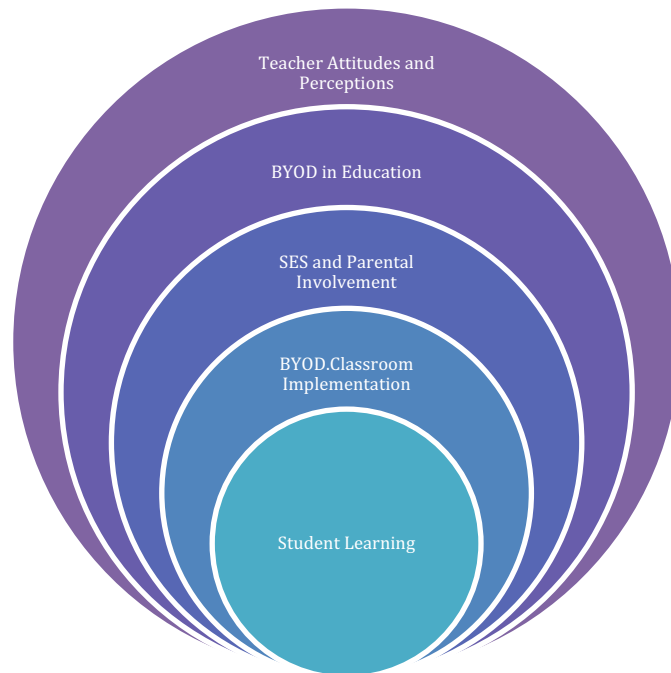


Figure 1. Conceptual Framework of the Study.

Conceptual Framework

The conceptual framework of the study presented in Figure 1 shows a visual description of the different factors that contribute to BYOD education. The overarching circle is the broadest domain and it includes all teachers' attitudes and perceptions. Tour (2015) discussed how there is major importance in understanding teachers' values and assumptions regarding technologies inside and outside of the classroom in order to discover and understand how those teachers will engage their students with technology inside the classroom. Like the review of literature, this overarches all of the teachers attitudes and perceptions in reference to all of the key points in the layers underneath. The next section is BYOD in the education. This section addresses how and why BYOD is implemented in the education system.

Under that section is socioeconomic status and parental involvement. These are factors that directly affect students' environments of learning. While teachers have control of their classrooms, they do not have control of the student's environment outside of the classroom. Socioeconomic factors and parental supports are determining factors of success in student learning. The next section is the area that teachers have control over. Teachers have control over what technology and how they implement it in the classroom. This leads to the teacher perceptions and attitudes towards technology and BYOD in student learning. Student learning is at the center of the graphic because all education is student focused and student learning is the focus of all education.

A similar research model is presented by Wang and Xing (2018). "This model hypothesizes that three elements of teen digital citizenship: digital access, digital etiquette, and digital safety, can be explained by parental involvement and parent socioeconomic status"

(Wang & Xing, 2018, p. 190). It is the relationships in the model, similar to the conceptual framework that is provided here, that are the basis for further research.

The following table (table 1) describes the different resources that compiled this theoretical framework. The references are categorized by the importance in which category they belonged to. The table demonstrates the comprehensive approach to the literature review to make sure that the different areas were covered.

Table 1

Conceptual Framework References

Author Name	Year	Journal / Source	Category Relevance
Tour	2015	<i>Language Learning & Technology</i>	Teachers' Attitudes and Perceptions
Cavas, B., Cavas, P., Karaoglan, B., & Kislal, T	2009	<i>Online Submission</i>	Teachers' Attitudes and Perceptions
Ruggiero, D., & Mong, C. J.	2015	<i>Journal of Information Technology Education</i>	Teachers' Attitudes and Perceptions
Cheung, A., & Slavin, R	2013	<i>Reading Research Quarterly</i>	Teachers' Attitudes and Perceptions
Weiss	2016	<i>Rowan University</i>	Teachers' Attitudes and Perceptions
Carver	2016	<i>Turkish Online Journal of Educational Technology-TOJET</i>	Teachers' Attitudes and Perceptions
Lam	2000	<i>Canadian Modern Language Review</i>	Teachers' Attitudes and Perceptions

Gupta, A., & Fisher, D.	2016	<i>MIER Journal of Educational Studies, Trends and Practices</i>	Teachers' Attitudes and Perceptions
O'Bannon & Thomas	2014	<i>Computers & Education</i>	Teachers' Attitudes and Perceptions
O'Bannon, Thomas, & Bolton	2013	<i>Computers in the Schools</i>	Teachers' Attitudes and Perceptions
Pierce & Ball	2009	<i>Educational Studies in Mathematics</i>	Teachers' Attitudes and Perceptions
Afreen	2014	<i>International Journal of Emerging Trends & Technology in Computer Science</i>	Teachers' Attitudes and Perceptions
Estable	2013	<i>Distance Learning</i>	BYOD Issues in Education
Hew & Brush	2007	<i>Educational Technology, Research, & Development</i>	BYOD Issues in Education
McLean	2016	<i>Frontiers in Psychology</i>	BYOD Issues in Education
Kiger, D., & Herro, D.	2015	<i>Techtrends: Linking Research And Practice To Improve Learning</i>	BYOD Issues in Education
Imazeki	2014	<i>Journal Of Economic Education</i>	BYOD Issues in Education
Ruggiero, D., & Mong	2015	<i>Journal of Information Technology Education</i>	BYOD Issues in Education

McKnight, K., O'Malley, K., Ruzic, R., Horsley, M. K., Franey, J. J., & Bassett, K.	2016	<i>Journal of research on technology in education</i>	BYOD Issues in Education
Kiger, D., & Herro, D.	2015	<i>Techtrends: Linking Research And Practice To Improve Learning</i>	Parental Involvement
Wang, X., & Xing	2018	<i>Journal of Educational Technology & Society</i>	Parental Involvement
Wang, X., & Xing	2018	<i>Journal of Educational Technology & Society</i>	Socioeconomic Status
Lacy	2016	University of Missouri--Columbia	Socioeconomic Status
Bromely	2012	<i>The Reading Teacher</i>	BYOD In the Classroom
Weiss	2016	<i>Rowan University</i>	BYOD In the Classroom
Wozney, L., Venkatesh, V., & Abrami	2006	<i>Journal of Technology and teacher education</i>	BYOD In the Classroom
Bruder	2014	<i>The Education Digest</i>	BYOD In the Classroom
Ertmer, P. A., Paul, A., Molly, L., Eva, R., & Denise, W	1999	<i>Journal of research on Computing in Education</i>	BYOD In the Classroom
An, Y. J., & Reigeluth, C.	2011	<i>Journal of Digital Learning in Teacher Education</i>	BYOD In the Classroom

Kinzie, M. B., & Delcourt	1991	<i>Government of Education</i>	BYOD In the Classroom
Gorder	2008	<i>Delta Pi Epsilon Journal</i>	BYOD In the Classroom
Andrew, M. D., & Jelmberg	2010	<i>Peter Lane Publishing Inc</i>	BYOD In the Classroom
McLean, S., Attardi, S. M., Faden, L., & Goldszmidt,	2016	<i>Advances in physiology education</i>	BYOD In the Classroom
Lesnick, J., George, R., Smithgall, C., & Gwynne,	2010	Chapin Hall at the University of Chicago	Students' Learning
Keefe, E. B., & Copeland, S. R.	2011	<i>Research and Practice For Persons With Severe Disabilities</i>	Students' Learning
Janssen & Phillipson	2015	<i>Australian Educational Computing</i>	Students' Learning
Voogt, J., & McKenney, S.	2017	<i>Technology, pedagogy and education</i>	Students' Learning
Thomas & O'Bannon	2013	<i>Journal of Digital Learning in Teacher Education</i>	Students' Learning

Teachers' Attitudes and Perceptions

Over the past twenty years, technology has had a large presence and impact in all educational settings (Cavas, Cavas, Karaoglan, & Kislak, 2009). When discussing technology, it can be easy to only think of it as a tool. In the context of teacher attitudes and perspectives, we are not only looking at technology as a tool, but also as an implementation and a process that occurs in the classroom. Ruggiero and Mong (2015) discuss how it is well known and established that technology cannot be the cure for simply improving classroom instruction. Further, since technology cannot be the teacher of the content, the technology must be the supplement and only a tool used to enhance the learning of the content.

Ruggiero and Mong (2015) discuss that there are multiple sources and degrees of technology integration in the classroom; however, it is the teachers who are responsible for how and when they carry out that integration. It is important for students to learn these skills because sometimes even BYOD programs are implemented in the workplace (Afreem, 2014). There are also barriers that are presented to educators when trying to implement technology and create an impact in the classroom. Ruggiero and Mong (2015) noted:

Many of these barriers, such as professional support and access to hardware and software, have been largely diminished over the last twenty years due to an influx of money and strategies for enhancing technology in primary and secondary schools in the United States (p.14).

In the review of studies done by Cheung and Slavin (2013), the findings indicated that educational technology applications did have a positive impact on reading achievement. "Three studies that directly compared small-group and individualized tutoring with and without well-

integrated technology all found that the use of technology enhanced reading outcomes for struggling first grades” (Cheung & Slavin, 2013, p.297). This is a specific example where technology had a significant impact on achievement. Although this study does not focus on student achievement, it is important to note that teacher attitudes and perceptions can be formed from the results of student achievement in relation to educational technology integration.

Consequently, the impacts of technology being used in the classroom are extensive. “With the continuous improvement of technology, more technological resources are available to improve student learning” (Weiss, 2016, p.15). The impacts are wide and various. “Research has indicated that technology can increase student motivation, attitude, engagement, and self-confidence, while improving organization and study skills (Carver, 2016). There are impacts on student reading, writing, comprehension, and achievement. Lam (2000) discusses how technology is acknowledged as an integral part of teaching in the current age. The article written by Lam (2000) makes the connection that the perceptions of technology by the educator directly affect the students and their perceptions of technology use in education.

Teachers attitudes and perceptions are important to understand how the classroom is affected and how students learn. Gupta and Fisher (2011) state that the teacher is considered the central figure to provide instruction in any classroom learning environment. Teacher behaviors are key in the successful implementation of technology in the classroom (Pierce & Ball, 2009). The teacher and student relationships are directly affected by the learning environment (Gupta & Fisher, 2011). When implementing technology into the learning environment, the teacher is the one responsible for the student learning that will occur (Gupta & Fisher, 2011). Another important note to make from the literature is that the age of the teacher makes a difference in the

perceptions that they may have regarding technology (O'Bannon & Thomas, 2014). O'Bannon and Thomas (2014) discuss that teachers who are 50 years old or older have a significantly less amount of support for technology and mobile device usage.

BYOD Issues In Education

One issue currently associated with BYOD learning is the ability to assess the learning (Estable, 2014). Estable (2014) discusses how this specific delivery format involves inconsistency because of the ability to bring different devices rather than everyone having the same device. One of the reasons that this could be an issue that is faced is because of inconsistent compatibility with platforms of what is being asked of the student.

When considering BYOD programs, students are allowed to bring their own specific device. Programs that are used in the classroom would have to be internet based and would have to be compatible with all devices (McLean, 2016). For example, if an app were to be used that was only available through iTunes the educator would have to make sure that all of the students had an Apple device. If all the students did not have an Apple device, the educator would need to consider a different application or resource for the lesson. Access to technology for some students is a barrier that is noted in the literature (Thomas, O'Bannon, & Bolton, 2013).

Support systems can also be another issue that arises from BYOD implementation. Support systems both on campus and at home are necessary for the implementation to successfully occur. Without technology or administrative support, BYOD implementation can become difficult. Kiger and Herro (2015) state that parents play a large role in the support and effectiveness of BYOD policies. As discussed in the parental involvement section of this

literature review, parental support is key for maintaining a consistent approach to learning especially when it comes to devices.

Imazeki (2014) states that another issue with BYOD policy is the idea that students need to have either a phone, tablet, or laptop. In low socioeconomic areas, this can become a difficult subject to tackle and also something that cannot be expected from students. She also stated that this issue would probably fade overtime, but that those who teach in areas of lower socioeconomic status would probably face this issue.

