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EDUCATORS BENEFIT FROM PERSONALIZED ONLINE LEARNING VIA COMPETENCY BASED ASYNCHRONOUS PLATFORMS

by

Wayne Robert Stagnaro

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ABSTRACT

Professional development of teachers and certificated staff has long been a concern for school districts and is generally completed in a top down approach with little input from the participants traditionally. Teacher credential programs also often fall short in ensuring that teachers are prepared to teach in the current day classroom due to increased requirements that must be met. Personalized learning is not a new concept as it relates to students and is frequently used by vendors, politicians, researchers, and educators. It has become a buzzword and is often heard in education today, but it means different things to different people. The mixed methods research methodology and data analysis for the dissertation are discussed, as well as, significance and purpose of the study.

Perhaps, the time has come for educators to take the lead on their own professional learning and continuing education. Technology innovation now provides an opportunity for teachers and students to learn anywhere and at any time. Teachers no longer need to be face to face to learn new pedagogy and skills. This dissertation explores the feasibility of providing online, personalized, mastery based learning for teachers and educators. In this study, educators will complete a pre-survey which collects feedback and beliefs on traditional professional development provided, technology in schools and their classrooms, technology usage in personal and work lives, and basic demographics. Once the survey is completed, the educators will be provided with the login information for one of two online learning platforms. Once the data collection period is complete, participants will complete a post survey to gather feedback on their experience with the online learning platforms and how this form of learning compares to traditional face to face training.

Key Words: Personalized learning, Competency based learning, Mastery based learning, Adult learning, Professional Development, Online learning, Teacher choice,

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CHAPTER 1: INTRODUCTION

Personalized learning and competency based learning are common phrases that are frequently discussed by educators, software vendors, researchers, and representatives at all levels of government, but these ideas are not new ones for students and have been discussed since the early 21st century. Personalized learning has many definitions. The manner in which it is used primarily depends on who is speaking and what point they are trying to make. Software vendors and some educators use the term to mean that each student does not get the same learning experience as the software adapts to the needs of the individual students determined by algorithms within the software. Other educators use the term to describe students' projects that incorporate students' interests. In the paper, Innovate to Educate: System [Re]Design for Personalized Learning, Mary Ann Wolfe, 2010, discusses the tenets of personalized learning and the implication for professional development for teachers which was sponsored by the Software & Information Industry Association (SIIA), Association for Supervision and Curriculum Design (ASCD), and the Council of Chief State School Officers (CCSSO). The key principles and tenets include the essential elements of flexible, anytime, anywhere learning, a redefinition and expansion of the role of teacher, student work that is project based, authentic learning, a student driven (interest based) learning path, and a competency based progression which requires students to submit work to demonstrate mastery of skills and concepts.

Along with these changes to the classroom and school environment, other administrative and policy changes need to be in place as well. Universities and policy makers need to redefine the use of time and the reliance seat time or the Carnegie unit for

the awarding of credits and completion of course or graduation requirements, there is a need for performance based, time flexible assignments which includes the growth mindset that not all students are ready or expected to be competent on the same date and time. This model heavily relies upon and leverages technology. There must be equity in access and an infrastructure of support for students regardless of the school attended and the neighborhood where they live. Furthermore, a change to our current Local Control and Accountability Plan (LCAP), and Local Control Funding Formula (LCFF) is needed to incentivize the completion of modules and work, versus simply being derived from attendance at school. The final reform will be a difficult hill to conquer as it involves a cohesive P-20 continuum from kindergarten to post graduate work that is based on competency and mastery and not on the traditional letter grades as it is currently.

Since the publication of Wolfe's (2010) work, many districts and states in the United States (US) and around the United Kingdom (UK) have piloted personalized learning for students. The concept of personalized learning is not a new one and this selected dissertation topic incorporates these ideas, but applied these features to professional development for teachers while incorporating adult learning theory. In 2010, the Obama administration called for an alternative instructional model from the one size fits all model, calling for a more personalized learning environment. In Transforming American Education: Learning Powered by Technology, (U.S. Department of Education, 2010) the United States Department of Education provided this definition for personalization. "Personalization refers to instruction that is paced to learning needs [i.e., individualized], tailored to learning preferences [i.e. differentiated], and tailored to the specific interests of different learners. In an environment that is fully personalized,

the learning objectives and content as well as the method and pace may all vary." (U.S. Department of Education, 2010, P. 12). By incorporating the features and policy modifications listed above into teacher preparation and professional development, can an answer be found for this very important question, “Does personalized, competency based, professional development result in pedagogical reform and increased technology integration in the classroom?”