One major issue of concern brought forward by multiple articles is the ability to provide teachers with proper professional development regarding technology integration. “Teacher training in the United States is one of the most cited reasons for lack of technology implementation in the classroom” (Ruggiero & Mong, 2015, p.163). While teachers may receive instruction on what technology they are getting or what the technology can do, the lacking area is training in how to implement the technology to benefit students and increase the capacity for learning in the classroom. McKnight, O’Malley, Ruzic, Horsley, Franey, and Bassett (2016) discuss the importance of the teaching and learning that is enabled by technology. It is consistently about the integration and use as a tool rather than a replacement. This barrier of implementation is addressed throughout the literature as one specific area for improvement of BYOD implementation (Hew & Brush, 2007).

Since technology integration can be considered a process, it can be difficult to commit to that pathway of creating teacher education that is going to be meaningful to technology implementation in the classroom. “The integration of technology into daily classroom protocols is described below as a way of creating learning, a process, rather than a specific technology

tool” (Ruggerio & Mong, 2015, p.168). Since the integration of technology is a process, teachers can sometimes identify with the specific process they are in. Deciding to learn more, implement the technology, and then learn from it are all different parts of the process.

Parental Involvement

Parental support is crucial to the success of BYOD implementation. Kiger and Herro (2015) state that BYOD policies help to improve access to internet resources as well as digital tools in support of both teaching and learning. Parental support is key to the success and the link to the BYOD programs.

Support is one of the largest factors surrounding students’ situations and the development of their social responsibilities as students. “With the emerging picture of youth and technology usage including cell phones, instant messaging, social networking sites, and online virtual communities, youth are more than ever in need of support to develop socially responsible citizenship in the internet age” (Wang & Xing, 2018, p.186). This founding principle set by Wang and Xing (2018) is an apparent issue that is steadily increasing in educational settings today. With the rise of all the emerging technology, it is important, now more than ever, to look at the support system that has been developed for students to carry out their learning in a responsible manner that falls in line with digital citizenship. Parents are the first in line to the child’s support system to carry out their learning beyond the classroom.

Since parents are in charge of the home environment for the child at all times, it stands to reason that they would be the initial contact that students have regarding technology. “Parents are the child’s first and most influential teachers of civic values and attitude” (Wang & Xing,

2018, p.186). Because parents are in charge of the students' home environment, they control how the student is impacted by the technology in the home environment.

Kiger and Herro (2015) also state that while there is no current research linking parental support and BYOD success, the two can be included in a relationship because of other technology initiatives where parents can help to foster digital learning relationships. Although there is not much literature regarding the parents' role in BYOD and technology integration in the classroom, parents will always serve an important and impactful role in their student's education. This finding provides substantial support that parent involvement and socioeconomic status are large factors that contribute to student learning and in turn teachers attitudes and perceptions towards BYOD programs.

Socioeconomic Status and Its Impact

Because parents are going to be the most influential, it is not only important to understand their role, but also important to understand their backgrounds and economic status regarding income. When looking at the demographics, it is apparent that there is a lack of technology abundance in low socioeconomic areas. Wang and Xing (2018) report that ethnic minority groups are less likely to use technology and that students from lower socioeconomic backgrounds had fewer opportunities to use some of the media tools that are being created. Students are severely impacted by the lack of access to this technology and these media tools, thus hindering their ability to grow with this technological phenomenon.

A specific and pertinent issue to the campus selected for this study is socioeconomic status. The divide of technology ownership is evident throughout the homes of America and even

more so through our students in our classrooms (Anderson, 2014). As Anderson (2014) discusses, this digital divide is in more than just ownership.

The divide also exists in the access to content and knowledge that can increase student learning and success. Lacy (2016) discusses the gap and how we try to address it with technology initiatives like BYOD and 1:1 programs. This is always a topic of discussion among teachers and educators as we try to improve programs for students. There has to be a consideration about whether or not technology is present because of socioeconomic status. Can the community or the school system come in and support that initiative?

“Youth that are systematically excluded from technology-mediated networking may also lose out on opportunities to develop technical skills, social interactions, and relationship networks” (Wang & Xing, 2018, p.188). Consequently, there are negative effects for students not being able to use or have access to digital technology. This concept is called the “digital divide”. Wang and Xing (2018) explain that when students are excluded from using technology because of income and resources, this creates a divide in the equality of the learning process. “The term “digital divide” describes the concern about unequal access and participation in new technologies.” (Wang & Xing, 2018, p.188) Wang and Xing (2018) also discuss how the research that is presented shows that teens’ digital access to technology is considered highly unequal. This is evident in the review of the literature. It is a combined effort from educators and school systems to mend this digital gap.

One of the major findings that Wang and Xing (2018) present is that parents’ socioeconomic status has a significant relationship with digital access, digital etiquette, and digital safety. This finding provides substantial support that socioeconomic status is a large

factor that contributes to student learning. The next section of this review will discuss BYOD in the classroom.

BYOD In the Classroom

There are different reasons that we can integrate technology into the classroom. Bromley (2012) discussed the use of smartphones to supplement classroom reading. “Using my smartphone, I synthesized what I read in the book and extended my connections to the world” (Bromley, 2012, p.341). Because the students are allowed to use their smartphone, they also feel liberated to access a plethora of information. “To comprehend better as I read, I used my smartphone to explore online resources” (Bromley, 2012, p. 342).

Her last statements in the article discuss how supplementing the classroom with smartphones can acknowledge and build on students’ out-of-school literacies while they are becoming proficient with school goals (2012). This is only one example of how BYOD can be used in the classroom. There are infinite possibilities on how to use BYOD and technology in the classroom to align with instructional goals (Bruder, 2014).

Another example of major technology use in the classroom that is happening nationwide is the expansion and wide use of e-textbooks. “In terms of student text preference, survey results showed that they preferred the e-text over the printed book” (Weiss, 2016, p.41). The study conducted by Weiss (2016) shows the preferences of secondary students in a traditional classroom. However, the study notes that teacher guidance in the technology implementation is crucial to student’s success in the course. “While technology continues to improve and develop,

students may struggle to be more successful in the academic classroom without teacher guidance in the use of this technology” (Weiss, 2016, p.44).

Wozney, Venkatesh, and Abrami (2006) discuss that the two most important issues in differentiating levels of technology use by teachers are expectancy of success and the perceived value. When considering these two factors, teachers base their perceptions and experiences on the expectancy of success that they have for the implementation in their own classroom. This is directly linked to the perceived value that the teachers have on the use of the technology in the classroom.

If the teacher does not have or perceive value in using the technology in the classroom, the students cannot benefit from it. Ertmer, Addison, Lane, Ross, and Woods (2000) state that while teachers understand the importance of implementation of technology in the classroom, the success can be hampered by both internal and external barriers and ideas. These two findings have a relationship in that they portray the same concept. The success of the students and success of implementation directly relates to the teacher’s perceptions and attitudes towards the use of technology in their curriculum and classrooms.

The discussion of these barriers continues throughout the literature. An and Reigeluth (2012) discuss teachers’ beliefs and perceptions regarding technology. “Findings from the Technology Beliefs section of the survey revealed K-12 teachers’ positive attitudes toward the use of technology in teaching and learning” (An & Reigeluth, 2012, p.57). The discussion is related to many other articles in the same fashion that the beliefs of the educator regarding technology use and implementation directly affect the students and the classroom. This is supported by the study completed by Kinzie and Delcourt (1991) which discusses how teachers

that implement computer technologies are likely to be important role models for their students and help to promote positive student attitudes as well.

“Effective integration of technology is the result of many factors, but the most important factor is the teachers’ competence and ability to shape instructional technology activities to meet students’ needs” (Gorder, 2008 p. 63). This statement exemplifies the meaning of technology integration. In order for the students to have technology applied in their classroom, the teacher must first understand how to use and integrate the technology.

This article on teacher perceptions of instructional technology integration in the classroom by Gorder (2008) is an article in that the methods presented really show what is to be found about technology in the classroom. Their research showed that although integrating technology into the classroom is the best practice, teachers are more willing and able to use technology for professional productivity and to facilitate and deliver instruction. “From the research analysis for this study, findings indicated that teachers are able to use technology for professional productivity and to facilitate and deliver instruction better than they are able to use technology for integration into teaching and learning” (Gorder, 2008, p. 73).

Bring your own device policies are being implemented in schools across the United States, as well as, countries around the world (Janssen & Phillipson, 2015). Andrew and Jelmberg (2010) note in their study that currently we are in a state of outcome-based education, where schools need teachers who can implement educational reform and transform student learning. These are the expectations of teachers in the current teaching arena. While it can be difficult to provide each student with technology, BYOD implementation gives students a chance to bring their own technology to school (McLean, 2016). There are two main ways of

implementing technology that are discussed in the article by McLean (2016) as one to one provision and BYOD. The phrase one to one means that each student is provided with their own device to use at the school and at home.

Each of the two ways of providing technology access have strengths and weaknesses. For one to one implementation the cost of the technology and the limitation of only being able to use it at school (for some schools) are downfalls (McLean, 2016). For BYOD, low socioeconomic situations where not all students have devices to bring can be a downfall. The strength in both of these is that there is technology that is accessible and being used at the campus level.

Students' Learning

Technology use in education is widely accepted as a positive form of implementation that creates a positive impact on student learning (Thomas & O'Bannon, 2013). While reviewing the literature in reference to student learning, student achievement in literacy due to technology implementation was addressed. In education, a lack of reading skills can tremendously impede the growth of a student and eventually steal their success from them. Students who are not able to read well in earlier grades are more likely to be at a higher risk of performing poorly later in their education, having problems both behaviorally and emotionally, and dropping out of school early (Lesnick, George, Smithgall, Gwynne, 2010).

The definition of literacy is very broad. "It is surprising how often the literature discusses research, conceptual frameworks, and approaches to teaching literacy (often characterized as reading and/or writing) without explicitly defining what is meant by these terms" (Keefe & Copeland, 2011). For the purpose of this study, we will define literacy as the ability to read and

write. This is one of the international definitions of literacy according to Keefe and Copeland (2012). When literacy is addressed as a tangible skill its relationship with educational technology can then be measured.

Reviewing literacy and educational technology in the classroom, several relationships were uncovered. “Both teacher educators in early literacy and in technology are not aware of the evidence available about software applications with an added value for early literacy” (Voogt & McKenney, 2017, p.78). One of the solutions presented by Voogt and McKenney (2017) was to have both early literacy educators and technology education experts collaborate and discover the best route for implementation of technology specifically for early literacy. In conclusion, these sections of the literature review combined contribute to the creation of the conceptual framework of this study.

CHAPTER III

METHODOLOGY

For the purpose of this study, the methods of inquiry were rooted in narrative qualitative research. The reason this approach was selected was because this approach allowed for details and experiences to be explained by the teachers. This helped to further understand the teachers' positions in their attitudes and perceptions towards BYOD in the secondary classroom. Clandinin (2006) and Leavy (2017) developed the theoretical frameworks on which this study was built. Specifically, the interview format presented in Leavy (2017) was used to structure the in-depth interview process. This positionality allowed for exploration of teacher stories to identify and justify their experiences.

The narrative inquiry approach to this qualitative study was chosen for the richness and depth of the data that was produced. The study and stories of the participants allowed for a thematic analysis to take place (Clandinin, 2006). Clandinin (2016) discussed the studying of teacher's lives and experiences in narrative inquiry and gave the inspiration for the methodology design and analysis of this specific research. Because of the success of Clandinin (2016) in using thematic analysis for teachers' lives and experiences, I decided that this would be an appropriate approach to the analysis and method of inquiry for this study. Having quality data that was going to provide insight into the stories of the teachers and put their perspectives and attitudes to light was important to the value of the study.

Setting of the Study

The setting of this study took place in a low socioeconomic area at a secondary campus where 100% of teachers have BYOD classrooms. The demographics of the campus are mostly low income and the majority of students are Hispanic. “There are a total of 1,054 students and 79 teachers ..., for a student to teacher ratio of 14 to 1” (Areavibes, 2019). According to Murphy and Daniel (2015), 94% of students who attend this campus are Hispanic and that 74% of the student population is economically disadvantaged (which is 15% higher than the Texas percentage). Also, 60.8% of students are considered at risk of dropping out of school and 6.9% of students have Limited English Proficiency (Murphy & Daniel, 2015).

This specific school only has 9th grade students and first-time freshmen. There is a high demand for districts to implement BYOD in South Texas (De Kock & Futcher, 2016). The demands of this specific district are outlined in their action plan for BYOD implementation. This action plan can be found in Appendix E. This is evident through the various methods of technology implementations into the action plans of South Texas school districts. This is unique because there is a high demand for the use of this technology, but also a high percentage of students that are of low socioeconomic status. Appendix G shows the adaptations that are made to the document for Spanish speaking parents or bilingual homes.

Since the campus is 100% BYOD, all teachers on the campus have been implementing BYOD practices in their classrooms since the beginning of the school’s operation. Because of this school policy, this campus was selected for the study. The study took place on campus in a neutral classroom setting. The interviews were conducted in the morning before school and also in the afternoon after school. Teachers were asked to come in to fill out the informed consent

form and were given information about the study prior to conducting the interviews. After teachers came in to fill out forms, they completed the interview process.

Participants

For this study, purposive criterion sampling was used. This allowed for me to seek the most favorable cases for the study to produce the most comprehensive data (Leavy,2017). Participant selection required that the participant was a teacher at the selected secondary campus. This was also a natural setting for the teachers allowing for a comfortable environment for them during the data collection. Making sure that the teachers felt comfortable and in a neutral setting was very important for the interview processes.

The teachers needed to have at least 3 years of experience teaching in the secondary classroom and have at least 2 years of experience on this specific campus to be considered for the study. All age ranges were applicable as well as gender. This campus was selected for the fact that all teachers at this campus have access to BYOD and tablets in the classroom. This is a designated BYOD campus. The target sample size for this study was eight participants. To select the eight participants there was a process that took place. First the researcher met with the principal to confirm the study and the participant process. The researcher was advised by the principal that an email would be appropriate to seek participants from the school. Teachers were advised to come sign up for the study at their convince if they met the criteria. Once the eight participants came in and signed the informed consent, the study began. Since there are approximately 80 teachers employed on this campus, this is about 10% of the teacher population.

The information rich cases that were collected allow for the in-depth interviews to be successful and for the thematic analysis to take place. The setting for the research is a secondary campus in a low socioeconomic area. The actual interviews took place either before or after school hours on the campus. The semi-structured one on one in depth interviews were held in a regular classroom. The following table describes the participant demographics in detail.

Table 2

Participant Demographics

Name (Pseudonyms)	Age	Race/ Ethnicity	Years of Experience Teaching	Years of Experience in BYOD	Highest Degree Completed	Male/ Female
Juan	40	White / Hispanic	13 years	5 years	Bachelor's	Male
Danielle	34	White / Hispanic	7 years	7 years	Master's in Education	Female
John	29	White / Hispanic	7 years	5 years	Bachelor's	Male
Ricardo	32	White / Hispanic	6 years	5 years	Bachelor's	Male
Luis	27	Latino / Hispanic	5 years	3 years	Bachelor's	Male
Stephanie	24	White / Hispanic	3 years	3 years	Bachelor's	Female
Linda	34	White / Hispanic	10 years	6 years	Master's in Education	Female
Samantha	29	White / Hispanic	7 years	6 years	Master's in Education	Female

Table 2 summarizes all demographic information from all eight participants who were interviewed for this study. The participants varied in age from 24 years old to 40 years old. All of the participants were of Hispanic ethnicity. Years of teaching experience in secondary classrooms were listed as well as each teacher's years of experience in the BYOD classroom. The teacher's highest level of education was also noted in the demographics table. The demographics shown in the table contribute to the overall comprehensiveness and relevance of the study.

The first participant listed in the study is Juan. Juan is a 40-year-old male and native of South Texas. Juan is the oldest participant in the study and is also the teacher with the most experience overall. He is Hispanic and has received a bachelor's degree as well Juan has completed 13 years of teaching in the secondary classroom and 5 years of teaching in a BYOD secondary classroom.

Danielle is the next participant listed in the study. Danielle is 34 years old and a female. She has completed her master's degree in education. She has been teaching for 7 years in the secondary classroom and all 7 of those years she has also been in a BYOD classroom. John is the next participant listed in the study. John is also Hispanic and has completed his bachelor's degree. John has completed 7 years of secondary teaching with 5 of those years in a BYOD classroom. Ricardo is very similar to John. Ricardo is 32 years old and Hispanic. He also has a bachelor's degree. Ricardo has 6 years of secondary classroom experience and 5 of those years have been in a BYOD classroom.

Luis is 27 years old and Latino/Hispanic. Luis is a South Texas native and has lived in South Texas his entire life. Luis has a bachelor's degree and has 5 years of overall teaching experience. Luis has 3 years of experience in the BYOD classroom. Stephanie is the youngest participant at 24 years old. She, as well, is Hispanic and is also a South Texas native. She has lived in South Texas for all of her life. Stephanie has received her bachelor's degree and is in pursuit of her Master's degree. Stephanie has 3 years of experience overall in the secondary classroom and all 3 of those years were in a BYOD classroom.

Linda is the oldest female of the study at 34 years old. Linda is Hispanic and is originally from the Dallas, Texas area. Linda is the female with the most experience in the study at 10 years of teaching in the secondary setting. She has attained her master's degree and has spent 6 years teaching in a BYOD classroom setting. Samantha is the last participant listed in the study. She is 29 years old and Hispanic. She has been teaching for 7 years as a secondary teacher and 6 of those years were in a BYOD classroom setting. Samantha has attained her master's degree in education.

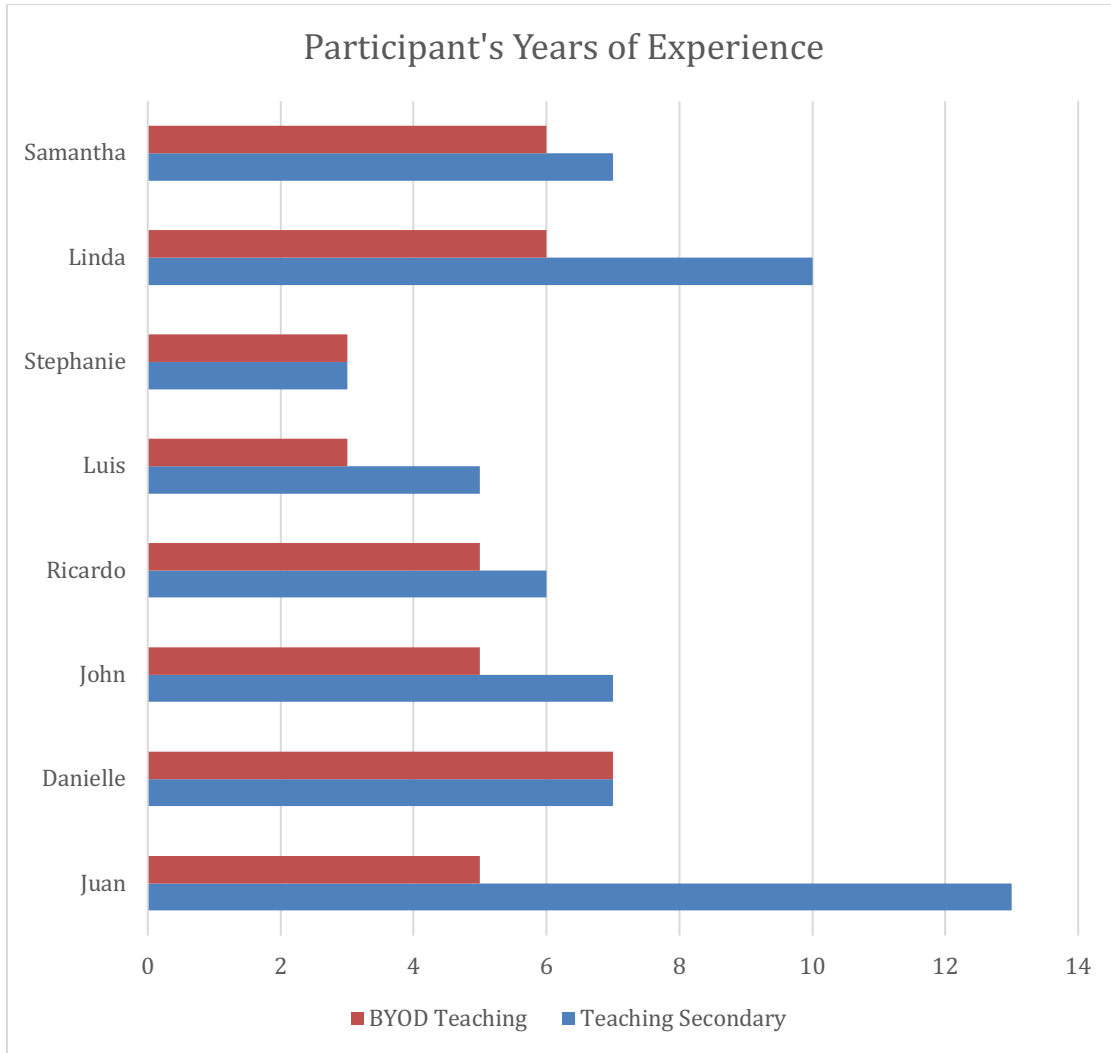


Figure 2. Participant's Years of Experience.

This figure (figure 2) notes the years of experience for all participants. It is important to note the range of years teaching from early teachers like Stephanie to veteran teachers like Juan and Linda. This range in the years of teaching for participants allows for multiple viewpoints to be presented and for the data to have that range of variability as well.

In the second half of the table, BYOD teaching experience is noted in the form of years. Everyone fell in the same range in the BYOD teaching experience arena. This was a phenomenon that could be explained by the establishment of the campus as a BYOD campus 6 years ago when it had opened. Despite the range of the overall years of teaching, everyone that was interviewed had similar positive experiences with BYOD in the classroom. The only exception was the fairly new teacher who had 3 years of teaching experience overall, but even then, all 3 of those years were also BYOD years of experience. Therefore, this fairly new teacher qualified for the study.

Gender

It is clear from table 1 that both genders reported are equally represented in the study. Because of the purposive sampling, we were able to represent both male and female genders equally in the study. While gender may not seem to be of major impact, it has a huge impact regarding attitudes and perceptions. Even representation of both reported genders is necessary for the equal representation when discussing teachers.

Age

The age range representation in table 1 resembles an equal balance. There is no overpowering groups that are represented in the age groups. There is only one participant in the youngest division, equal representation in the two middle aged groups, and only one teacher in the oldest division. This spread out representation of age within the teachers was included as part of the purposive sampling. Using this technique allows for us to determine what the views are of both new teachers and veteran teachers from all age groups.

Highest Level of Education

While the highest level of education was not exactly equal, there was not an overbalance of one category. Five of the eight participants had a bachelor's degree while 3 participants had a master's degree in education. This shows the qualifications of the participants and also that there was variability in their educational levels. So, the study presents what both a Bachelor's graduate and also what a Master's graduate perceives regarding BYOD education in the secondary classroom. One thing to consider regarding the higher levels of education is that all of the participants that have a higher level of education are female. A male with a master's degree is not portrayed in the demographics of these participants.

Materials

The materials needed to complete this study included the audio recording feature on the computer, a journal and pen for field notes, copies of the informed consent for the participants, and a table and chairs for the interview. These materials and the availability of the materials

helped the study focus on the content. After the interviews were completed, the computer was used for data analysis, editing, and creation of the manuscript.

Instruments

For this research study, a semi structured interview was used to collect the data. For the interview, I formulated a guide of questions that helped to spark conversation and get the interview started. The question format can be viewed in Appendix A. For the first part of the interview process, we began talking about the teacher and who they were. Demographics and the educational background were the main focus of this part of the interview.

Teachers were asked the demographic questions and also given the option to not answer the demographic questions if they did not want to. All participants decided they would answer the demographic questions D1- D5. D1 asked the participant to specify their Race and Ethnicity. D2 asked the participant to specify the highest degree or level of school they had completed and if they were currently enrolled to state the highest degree received. D3 asked the teacher to explain what subject they taught. D4 asked the teacher to state their age. Lastly, D5 asked the teacher to explain how many years they have been teaching secondary level students. After the teachers completed the questions regarding demographics, we moved to questions focusing on their actual experiences with BYOD in the classroom.