Several states including Georgia, Maine, New Hampshire, South Carolina and Vermont, have moved in the direction of competency-based learning for students, also known as mastery learning or performance based learning, but none have considered the need to change the professional development platforms to train teachers at this time. The research plan is to develop a personalized, differentiated, mastery based professional development model for teachers to access when the opportunity and time is available, leverages the technological advances and progress of our time, while recognizing the busy overburdened schedules of teachers in the modern era.

One series of lingering questions for the researcher is will anyone care? Will teachers seek to participate and will participating lead to improved performance, practice, and pedagogy in the classroom? Can a school district design a system that will encourage and motivate teachers to participate? Ultimately, will schools and districts support this method of learning in the form of compensation and salary schedule advancement? For the badges to have value, the answer to the above questions needs to be yes. To have value and address the questions above three factors must be present. The micro-credential requires three elements—the issuer (NEA, Learning Forward, CTQ, etc.) some entity that creates, designs and issues the badges based on complete work that

demonstrates mastery, the user (the educators) that complete the modules and submit the work for the performance tasks, and finally, the recognizer (the school district or state) that gives the micro-credential currency through recognition for advancement, professional compensation, and/or recertification (NEA, 2018).

Statement of the Problem

Professional development for teachers and staff is a difficult problem to solve in a time of substitute and teacher shortages, competing needs and initiatives, and a finite supply of time, money, and resources. The intended research is based on research focused on personalized learning for students (Morin, 2019). This study applies the tenets of personalized learning to a veteran teacher audience and will explore a personalized professional development model for teachers. The study investigates a new professional development model to leverage the technology of the day and provide personalized learning for teachers. There is very little existing research or professional journals on this topic and the focus of the study will be to explore the concept of providing online, competency based professional development to teachers.

Change is difficult for most people and schools have not significantly changed since the beginning of modern education. This last point reminds the researcher of an example that has been shared in training sessions,

> if you took a lawyer, doctor, mechanic, and an educator from 100 years ago and dropped them into their work environments of today, only one would be in a familiar setting and feel like they could function successfully. It would be the teacher (Groshell, 2019).

Our schools are only as effective as their staff and administrators and much has been written about teacher professional development and the failure of new initiatives and strategies. (Gulamhussein, 2016, Darling-Hammond, Hyler, & Gardner, 2017, Scanlan, 2016, Strauss, 2014, Zdonek, 2016)

Purpose of the Study

The purpose of the research is to evaluate the effectiveness of a new professional development model for teachers, and to determine how the new model is received by certificated staff. The professional development model integrates online, mastery based learning for teachers. The focus will be on teacher attitudes about professional development and receptiveness to a new professional development paradigm. The aim of the research is to gain insight into teacher beliefs and attitudes regarding professional development, to investigate the feasibility of moving professional development online that incorporates a mastery based learning component, and finally to explore if this new model leads to greater technology integration in the classroom which would be evidence of a shift in pedagogy. The responses and feedback by participants and the completion rates of the online modules will provide the evidence for answering these questions.

Research Questions

1. Does personalized, competency-based, online professional development better engage teachers over traditional professional development methods?
2. Does personalized competency based online professional development lead to deeper technology integration and better transfer of content from training to implementation?

3. How can professional development be improved to be more effective and increase teacher engagement and implementation?
    1. Will teachers be receptive to online professional development?
    2. Will online professional development be utilized by teachers and seen as a viable professional learning activity?
    3. Will Badges and Online certifications be valued by teachers?