To begin this section of the interview, teachers were first asked what their first thoughts were when thinking of the words Bring Your Own Device in the classroom. Time was given for each teacher to talk about their thoughts and experiences in these areas. The next question asked to the teachers was: how has BYOD been beneficial in your classroom? Right after answering

that question, teachers were probed with how BYOD had been a hinderance in their classroom. After giving the teachers time to answer those questions and share stories, we moved on with the next questions. Teachers were then asked about how they felt regarding any training that they had or had not received regarding BYOD integration for their classroom. Teachers were lastly asked if there was something about BYOD in the classroom that they could change, what would it be and why.

The research interview questions were carefully created to be unbiased and also provided plenty of opportunity for teachers to explain their stories so that their voices could be heard. The demographic questions were provided to analyze the different types of teachers that were interviewed and determine if there were any relationships to the data that was found.

Research Design

The research design was implemented to answer the following research questions: What are teachers' attitudes and perceptions towards the implementation of BYOD in the secondary classroom? And, what experiences do teachers have that have shaped their attitudes and perceptions of BYOD programs in the secondary classroom?

These research questions were created to intentionally investigate teachers' stories and provide teachers with the opportunity to voice how they feel about their own attitudes and perceptions regarding BYOD in the secondary classroom. Since the research was addressing teachers' attitudes, perceptions, and feelings, a qualitative approach was taken to the study. This provided for those actual teacher stories to come to light and for deeper understanding of the research problem. After creating the research questions, positionality was found in the semi-

structured interview process. This qualitative design provided the opportunity for teachers to voice their opinions while giving the study the rich data that was needed to create a trustworthy analysis and bring our findings to the educational community.

Data Collection

The data was collected through various in-depth interviews. The in-depth interview method is drawn from Leavy (2017). The data analysis followed the structured proposed by Leavy (2017) with (1) data preparation and organization, (2) initial immersion, (3) coding, (4) categorizing and theming, and (5) interpretation. This allowed for individual teacher stories, and the stories could also be connected since all of the teachers are working on the same campus with only 9th graders. There are not any other age groups present and there are not any teachers that are not from this specific campus. This keeps the data collection very clean and allows for more trustworthiness and validity in the study.

The pre-procedure for this study included getting approval from the dissertation committee for the study, the correct approval from the IRB, approval from the school district, and getting consent from participants. After this was accomplished, a meeting was set with the principal of the school so that we could go over the information of the study that was conducted. Following that meeting, an interest email was sent to teachers at the campus. Interested teachers were able to come in the morning or afterschool to sign their informed consent and complete the interview process. The interview process took about 25 minutes. Each teacher was interviewed one time. Field notes and reflection notes were also taken during and after each interview. The informed consent and audio consent forms were first discussed and signed. After the informed

consent was taken care of, the audio recording was turned on and the interviews began. During the interview, the researcher had her notebook available to take observational notes on emotions, attitudes, or other feelings that were expressed throughout the interview. Immediately after the interview, the researcher took the field notes and reflections on the interviews that had taken place. The school district was widely accepting and helpful throughout the research process and provided me with all of the resources the researcher needed to complete the study.

Observational Notes and Researcher Field Notes

The researcher kept observational notes while completing the interviews. From the moment the audio recording was on to the moment that it was turned off was the period of time in which the observational notes were taking place. These notes were to help the researcher to understand the feelings or emotions that were being portrayed during the interview process.

The field notes were taken after each interview. These included the researcher's thoughts on the interviews and what stood out the researcher during each of the interviews. These notes were kept together in the same notebook. The researcher's feelings and interpretations were taken as field notes after each interview. The researcher had a range of 250 to 300 words recorded in the field notes section for each participant.

Role of the Researcher

The role of the researcher for this study was to gain an understanding of the teachers' attitudes, perceptions, feelings, and emotions regarding the use of BYOD programs in their secondary classrooms. I am the researcher, who also had the role of completing the interviews.

Following the qualitative research process provided by Fink (2000), the researchers role included theming, designing the research, interviewing participants, transcribing, analyzing, verifying the results, and then reporting the results. These methods in the qualitative process were carried out by the researcher in this specific order.

Trustworthiness

The purpose of this section of the methodology is to explain the issues of trustworthiness and credibility that may arise from this research study. It is very important to develop trustworthiness of data in a qualitative research study (Creswell, 2007; Merriam, 1998; Rubin, 2000). Trustworthiness is established for qualitative research that addresses credibility, transferability, dependability, and confirmability (Gay et al., 2009; Lincoln & Guba, 1985; Yin, 1994). While every effort is made to increase both trustworthiness and credibility, there are still issues that can arise in any study. Issues of trustworthiness and credibility are crucial to the validity of this study.

One issue of trustworthiness in this study is the issue of interpretation. Since there is much interpretation involved in qualitative research, it is possible to create a research bias through the evaluation of the research. This is addressed by having the triangulation method in place to prevent this issue. To address issues of credibility, once again the independent rater and the comparison of the results are provided in the results section to address any issues of credibility that might arise.

Credibility

The thematic analysis is able to identify specific words that were being used consistently throughout all participants' answers. The only issue of credibility here is the part of the conversation that is non-structured. For that specific part of the interview, it is difficult to find consistency between participants without having the same types of conversations. This is why there are two parts to the interview. A highly structured section for thematic analysis and the in-depth unstructured section is for the in depth study of that specific person's case. The theory for this credibility section is rooted in the theory of reliability in qualitative design presented by Leavy (2017).

Triangulation. For this section of the methodology, the triangulation process that was used is explained. For the triangulation, an independent rater conducted a thematic analysis as well as the descriptive coding process of the same data as the researcher. The interviews were rated by the independent rater so that they could be compared to the data of the researcher. Those results are displayed in Chapter 4 of this manuscript.

This process increases the trustworthiness and credibility of this research study. "Qualitative inquirers mindfully employ a variety of techniques to increase the trustworthiness of the research they conduct; that is, how much trust can be given that the researcher did everything possible to ensure that data was appropriately and ethically selected, analyzed, and reported" (Carlson, 2010, p.1102).

The use of the independent rater and the combination of data adds to the use of triangulation in this research study as qualitative research. "Triangulation refers to the use of

multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena” (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014, p.545). The independent rater was charged with the same data analysis as the researcher. The independent rater had access to the data and was allowed to do their own thematic analysis and coding. This allowed the rater to create their own conclusions to be compared and analyzed along with the researcher’s findings.

Confirmability

Each qualitative study is individual to the researcher. “Confirmability refers to the degree to which the results could be confirmed or corroborated by others” (Trochim, 2006). The strategy in this study to enhance the confirmability of the study is member checking and the rechecking of the data throughout the study. The data has been checked multiple times by two different people to make sure that the results could be confirmed or corroborated by others. The researcher was able to confirm the transcriptions of the study with each of the participants via face to face communication.

Creating confirmability in this study helps to present this study to the educational community with confidence that it will enhance the current literature that is available. This is a crucial part of the study that creates relevance to both this issue and the problem that is presented by this research study.

Dependability

Lincoln and Guba (1985) stated that dependability is the ability to show consistency in the research and the idea that this research could be repeated. This issue of dependability was also addressed by the use of the independent rater. These external audits allow the research findings to be challenged by an outside source to discover the dependability of the results (Miles & Huberman, 1994). The independent rater had the data and conducted their own analysis of the data. The pre-procedure and procedure instructions would clearly allow another researcher to perform the same study again and repeat it in the same fashion.

Transferability

The last section of evaluative criteria established by Lincoln and Guba (1985) is transferability. Lincoln and Guba (1985) explain that transferability is the ability to use the results of this study to apply it to multiple contexts. This study is applicable to multiple contexts as it can be impactful in the areas of teacher perceptions, teacher attitudes, education, technology, and student learning. Because the setting and participant procedures were described in depth, this study could transfer to another researcher using a similar setting to attain similar results.

Another technique that was used to establish transferability in this study was thick description. Thick description is the use of detailed account of field experiences by the researcher with the application of those field experiences in the results of the study (Holloway, 1997). This is an example of the study achieving external validity (Lincoln & Guba, 1985). This idea of thick description is grounded in the work provided by Ryle (1949) and Geertz (1973).

Data Analysis Methods

Following the eight semi-structured interviews, the interviews were transcribed. The interviews were transcribed by the researcher directly. This allowed for the thematic analysis and the coding of themes and correlating ideas to occur. The coding has been done according to descriptive coding. To guide the descriptive coding, the guide of Saldana (2014) is being used. This coding allows the use of nouns to summarize the data. This was a key element in the analysis of the data. The data is then categorized and themed to allow for interpretation by the researcher. Along with the transcriptions, field notes and reflections were also taken by the researcher. These three documents together are considered the data sources for the research. Data sources for this project include an observational notes from the interview and the semi-structured interviews. This process is guided by the method provided by Leavy (2017). After the data had collected and themed, the researcher analyzed and reported the insights that they had found. At that point, the independent rater was asked to also review all of the documents and provide their own report and insights to what they had found. The two analysis reports were then combined to create the results of the study. Following the creation of results, the report of conclusions and summaries were created.

CHAPTER IV

RESULTS

This chapter presents the results of the analysis completed from the interviews that were conducted for the study. First the researcher's results are presented. The independent rater section identifies the independent rater findings. The comparison section reveals the comparison analysis of the researcher and the independent raters' findings. Several themes were identified in the study and include: a) teachers' positive experience with BYOD in the classroom, b) teachers' definitions of BYOD in the classroom, c) teachers' perceptions of BYOD in the classroom, and d) teachers' reflections of BYOD in the classroom.

From the teachers that were interviewed, the experience of the teacher varied from 3 years in the classroom to 13 years in the secondary classroom. 5 males and 3 females were interviewed. The ages of the teachers ranged from 24 years old to 40 years old. All teachers had experience with BYOD in the classroom because of the location of the study. The study was conducted at a BYOD campus where everyone is informed of the BYOD guidelines that have been set forth by the school district. The teachers stated multiple and various experiences with BYOD in the classroom.

Researcher's Findings

Positive Experiences

All teachers that were interviewed were able to recall exact experiences with their students where BYOD was implemented in their classroom. From those experiences, it was clear there was a theme of positive experiences with BYOD incorporation in the secondary classroom.

Juan stated:

I remember one particular student and, or many students, when I would set up an assignment. I would say ok this is the TEK for the assignment and I would explain the TEK on the board and the students would use their device to create three d models and create videos to explain that specific TEK back to me. I think that they were guided by themselves to learn.

While discussing experiences of BYOD in the classroom, this participant was very excited and smiled while explaining his experiences. The positive experiences were not only explained by the teacher, but also felt by the researcher. It was clear that this meant much more to him than just being a teaching strategy. This teacher was very passionate about using technology and having students use their device in the classroom. As we continued to go through the interview, Juan also explained his number one technique for implementing BYOD in the classroom. He stated that currently, he uses research as the main technique for using BYOD in his class.

“Basically, all you can do right now is research as the best technique for using BYOD right now.”

Communication

While continuing to the next participant, she also had a positive experience to share about her students using BYOD in her class. It is important to note that teachers were only asked to share an experience of using BYOD in the classroom. The teachers were the ones that were sharing how positive the experiences were. Danielle stated:

I had a student who was constantly absent, and they were actually able to keep up with my classroom assignments and lectures because I do have a class website. So, they utilized that at home, and they were able to follow along with that while they were out. Danielle's response here was profound. This showed that there was a direct effect on a student where they could have access to resources that would not be possible without BYOD.

Essentially, the teacher correlated the student's success in the class to the BYOD. If the student had not been able to access the resource, they would have fallen very behind in the class due to their absences.

Another positive experience that was mentioned by participants was communication. John stated:

Its an easy form of communication. For example, with the google classroom we have been using this year. It allows for us to communicate with the students outside of the classroom as a whole. It helps with reminders, keeping them on track, and making sure they are on top of things.

Communication is key to student success in the classroom. When expectations are clearly communicated to students, students are able to rise to the occasion. If there are extra

opportunities to communicate, such as through the google classroom, then students' misconceptions and questions can also be addressed. This gives advantage to both the students and the teachers. Also, creating this virtual learning environment allows students who are not comfortable to ask questions in person to go ahead and ask them while online. Once again, providing an opportunity that might otherwise be overlooked.

The teachers had various descriptions and definitions of what BYOD in the classroom meant to them. One sub-theme that was recurring during the different interviews was that BYOD was another way to communicate with their students. In reflection from the interviews, the researcher noted that teachers are always looking for new ways to communicate with students in the new digital age. BYOD is defining of that very goal. Danielle supported that by stating: "I use a lot of collaborative learning and using a classroom website where students can access all of the assignments and lectures that I do."

Communication is a key item that is essential to learning in the classroom. As an educator, this is a fundamental element of teaching that is taught early in curriculum and instruction. The ability of BYOD to be able to facilitate that process speaks volumes to the capacity it has to be able to change the way we communicate with students. In the researcher's field notes, the researcher discussed how she felt that communication was a key element in the implementation of technology and specifically BYOD into the classroom. She recalled that the teachers while they had various experiences, all had a form of communication through the devices that were being used in the classrooms.

Teachers' Perceptions of BYOD in the Classroom

The perceptions of BYOD provided in the classroom were directly related to the environment and setting of the BYOD teacher. One teacher noted that previously the school had been very focused on BYOD and that made a huge difference for him in his class. Juan stated:

When the school was all for BYOD, that was a great year. But then we started to restrict the students time on the devices and that caused a decline in the student's ability to use the technology. Students do need to be able to use their device, because for some students that is the only way to learn. It's the future and it's our future.

This teacher was very specific in how he felt about the BYOD program. He stated that restrictions inhibit his ability to be able to fully extend those benefits to his students. Another teacher, however, stated that restriction helps to keep the student use of devices under control. John stated: "I feel that it works well as long as it has its limitations. It's being used effectively to where it is helping the students learn and they are not being distracted by it."

In discussion with Luis, he stated that using the BYOD program allows his students to be able to save passwords to important programs such as google classroom or AP college board websites and that really helps alleviate a big struggle. "It is easier, so I encourage it." (Luis) The researcher also had field notes on the perceptions of teachers regarding BYOD in their classrooms. During the interviews with both Luis and Juan, it was evident that they both perceived the BYOD program as something that was positive. They both had these perceptions that it was a great tool to be used to enhance the learning of the students, not replace their roles as teachers. The emotions that they revealed during the interviews also showed that they were

not just positive regarding the technology, but also excited to use it and continue using it in their future endeavors.

Teachers' Reflections of BYOD in the Classroom

A sub-theme identified in the reflections of the teachers was that BYOD in the classroom is something that all classrooms should have or incorporate. Danielle elaborated on the use of BYOD in all curriculums. The basis of this argument or reasoning is that since the current population is relying on technology, we as educators should at least try to incorporate that into our curriculum. Danielle stated that “I believe it should be included in all curriculums since technology has become the norm for all students. They use it every day so we might as well incorporate it into our lesson plans.”

Another observation that was noted was Stephanie’s reflection on BYOD in the classroom. Stephanie stated:

As a new teacher, sometimes it is hard for me to incorporate BYOD or technology into the classroom. While I love to use new and exciting things, I would like to have more education in this area, so I can do it the right way for the kids. You know? If we want the best for our kids, we also have to give the best for our teachers.

Using BYOD in secondary settings, allows the students to have self-discovery moments and really take assignments to the next level of inquiry. Ricardo stated: “I feel like students learn a lot more when they find the answer for themselves. Yes, you can find the answer yourself.”

The participants all had similar comments that all teachers should be able to use BYOD and that

they had a positive reflection towards it. John spoke about having a positive reflection towards BYOD because the rules create a place for it to occur. Danielle stated: “I am supportive of our BYOD policy and I feel that every teacher should be given the opportunity to incorporate that into their curriculum.”

One of the sub-themes identified under reflections of the teachers is the importance of BYOD in low socioeconomic status schools. While discussing reflections and the perceptions of Ricardo, the participant elaborated on this issue:

I feel like there are opportunities given to students when they are able to use BYOD. Last year, when we were able to give students devices of their own from the Sprint grant, I noticed that my students were more confident to complete homework and in class activities that required BYOD.

Linda also felt that it was important to grow the community by providing those opportunities to students who might not otherwise get to experience it. Linda stated:

When my students received devices to use in my class, it broadened my tool box. At that point, I was able to take them to the next level of learning because we were able to have research and field experiences. I think that BYOD programs are so needed for the growth and development of these kids that are going to have to eventually learn how to use them.

Samantha had also stated that he felt it was important for us to give access to devices for our students. Samantha stated:

I think that using BYOD in the classroom not only helps the students learning wise, but it helps them to also become socially aware and learn the skills they

need for outside the classroom. We teach in a very low-income area, so providing enrichment and encouragement in everything we do is important.

Luis elaborated on his positive reflection towards implementing BYOD learning in his classroom. When asked about his personal reflection and perception of BYOD, he stated: “Positive. I encourage it. It’s very easy to manage. Just put your ground rules and they should follow it.”

Independent Rater Findings

The independent rater is a 30-year-old male educator. This educator has a master’s degree. A male was selected since the researcher is a female to provide a separate view point than the female researcher. Also, the age range is within one year of the researcher as well. The rater and the researcher also have the same level of education which provides for the independent rater to be compared to the researcher in those regards.

The findings of the independent rater were right in line with the researcher. Similar, if not exactly the same, codes and themes were identified. Those themes and codes will be described in this section. This compatibility of the independent rater and the findings of the researcher provide the trustworthiness and credibility of this study to be of value to the educational community.

Independent Rater Coding

The independent rater identified the following codes: positive, opportunity, experience, and easy. The positive code was identified the most with a total of 21 times noted by the

independent rater. The code of opportunity was noticed by the independent rater and was identified 5 times. Experience was highly noted by the independent rater as a code and was mentioned 18 times as noted in their report to the researcher. Easy was another code that was identified, and it was reported 8 times throughout the total interviews that were completed. A summary of the coding data can be shown in Figure 3.

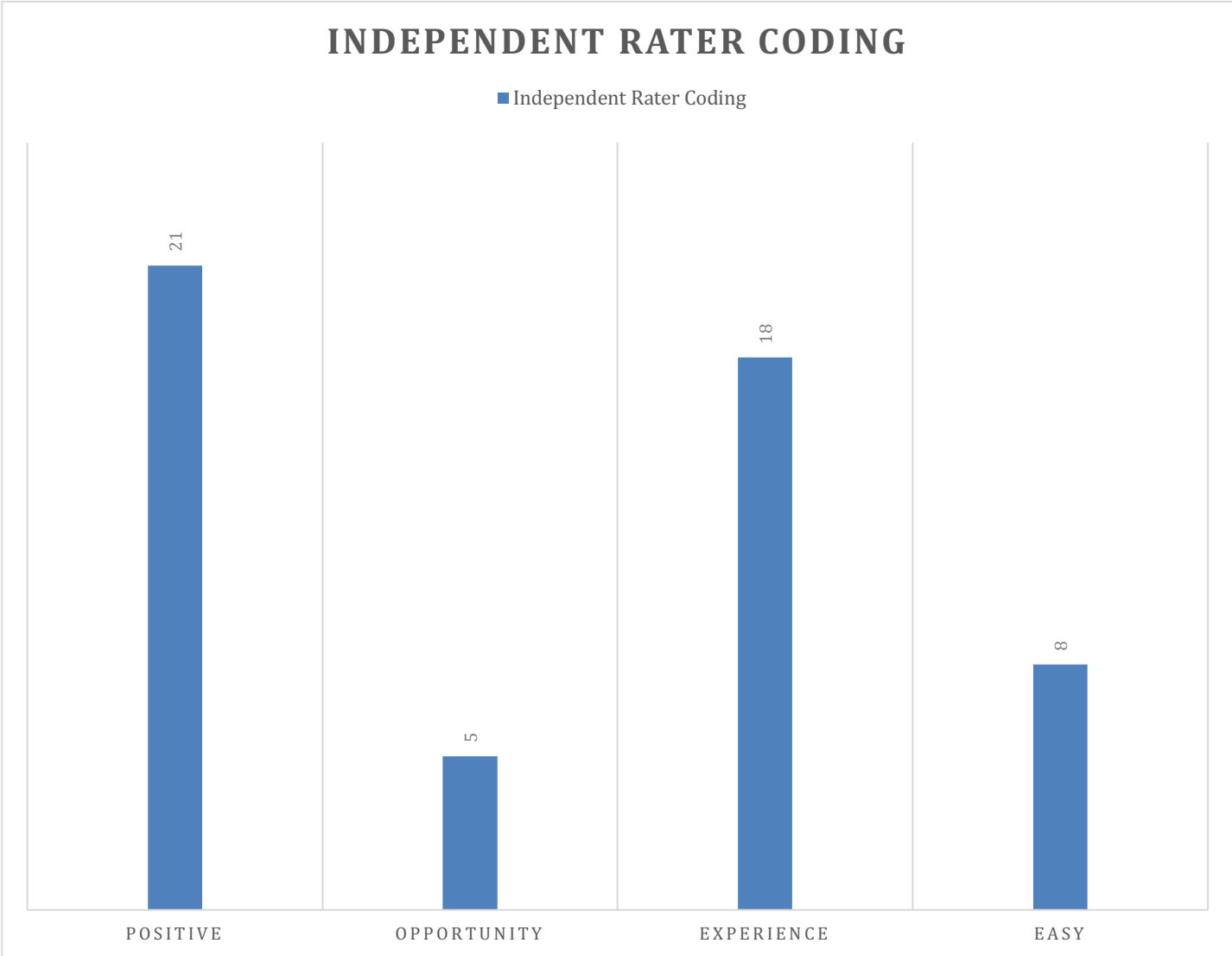


Figure 3. Coding by Independent Rater.

Independent Rater Themes

Themes that were identified by the independent rater included both communication and positive experiences. The independent rater stated that communication was evident as a theme in the interviews that were presented. Several of the teachers stated that they use BYOD as one of the main forms of communication in their interviews. Although the teachers may not have used the actual word communication, the experiences that they provided showed that this was a major way that they communicate with their students. They listed various forms of communication including their own websites and even google classroom.

Another theme that was presented by the independent rater was the theme of positive experiences using BYOD. “All of the teachers had positive experiences and reflections to share about using BYOD in their classrooms. It is clear to me that BYOD has a positive impact in the classrooms of the eight participants that were involved in these interviews.”

Comparison of Researcher and Independent Rater

The code positive was noted by the independent rater 21 times throughout the eight interviews that were provided. This compared accordingly with the researcher as the same code was also noted 20 times by the researcher. Although there was a difference of 1, this identified as a strong code and theme throughout the interviews. The positive aspect of BYOD in secondary classrooms was highly noted throughout the research.

Another code that was highly noted by both the researcher and the independent rater was experience. The researcher noted this same concept as a theme. While looking at the researcher’s coding materials, the researcher had coded the word experience 18 times. The researcher and the

independent rater were right at the exact same number for experience. This increases the trustworthiness and reliability of this study as noted in Table 3 and 4. The following figure (figure 4) shows a comparison of the two codes in reference to both the researcher and the independent rater.