Theoretical Framework

Malcolm Knowles introduced Adult Learning Theory (ALT) in the United States in 1980, but the term Andragogy has been used since the 1800's. Andragogy applies what is known about child learners (pedagogy) and applies the concepts to adult learners. The theoretical framework for this research was inspired by Adult Learning Theory and the works of Knowles. Providing effective professional development to teachers has long been a concern for teacher preparation programs and school districts. Too often, these professional development opportunities are presented as isolated, single sessions which are presented as a one size fits all model. The trainings lack real world connections and are typically presented as how to or demonstration sessions (NWEA, 2020). In contrast, the six principles of Adult Learning Theory by Knowles includes (1) a reason and need to know the information, (2) the training is self-directed and selected, (3), adults bring a wealth of prior experience and knowledge with them to the training and appreciate when it is valued and leveraged, (4) adults, like our students, learn when they are ready and when there is a need to learn the content which is why it is so important to include the reasons the new material is needed (Karge & Phillips, 2016). As Simon Sinek discusses, start with the why, (5) adults want to know how the learning is relevant to their lives and

their work and how it can now be applied to their jobs and teaching, (6) adults are able to respond and value external motivating factors (Cox 2015; Knowles et al., 1998).

Participants will participate in online learning modules which leverage the principles of Adult Learning Theory. The new professional development model will also leverage anytime, anywhere learning protocols and the increased advancements provided by mobile technologies. The learning modules will provide job embedded and relevant content which focuses on application and integration of the technology and not just the acquisition of isolated skills. Teachers, like students, come with varying levels of skills, prior experience, and knowledge across various content areas. The online learning modules will accommodate these differences in skills and prior knowledge and allow for growth of the participants regardless of their starting point by discarding the one size fits all model. Finally, the learning modules will require the submission of work related product to demonstrate mastery and competency as the basis for proceeding, rather than being solely based on seat time (NWEA, 2020).

Significance of the Study

This topic of personalized, competency based, online professional development is very new and not one that has been studied for the same target audience. There are a few school districts that have just begun to implement some online professional development for teachers (Rauf, 2020). These studies will be reviewed to glean what can be learned from their experiences and to compare with the feedback and results of this study. Some of these districts have begun to offer training online, and are allowing some to take online training in lieu of face to face offering on district professional development days. Furthermore, these districts are in discussion with collective bargaining groups to

compensate for teachers' time. Personalized learning has been discussed for several years for students, but only very recently for teachers (Horn & Arnett, 2017; PD Anywhere, 2018). The topics of education, teacher unions, and teacher performance are commonly discussed topics in the print, television, and online news providers. Public support and appreciation for teachers have decreased over the years and politicians and special interest groups vilify teachers' unions (Bowman, 2019; Ferguson, 2018; Ujifusa, 2018). The reasons for this sway in public opinion are many, but some of them that make this study significant are included below. One common criticism is that teachers are poorly trained and teachers are underperforming based on this inadequate training (Tucker, 2018). No one can deny that technology has permeated our lives and society, but the lone place that change has not occurred is in the classrooms as teachers do not feel equipped or prepared to teach in a tech infused age and classroom (Wait, 2018). Teacher prep programs are lacking in preparing teachers to integrate technology and frequently include relegate technology to a single class rather than infusing throughout the program (Herold, 2016). Teachers are frustrated that professional development is chosen or mandated for them and that they aren't able to choose professional development on their own (Jacobson, 2019). One of the biggest complaints about teacher professional development is frequently presented in a manner that is opposite of what we want teachers to do in their classrooms. The role of the teacher in typical professional development is as a passive participant and lacks direct connection to integration into the classroom and teacher practice (Rucker, 2018).

Definition of Terms

Adult Learning Theory: Also known as andragogy, was proposed by Malcom Shepard Knowles in 1968. Previously, much research and attention had been given to the concept of pedagogy – teaching children. Knowles recognized that there are many differences in the ways that adults learn as opposed to children. His thoughts surrounding andragogy sought to capitalize on the unique learning styles and strengths of adult learners (Learning Theories, 2020).

Andragogy: Defined as the art and science of helping adults learn (Rodrigues, 2012).