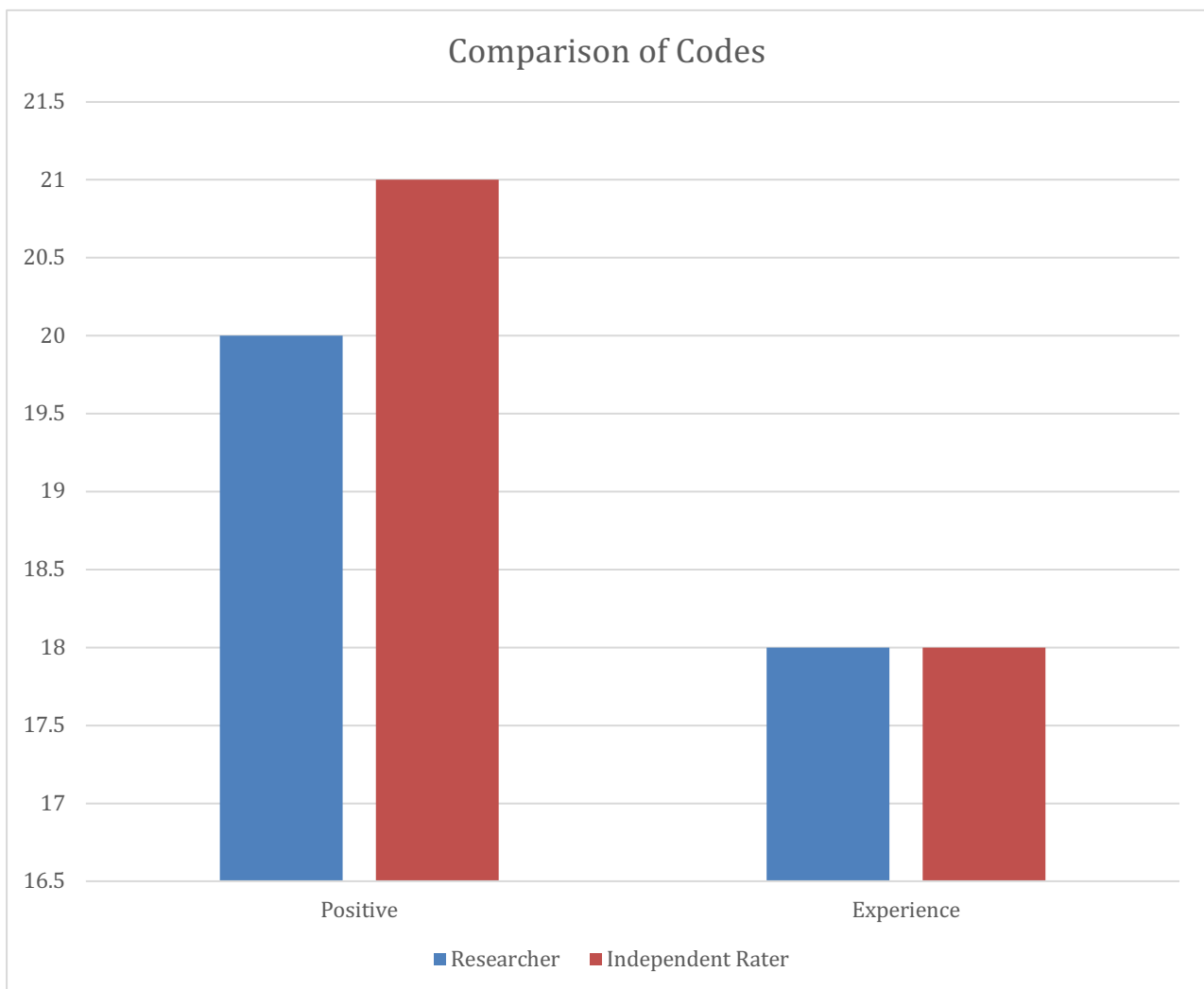


Figure 4. Comparison of Codes.

The two themes identified by the rater included communication and positive experiences. These were both also identified by the researcher. The compatibility of the results from the independent rater and the researcher show that this research study is able to stand forth as a valid and trustworthy study for the educational community. The results of the study create evidence-based information that can be used to evaluate teachers attitudes and perceptions regarding BYOD in the secondary classroom.

The following table compares the responses of the participants regarding the question of a specific experience with BYOD in their classrooms. When the participant was asked to give an example of one experience using BYOD in their classroom, these were the given responses. From the table, it is evidenced that the theme of positive experience is shown. All of the participants note positive experiences and the word positive is also used often. Because of these findings, the theme of positive experiences was identified. Some of the responses were quite detailed (Juan and Linda) while other responses were less detailed (Ricardo and Luis). There are not any differences noted in the responses other than the length of the participant responses. The responses all create the same result or effect.

Table 3

Participant Responses on Experience

Name (Pseudonyms)	Response
Juan	I remember one particular student and, or many students, when I would set up an assignment. I would say ok this is the TEK for the assignment and I would explain the TEK on the board and the students would use their device to create three d models and create videos to explain that specific TEK back to me. I think that they were guided by themselves to learn.
Danielle	I had a student who was constantly absent, and they were actually able to keep up with my classroom assignments and lectures because I do have a class website. So, they utilized that at home, and they were able to follow along with that while they were out.
John	Its an easy form of communication. For example, with the google classroom we have been using this year. It allows for us to communicate with the students outside of the classroom as a whole. It helps with reminders, keeping them on track, and making sure they are on top of things.
Ricardo	My experience with BYOD in my classroom has been good so far. I try my best to create activities where we can use BYOD more.
Luis	I like using the BYOD and I think it is a great tool to use on certain days.
Stephanie	BYOD overall has been a positive learning experience in my classroom. I do notice that students engage more when I am trying to use it consistently.
Linda	When my students received devices to use in my class, it broadened my tool box. At that point, I was able to take them to the next level of learning because we were able to have research and field experiences. I think that BYOD programs are so needed for the growth and development of these kids that are going to have to eventually learn how to use them.
Samantha	I think that using BYOD in the classroom not only helps the students learning wise, but it helps them to also become socially aware and learn the skills they need for outside the classroom. We teach in a very low-income area, so providing enrichment and encouragement in everything we do is important.

CHAPTER V

DISCUSSION

General Discussion

The purpose of this study was to obtain information and document the attitudes and perceptions of teachers in relation to BYOD implementation in the secondary classroom. The researcher was able to use techniques and thematic analysis to find four major themes associated with the findings. The two major themes that were expressed in the results were positive experiences and communication. Opportunity and easy were also identified but were not confirmed between the researcher and the independent rater. These four categories that were identified provide explanation to the teacher attitudes and perceptions that are happening with BYOD implementation in their classrooms. These results were used to answer the research questions that were posed by the researcher for this study.

Positive experiences. The theme of positive experience was expressed throughout the results more than any of the other themes. The codes of positive and experience were also noted the most times by both the researcher and the independent rater. From these results, it is clear to state that positive experiences are associated with teachers attitudes and perceptions towards BYOD implementation in the secondary classroom. When trying to interpret whether teacher's attitudes were positive or negative towards BYOD implementation in the secondary classroom, it can be found from the results that the attitude is positive.

The teacher's experiences are what has created their perception and attitude of positivity towards these experiences. Multiple teachers, as noted in the results, explained their positive experiences and how they use BYOD to positively influence their students. Song (2014) states that the use of BYOD technology integration in classrooms has a positive impact.

Communication. Communication was noted as a key element to creating positive experiences with BYOD in the teacher's classrooms. The teacher's stated that they used BYOD implementation to have more open lines of communication with their students. This theme was identified through the multiple avenues of communication that teachers used to describe how they implement BYOD for their students in their classrooms. Kong and Song (2015) also state finding communication as one of the results from their study on experiences of BYOD in the classroom.

Opportunity. Opportunity was identified as a theme by the researcher throughout the results. Opportunities are created by the teachers when they are implementing their BYOD techniques in the classroom. The teachers stated that they were able to use BYOD techniques to be able to create new opportunities for both their students and themselves to enhance learning.

Easy. The last theme that was coded by the researcher was the theme of easy. Many of the teachers in this research study described using BYOD as easy and that BYOD created easy ways to deliver information, communicate, and also help students to learn. From the statements of the participants in the results, it can be stated that the easiness of the BYOD techniques and

implementation added to the resulting positive experiences of the teachers with BYOD in the secondary classroom. This in turn supported the positive perceptions and attitudes that the teachers described throughout the interviews.

Theoretical Implications

At a theoretical level, the findings of this study suggest that teachers' attitudes and perceptions towards BYOD implementation in the secondary classroom are positive in nature. While these results are supporting by the findings, there are implications to further assess different aspects of these positive experiences that teachers are having in their classrooms. While the study provides an in depth look at these experiences and findings, it would be appropriate to follow this research with more in-depth case studies and quantitative data to support the findings.

Another implication of this study would be the use of the information to create BYOD based curriculum. Curriculum used to help teachers implement BYOD technology would be a great addition to the educational community and the theoretical framework surrounding student learning.

Educational Practical Implications

There are multiple implications for research that have been indicated in this study for secondary schools. First, it would be integral for school districts to conduct their own studies on how entire campuses and district teachers are experiencing BYOD. The data that would come from that kind of investigation is imperative to the growth of the school and the district in order to continue to enhance student learning and growth.

Another large implication of the research for secondary schools is the impact of professional development in regard to the integration and application of BYOD in the classroom. One of the differences noted in the study was that the different teachers had different experiences in professional development. Having a different background creates for different experiences in the classroom.

For further school development, creation of a BYOD curriculum incorporation is another implication for secondary schools. While all teachers were aware of BYOD and using it in the classroom, there was not a consistent uniformity or basis for implementation. While some teachers used BYOD daily some teachers used it monthly. Professional development in the implementation of BYOD and consistency would yield more confidence and solidarity in the implementation of BYOD in the secondary classroom.

Limitations of the Study

There are some limitations of the research that has been conducted for this study. The interviews of these 8 teachers provides a substantial database to gather information. While this is a substantial database that has provided uniqueness to this study, this does not provide the ability for a generalization of ideas from the entire population of over 50 secondary teachers at the campus. While the study provides very important data and themes that were identified, it does not represent every single teacher's perception of BYOD in the classroom at the campus.

Another limitation of this specific study is the ability for the participants to recall all of the memories or experiences they have had with BYOD in the classroom. While most participants were able to recall an experience with BYOD, many of them needed time to recall

these experiences in their interviews. This provides implication that further and more in-depth research should be conducted to evaluate the themes that were identified in this study.

The last limitation of the study presented is that teachers may present biased information based on their current job status. Since all of the teachers that were interviewed work for the campus, it could be considered a limitation that they all provided positive relationships with BYOD. While this is a limitation, it also is one of the unique elements of this study. Even though the study participants were reassured that all information was confidential and that they would not be identified as participants, it could be possible that they felt a need to please either the school or district by providing positive relationships and experiences with BYOD. The researcher tried to create a neutral environment as well as used neutral times and calm interviewing skills to create an environment teachers would be comfortable in.

While the independent rater adds trustworthiness and credibility to the study, there are still personal biases that could add to the issues of trustworthiness regarding the member checking.

Suggestions for Future Research

One large area for future research lies in the implementation of BYOD in secondary classrooms. Studying how and the consistency of the implementation is key to understanding how it works. Cheng, Guan, and Chau (2016) discuss how educator acceptance towards implementing BYOD is understudied. Another area of implication of the research for the future would be different types of professional development on this specific subject. How does professional development impact the implementation in the classroom? Are there school districts

that have a professional development plan for BYOD and what does that look like? Additionally, impacts of professional development on BYOD teachers and their implementation of BYOD in the classroom is another consideration for further research. Burns-Sardone (2014) discusses the impact of teachers receiving education on BYOD and how to manage it appropriately for proper implementation. Santos and Bochecho (2016) also states that training along with BYOD policy implementation is necessary for educators using BYOD in the classroom.

While discussing during the interview with teachers, some teachers had completed professional development while others had not completed professional development for BYOD implementation. Loague, Caldwell, and Balam (2018) discusses the constant demand on educators to implement technology in the classroom with or without the technology education that they need. This issue of implementation without education is a great implication for further research because it directly affects both teachers and students at all levels. Parsons and Adhikar (2016) state similar implications and note that further research into these individual areas is needed.

Also, expanding BYOD research to all levels of education would benefit all educational communities greatly. While there is some research on BYOD in the elementary levels, there could be more in-depth research into how it is implemented and what benefits are seen at those levels. Another way to expand on this research would be to add quantitative support so that this research can have more generalization towards all of the different populations.

CHAPTER VI

SUMMARY AND CONCLUSION

Summary

The purpose of this study was to gain an understanding of teacher's attitudes and perceptions of BYOD in the secondary classroom. The data presented in this study showed an overwhelming level of evidence that teachers have positive attitudes and perceptions in regard to BYOD in the secondary classroom. Song and Kong (2017) note the importance of researching how BOYD impacts teachers in technical, social, and personal constraints. The data also provides other areas where teachers may tend to focus more. These areas include communication and opportunities, as evidenced by the data.

The data overall suggests that there is overwhelming presence of positive experiences, teacher attitudes, and teacher perceptions with BYOD in the classroom. Both the researcher and the independent rater were able to identify common codes and themes within the interview that have proven to be evidenced by the data. BYOD is an implementation that is positively affecting both teachers and students as expressed through the participant interviews. Several themes were identified through the analyzation of the data. Comparison of both the researcher and independent rater shows that there is common ground in the results that were found and that there is a presence of relevance in this area.

From the data, four themes were brought forward for analysis. The themes included: a) teachers' positive experience with BYOD in the classroom, b) teachers' definitions of BYOD in

the classroom, c) teachers' perceptions of BYOD in the classroom, and d) teachers' reflections of BYOD in the classroom. The independent rater also identified the themes of positive experience and communication from the data.

From the analysis of these themes, the data is significant to provide the conclusion that there are positive teacher perceptions and attitudes towards BYOD programs in the secondary classroom. From the eight interviews that took place, all of the participants had positive experiences to share and multiple positive reflections on their perceptions and attitudes. The open-ended questions provided opportunity for the teachers to give their opinions openly. There is a direct relationship in the data that shows the direction of teachers moving forward in a positive experience with BYOD in their classrooms. Cristol and Gimbert (2013) state similar findings in that the teachers attitude and experience with BYOD directly affects their classrooms.

Conclusion

In conclusion, from the review of literature and components presented in the results, it is found that there is excellence in implementing BYOD in the classroom for learning purposes. Chou, Chang, and Lin (2017) express finding similar results that enhance learning experiences in the classroom. The data presented in this research clearly notes that teachers have positive attitudes and perceptions regarding the use of BYOD in their classrooms. The positive experience arising from the implementation of BYOD in the classroom allows for them to have these attitudes and perceptions. This idea is supported by the research conducted by Gillies (2016). Gillies (2016) states that educator acceptance and attitudes affect the successful

implementation of BYOD. The evidence is found in the outcomes of the positive effects of the implementation as evidenced by the teacher interviews.

This research has also brought forth the information that is necessary to conduct more research that would provide invaluable data on BYOD learning and teacher attitudes/perceptions. This information is lacking in the research community and is something that would benefit not only districts in the Rio Grande Valley, but also all over the state of Texas. The lack of research is also noted by Hopkins, Sylvester, and Tate (2013). This new viewpoint will allow districts to develop professional development that will be beneficial to teachers and what they think. This advancement would be great for the educational community. In the interviews it was mentioned by two teachers that we must be willing to educate the teachers on BYOD and technology in order to have a positive impact with these advancements in the classroom.

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APPENDIX

Appendix A

Teacher Interview Question Guide

Teacher Interview (Demographics and Questions) :

D1. Ethnicity origin (or Race): Please specify your ethnicity.

D2. Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

D3. What subject do you teach?

D4. What is your age?

D5. How many years have you been teaching secondary level students ?

1. What are your first thoughts when thinking of the words Bring Your Own Device in the classroom?

2. How has BYOD been beneficial in your classroom?

3. How has BYOD been a hindrance in your classroom?

4. How do you feel about training that you have or have not received regarding BYOD integration for your classroom?

5. If there was something about BYOD in the classroom that you could change, what would it be and why?

Appendix B

The University of Texas Rio Grande Valley

Recruitment Script

My name is Michelle Cavazos, I am a(n)graduate student from the Department of College of Education at the University of Texas Rio Grande Valley (UTRGV). I would like to invite you to participate in my research study on Teacher Attitudes and Perceptions on Bring Your Own Device Programs in the Secondary Classroom.

This research study has been reviewed and approved by the UTRGV Institutional Review Board for the Protection of Human Subjects (IRB).

In order to participate you must be a secondary teacher in Harlingen Texas with a BYOD policy at your campus_.

Participation in this research is completely voluntary, you may choose not to participate without penalty.

As a participant, you will be asked to complete a small interview. The process will take about 25-30 minutes of your time. All data will be confidential through coding of the data.

If you would like to participate in this research study, please inform Michelle Cavazos of your interest. (956-491-8862 or michelle.m.cavazos01@utrgv.edu).

Do you have any questions now? If you have questions later, please contact me by telephone at 956 491 8862 or by email at Michelle Cavazos.

“You may also contact my faculty advisor Dr. Lu, at (956) 882-7674.”

Appendix C

The University of Texas Rio Grande Valley

Informed Consent Form

Teacher Attitudes and Perceptions on Bring Your Own Device Programs in the Secondary
Classroom

Investigators:

Michelle Marie Cavazos, M.Ed. – Graduate Student at University of Texas at Rio Grande Valley

Michelle.m.cavazos01@utrgv.edu

956-491-8862

Background: I am conducting this research study to evaluate teacher's attitudes and perceptions of BYOD in secondary classrooms. The issue question that I would like to address in this paper would be the following: How does BYOD affect teachers attitudes and perceptions in the secondary classroom? And, what experiences do teachers have that have shaped their attitudes and perceptions of BYOD programs in the secondary classroom? This issue is at the forefront of the education system and education technology.

Procedure: You will be asked to participate in a small questionnaire and then in a semi-structured interview. The entire process should last from 20 to 25 minutes.

Taping (Audio). Audio recording of the interviews will be taking place to ensure correct transcription of the responses.

Risks or Possible Discomforts Associated with the Study: There are no risks or discomforts associated with this study.

Benefits of Participation: There are no direct benefits to participants for completing and participating in the study.

Voluntary Participation: Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. If for any reason you decide that you would like to discontinue your participation, simply tell the researcher that you wish to stop. You may turn in a blank questionnaire if you do not wish to continue. You may also leave the interview at any time.

Anonymity and/or Confidentiality: Confidentiality will be maintained by assigning numbers to participants and not having participants give any personal identifiers. Data will be stored in a

locked filing cabinet so that it can remain safe. The data will remain stored for 2 years where after it will be shredded by Michelle Cavazos.

Who to Contact for Research Related Questions: For questions about the research itself, or to report any adverse effects during or following participation, contact the faculty advisor.

Dr. Pierre Lu 956-882-7674 Mingtsan.lu@utrgv.edu

Who to Contact Regarding Your Rights as a Participant: This research has been reviewed and approved by the Institutional Review Board for Human Subjects Protection (IRB). If you have any questions about your rights as a participant, or if you feel that your rights as a participant were not adequately met by the researcher, please contact the IRB at (956) 665-2889 or irb@utrgv.edu.

Signatures: By signing below, you indicate that you are voluntarily agreeing to participate in this study and that the procedures involved have been described to your satisfaction. The researcher will provide you with a copy of this form for your own reference.

Participant's Signature

____/____/____

Date

Appendix D

The University of Texas Rio Grande Valley

Audio Release Form

Teacher Attitudes and Perceptions on Bring Your Own Device Programs in the Secondary
Classroom

Researcher: Michelle Cavazos

Phone: 956-491-8862

Email Address: michelle.m.cavazos01@utrgv.edu

I hereby give permission to Michelle Cavazos to audio record my responses during the interview for this study, Teacher Attitudes and Perceptions on Bring Your Own Device Programs in the Secondary Classroom.

I further understand that researchers will use a pseudonym to identify me and that neither my name nor any other identifying information will be associated with the audio recording or transcription of my recorded responses. The recorded material will only be used for research purposes. As with all research consent, I may at any time withdraw permission for audio recorded material of me to be used in this research project.

I acknowledge UTRGV that there is no compensation for allowing myself to be audio recorded.

I am permitting the review and transcription of my recorded interview by the investigators. The recorded material will be securely stored in encrypted files only accessible to the principal investigator for approximately five years. After that time, all recorded data will be destroyed. No one other than the investigators will have access to the data.

Participant Signature: _____ Date:

Please keep a copy of this sheet for your reference

Appendix E

High Access BYOD (Bring Your Own Device) Campus Guidelines

Introduction:

“The Campus” recognizes that our information-based world is becoming increasingly complex and students who are skilled in creativity, critical thinking, communication, collaboration, and information technologies are better prepared to be successful citizens in the global community. Just as new technologies are changing the world in which we live, they are providing new and positive educational benefits that help students develop these skills.

In an effort to bring more technology tools into our classroom and to leverage student-owned technology, the “The Campus” will allow personal technology devices (PTD) to be brought onto the campus and onto our District network. Students bringing such personal devices to school must follow all Texas law, District policies, the Acceptable Use Policy and the guidelines set forth in this document. In addition to the rules outlined in these guidelines, students will be expected to comply with all class and school policies and procedures while using personal technology devices (PTDs).

“The Campus” currently provides technology that is appropriate and relevant to support instructional purposes. Therefore, the use of personal technology devices (PTDs) by students is

optional. Students who do not participate in BYOD will not be penalized, and alternative modes of participation will be available.

Campus Wide:

- • “The Campus” is a BYOD Campus; teachers are expected to practice BYOD as per guidelines as outlined.
- • Identified digital classrooms are expected to implement BYOD. Responsibility,

Security & Damages:

Responsibility to keep the PTD (personal technology device) secure rests with the individual owner. “The Campus” is not liable for any device stolen, infected, or damaged on campus, at school functions, or on the school bus. If a device is stolen or damaged, it will be handled through the administrative office similar to other personal artifacts that are impacted in similar situations. It is recommended that custom identification be used to physically identify your device. Example: School appropriate Skins (decals).

Additionally, protective cases for technology are strongly encouraged.

It is a privilege, rather than a right, for a student to bring personal technology devices to school. When the policies are followed, our learning environment will be enhanced.

However, when policies are abused, the privileges may be taken away and confiscation and/or disciplinary action may occur.

Campus Guidelines:

1. Students and parents/guardians participating in BYOD must adhere to the Student Code of Conduct, Student Handbook, Acceptable Use Policy, and all District Board policies, particularly Internet Acceptable Use. “The Campus” has a right to protect its network and technical resources. Thus, any network user who brings his/her own personal device into the school building is required to adhere to the Acceptable User Policy (AUP) and sign a copy of the District User Agreement
2. The student takes full responsibility for the PTD at all times. The school is not responsible for storing or keeping the PTD secure at any time.
3. Students are limited to three PTDs on campus at one time.
4. Each teacher has the discretion to allow and regulate the use of personal devices in the classroom and for use during specific projects.
5. Approved PTDs must be in silent mode while on the school campus, unless otherwise allowed by a teacher. PTDs must be in silent mode while on the school bus.
6. Students may not use devices to record, transmit, or post photographic images, sound, or video of a person or persons on campus during school activities and/or hours, unless otherwise directed by a teacher for specific educational purpose.

7. All PTDs are required to be registered on the District network to access the Internet while on campus. PTDs may not be plugged into the wired network. Students may not use personal data plans while at school to access the Internet.

8. Students acknowledge that the school's network filters will be applied to one's connection to the Internet and students will not bypass or attempt to bypass them.

9. Devices may only be used to access files on computers or Internet sites that are relevant to the classroom curriculum. Games are not permitted, unless otherwise allowed by a teacher. Unless specifically directed by a teacher, a student turning on or activating a cell phone or other electronic device during testing will be subject to discipline and confiscation of the device in accordance with that policy.

10. Students must comply with all teacher requests regarding technology, such as power up, device down, shutting down, closing screen, storing, etc.

11. The school district has the right to collect and examine any device that is suspected of causing problems that violate either a school/district rule or law of the state of Texas as defined in the Code of Conduct.

12. Printing from PTDs will not be possible at school unless permission is given by the classroom teacher and then may only print within that classroom.

13. PTDs should be charged prior to school and run on battery power while at school.

“The Campus” will not be responsible for providing charging stations/facilities.

14. “The Campus” will not provide repair, software installation services, or technical support to any PTD.

15. Students will not monopolize the resources of the District network by running large programs or applications over the network, sending massive amounts of e-mail to other users, or using the system resources for games or streaming of music or videos.

16. Inappropriate Communications and Access: Parents or guardians should instruct their student user(s) on steps to take if there is material that the parents or guardians think would be inappropriate for their student user(s) to access (in addition to material already blocked by the District firewall and content filter). The District fully expects that student users will follow the instructions from their parents or guardians. Students shall inform a teacher if they mistakenly access inappropriate information or content.

17. E-mail: Student users shall not access or use individual personal e-mail accounts at school for non-instructional purposes. All student email collaboration shall be done through the district provided e-mail accounts.

18. Synchronous and Asynchronous Online Communication and Social Networking

Applications: Student users shall not access or use online synchronous or asynchronous communication applications such as e-mail, chat, blogs, wikis or social networking Web site

functions (i.e., discussion threads, document posting, RSS feeds, etc.) while at school. These restrictions apply unless: 1) this access and use takes place within a teacher moderated online environment; 2) the online activities are being used for legitimate instructional purposes; 3) and the applications and/or functions are hosted on District servers behind the District firewall. The prescribed teacher moderation must include individual examination of each student communication and/or file posting to confirm that only appropriate and instructionally valid content is present.

The District's currently sanctioned and supported online Learning Management System provides the capability for teachers to implement moderated synchronous or asynchronous communication applications and online functions similar to those provided by social networking sites (providing the applications and functions are used for legitimate instructional purposes). The District sanctioned and supported Learning Management System restricts students to interaction with users registered in the District's currently sanctioned and supported online Learning Management System.

Digital Campus Terminology:

DIGITAL CAMPUS: Teaching and learning in the classroom incorporates 21st century skills, project based learning, Information Literacy Centers, and Digital Classrooms at “The Campus”. Student use of technology is embraced and encouraged to enhance learning.

BYOD: Bring Your Own Device

PTD: (Personal Technology Device) is any personal technology device privately-owned that includes, but is not limited to: laptops, cell phones, smart phones, eReaders, iPads, iPods, tablets devices, PDAs, or other current or emerging devices that can be used for word processing, wireless or wired Internet access, recording of images/sound, email, etc. used on campus.

POWER UP: This term is used to designate classroom instruction time when teachers will facilitate the use of students using their PTDs for instructional purposes.

DEVICE DOWN: Teacher will designate classroom instruction time during which students’ PTDs will not be used.

INSTRUCTIONAL DAY: This is defined at the period beginning with the first bell and ending with the last bell.

FILTERED ACCESS: Students will use the District Wi-Fi connection, which will only allow access to appropriate sites when using their PTDs.

“The Campus” BYOD FAQs – Parents

What if my child’s device is stolen or damaged? What recourse can I take?

Students bring PTDs to school at their own risk, just like any other personal items. The school will not be held responsible if a PTD or other item is lost, stolen or misplaced. Some PTDs have a device locator; it is recommended that you enable this feature if possible.

Is it required that my child use the School wireless network? Can they use their own 3G or 4G service?

Students with PTDs are required to use the District wireless network on campus.

My child is bringing a device to school for instructional purposes. Will they have access to things they normally do with district equipment?

Your child will have access to any of the web-based software the school currently uses (databases, library search tools, etc.) Software may run differently on different devices for varying reasons.

As a parent am I required to add additional software (virus protection, filter, tracking device, etc.) to my child’s PTD?

Virus protection and device location software for PTDs is not required but highly recommended. Please note that PTDs on campus must be virus free. If a PTD on campus is detected with a virus, it will be denied access to the District wireless network.

How will my child's PTD be used in the classroom?

Schools must challenge students with rigorous, personalized academic learning experiences that foster innovation and creativity. Students will engage in a cohesively integrated curriculum, access information, and apply it to solve authentic problems in a collaborative manner.

“The Campus” BYOD FAQs – Students

I don't have my own PTD to bring to school. Will I be penalized or miss out on instruction?

No, it is not mandatory for students to bring a PTD, even if they do own one. Use of PTDs will be optional. Keep in mind that learning can be enhanced greatly for the entire class even if only a handful of students have a device.

I have my PTD with me in class. How do I get on the Internet now?

Most devices will detect a wireless connection when you are near one. When on campus, students are required to use the District wireless network. This wireless network will be provided by the campus. The district's wireless network requires users to accept the terms and conditions of acceptable use.

My PTD was stolen when I brought it to school. Who should I contact about this?

“The Campus” is not responsible for the theft of a PTD, nor are they responsible for any damage done to the device while at school. Any time a theft occurs, you should contact an administrator to make him/her aware of the offense. Bringing your own device(s) to school can be useful; however, some risks are involved as well. It is always a good idea to record the device's serial number to have in case of theft.

Why am I filtered on my PTD? Shouldn't I be able to see what I want to on my own PTD?

Internet filtering is a requirement of all public schools. The Children's Internet Protection Act (CIPA) requires all network access to be filtered regardless of the device you use to access it while in a public school. You own your device, but the network you're using belongs to the school and Internet access will be filtered.

Am I still held accountable for the Acceptable Use Policy (AUP) I signed at the beginning of the school year even though this is my PTD?

Yes, students using a PTD on campus must have the District Acceptable Use Policy signed and on file. Students will be held accountable to all guidelines and policies addressed in the AUP and in these specific campus guidelines.

Exceptions to the above guidelines may be made by the campus principal.

Appendix F

ADDENDUM FOR STUDENT USE OF PERSONAL TECHNOLOGY DEVICES

You have requested to use a personal telecommunications or other electronic device for instructional purposes while on campus. Per student handbooks, this includes: personal mobile telephones, netbooks, laptops, tablets, or other portable computers.

RULES FOR APPROPRIATE USE

- When using the device for instructional purposes while on campus, you must use the District's wireless Internet services and are prohibited from using a personal wireless service. The District's wireless network system must be disconnected from the device when the device is not being used for instructional purposes.
- When accessing the District's technology resources using your personal device, you must follow the District's technology resources policy and associated administrative regulations, including the acceptable use agreement you signed for access to the District's technology resources.
- When not using the device for instructional purposes while on campus, you must follow the rules and guidelines for noninstructional use as published in the student handbook. These require the device to be turned off.

CONSEQUENCES FOR INAPPROPRIATE USE

- Suspension of access to the District’s technology resources;
- Revocation of permission to use personal electronic devices for instructional purposes

while on campus; or

- Other disciplinary or legal action, in accordance with the Student Code of Conduct and applicable laws.

The District is not responsible for damage to or loss of devices brought from home.

The student agreement must be renewed each school year.

STUDENT

I wish to use the following telecommunications or other electronic device for instructional purposes while on campus:

Name _____ Grade _____

School _____

I understand that my use of the District's technology resources, including the District's wireless Internet services, is not private and that the District will monitor my activity.

I understand that my personal electronic device may be searched by District administrators in accordance with policy FNF.

I have read the applicable District policies, associated administrative regulations, and this user agreement regarding the District's technology resources and use of student-owned electronic devices and agree to abide by their provisions. I understand that violation of these provisions may result in suspension or revocation of system access and/or suspension or revocation of permission to use my personal electronic device for instructional purposes while on campus.

Student's signature _____ Date _____

PARENT

I have read the applicable District policies, associated administrative regulations, and this user agreement regarding the District's technology resources and use of student-owned electronic devices. In consideration for the privilege of my child using the District's technology resources, I hereby release the District, its operators, and any institutions with which they are affiliated from any and all claims and damages of any nature arising from my child's use of, or inability to use, these resources, including, without limitation, the type of damage identified in the District's policies and administrative regulations.

___ I give permission for my child to use his or her personal electronic device(s) at school for instructional purposes while on campus.

Parent's Signature _____ Date _____

Appendix G

ADENDA PARA EL ESTUDIANTE SOBRE EL USO DE DISPOSITIVOS TECNOLÓGICOS PERSONALES

Usted ha solicitado utilizar dispositivos electrónicos de telecomunicación personal u otros dispositivos electrónicos con fines de instrucción académica mientras esta en la escuela. Basado en el manual del estudiante, esto incluye: teléfonos móviles personales, netbooks, portátiles, Tablet PC, u otros equipos portátiles.

REGLAS PARA USO APROPIADO

- Cuando se utiliza el dispositivo para fines de instrucción mientras este en la escuela, debe utilizar los servicios de Internet inalámbrico del Distrito y está prohibido el uso de servicio de Internet inalámbrico personal. El sistema de red inalámbrico del Distrito debe ser desconectado del dispositivo electrónico cuando no se utiliza con fines de instrucción.
- Cuando se accede a los recursos tecnológicos del Distrito utilizando su dispositivo electrónico personal, debe seguir el reglamento de los recursos tecnológicos del Distrito y las regulaciones administrativas asociadas, incluyendo el acuerdo de uso que usted firmó para el acceso a los recursos tecnológicos del Distrito.

- Cuando no se utilice el dispositivo electrónico con fines de instrucción mientras este en la escuela, se debe seguir el reglamento para su uso de acuerdo a lo publicado en el manual del estudiante. Esto requiere que el dispositivo electrónico se apague.

CONSECUENCIAS DE USO INAPROPIADO

- Suspensión del acceso a los recursos tecnológicos del Distrito;
- Revocación de la autorización para utilizar los dispositivos electrónicos personales con fines de instrucción cuando se está en la escuela; o
- Otra acción disciplinaria o legal, en conformidad con el Código de Conducta del Estudiante y las leyes aplicables.

El Distrito no se hace responsable por daños o pérdida de dispositivos electrónicos traídos de casa.

El acuerdo del estudiante debe ser renovado cada año escolar.

ESTUDIANTE

Me gustaría usar el siguiente dispositivo electrónico y de telecomunicaciones para fines de instrucción en la escuela:

Nombre _____ Grado _____

Escuela _____

Entiendo que el uso de los recursos tecnológicos del Distrito, incluyendo los servicios inalámbricos de Internet del Distrito, no son privados y que el Distrito supervisará mi actividad en Internet.

Entiendo que el dispositivo electrónico personal que utilizo puede ser localizado por los administradores del Distrito, en conformidad con el reglamento FNF.

He leído el reglamento aplicable del Distrito, los reglamentos administrativos asociados, y este acuerdo de usuario en referencia a los recursos tecnológicos del Distrito y el uso de dispositivos electrónicos de propiedad del estudiante y me comprometo a respetar las disposiciones. Entiendo que la violación de estas disposiciones puede resultar en la suspensión o revocación de acceso al sistema y/o suspensión o revocación de la autorización para utilizar el dispositivo electrónico personal con propósitos de instrucción, mientras este en la escuela.

Firma del estudiante _____ Fecha _____

PADRES

He leído el reglamento aplicable al Distrito, los reglamentos administrativos asociados, y este acuerdo de usuario en referencia a los recursos tecnológicos del Distrito y el uso de dispositivos electrónicos de propiedad del estudiante. En consideración al privilegio otorgado a mi hijo al acceso de los recursos tecnológicos del Distrito, yo libero al Distrito, sus operadores y cualquier institución con la que están afiliados de cualquier y todo reclamo, daños y perjuicios de cualquier naturaleza derivados de la utilización o de la incapacidad de utilizar estos recursos de mi hijo incluyendo, sin limitación, el tipo de daño identificado en el reglamento del Distrito y regulaciones administrativas.

___ Doy permiso para que mi hijo(a) utilice sus dispositivos electrónicos personales en la escuela con fines educativos

Firma de los Padres _____ Fecha _____

Appendix H

Interview Protocol

Teacher Interview (Demographics and Questions) :

D1. Ethnicity origin (or Race): Please specify your ethnicity.

D2. Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

D3. What subject do you teach?

D4. What is your age?

D5. How many years have you been teaching secondary level students ?

1. What are your first thoughts when thinking of the words Bring Your Own Device in the classroom?

2. How has BYOD been beneficial in your classroom?

3. How has BYOD been a hindrance in your classroom?

4. How do you feel about training that you have or have not received regarding BYOD integration for your classroom?

5. If there was something about BYOD in the classroom that you could change, what would it be and why?

BIOGRAPHICAL SKETCH

Michelle Marie Cavazos was born in Harlingen, Texas to her parents Ramiro Rene and Mary Alice Leal. She grew up in San Benito, TX and attended San Benito High School. After completing her schoolwork at San Benito High School in May 2007, Michelle married David Cavazos in July 2007. They have three children together: Joseph Hayden, Ryan Brayden, and Kayleigh Kaydence Cavazos. She entered Darton College in Albany, GA to complete her Associate Degree while her husband served in the United States Marine Corps. In the Fall of 2010 Michelle was admitted to The University of Texas at Brownsville where she completed her Bachelor of Science Degree in Biology. At that time, she entered the classroom as a 9th grade biology teacher. She is still currently teaching 9th grade Biology. In the Spring of 2012 she entered the UTB Counseling and Guidance program. She graduated from the University with a Master's Degree in Counseling and Guidance in the Summer of 2014. The very next semester in the Fall of 2014, she enrolled into The University of Texas at Rio Grande Valley into the Doctoral Program for Education in Curriculum and Instruction. Michelle earned her Educational Doctorate in Curriculum and Instruction with a specialty in Education Technology from The University of Texas at Rio Grande Valley in May of 2019. Her current email address is michelle.marie.cavazos@gmail.com and physical address is 8825 Curlew Street, Harlingen, TX 78552.