Digital Badging or badges: Digital badges are digitized records of an individual's achievements, skills, abilities, knowledge and competencies. Each badge holds integrated data like endorsements, examples of the badge earner's work, and other evidence of a person's mastery. Unlike traditional measures of education in which the level of mastery is rarely indicated, digital badges directly relate to proficiency level (McKeown, 2018)

*Competency Based Learning***:** Refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the knowledge and skills they are expected to learn as they progress through their education. In public schools, competency-based systems use state learning standards to determine academic expectations and define "competency" or "proficiency" in a given course, subject area, or grade level (although other sets of standards may also be used, including standards developed by districts and schools or by subject-area organizations). The general goal of competency-based learning is to ensure that students are acquiring

the knowledge and skills that are deemed to be essential to success in school, higher education, careers, and adult life. If students fail to meet expected learning standards, they typically receive additional instruction, practice time, and academic support to help them achieve competency or meet the expected standards (Glossary of Education, 2014).

Job-embedded professional development (JEPD): Refers to teacher learning that is grounded in day-to-day teaching practice and is designed to enhance teachers' content-specific instructional practices with the intent of improving student learning (Darling-Hammond et al., 2011; Hirsh, 2009)

Mastery Learning: A method of instruction where the focus is on the role of feedback in learning. Furthermore, mastery learning refers to a category of instructional methods which establishes a level of performance that all students must "master" before moving on to the next unit (Slavin, 1989.)

Metadata: Is a series of links and data that indicates what the badge is for, what criteria were used to award the badge, and any standards associated with the badge. Image and metadata work together to form a graphical representation of some collection of knowledge, skills, dispositions, or competencies that have been determined by the issuers (O'Byrne, 2015)

Micro-credentials: A form of micro-certification earned by proving competence in one specific skill at a time, via a portfolio of evidence, created through classroom practice (Bloomboard, 2020).

Assessor: The role of a micro-credential assessor is an evaluator and a career option that will review and assess 20 or more micro-credentials per week, which equates to approximately 10 hours of work.

Online: Online, in a generic sense, refers to when an electronic device is on and connected to other devices, such as another computer, a network or a device such as a printer. More recently, the term online has come to mean connected to the Internet. In this case, either a person may be online when he or she is using the Internet, or the computer itself may be said to online when it has established an Internet connection (Techopedia, 2020).

Student Engagement: In education, student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education (Edglossary, 2016).

Platforms: Some call it a Personalized Learning System (PLS) or a Performance Support Platform (PSP). Others, a Classroom Engagement System (CES). And yet still others, such as Docebo, refer to this educational technology as a Global Learning Management System (GLMS) in their elearning market trends and forecast 2017-2021. I believe the best term is a Student Engagement Platform (SEP) and is best summarized through the Chinese Proverb: *"Tell me and I forget. Teach me and I remember. Engage me and I learn*." (Weber, 2018). For the purpose of this dissertation, it will refer to online tools to increase student engagement like Padlet, Kahoot, Flipgrid and Google Classroom

Personalized Learning or personalization: refers to a diverse variety of educational programs, learning experiences, instructional approaches, and academic-support strategies that are intended to address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students. Personalized learning is

generally seen as an alternative to so-called "one-size-fits-all" approaches to schooling in which teachers may, for example, provide all students in a given course with the same type of instruction, the same assignments, and the same assessments with little variation or modification from student to student. Personalized learning may also be called student-centered learning, since the general goal is to make individual learning needs the primary consideration in important educational and instructional decisions, rather than what might be preferred, more convenient, or logistically easier for teachers and schools (Edglossary, 2015).

Pedagogy: Is defined by Webster's dictionary as the "art, science, or profession of teaching; especially: education." This definition covers many aspects of teaching, but pedagogy really comes down to studying teaching methods. There are many moving parts to pedagogy that include teaching styles, feedback, and assessment (Cole, 2019).

Professional development: May be used in reference to a wide variety of specialized training, formal education, or advanced professional learning intended to help administrators, teachers, and other educators improve their professional knowledge, competence, skill, and effectiveness (Edglossary, 2013). Teacher professional development is any type of continuing education effort for educators. It's one way teachers can improve their skills and, in turn, boost student outcomes (Kampen, 2019)

Professional learning: Is targeted and based on the specific learning needs of the students and school community, individualized for the strengths and needs of the teachers, grounded in the principles of adult learning theory, sustained and supported through implementation with coaching and follow-up, and consistently monitored and

assessed to evaluate its impact on student learning and adjusted when necessary (Moir, 2013).

Technology integration: Is using computers effectively and efficiently in the general content areas to allow students to learn how to apply computer skills in meaningful ways. Discrete computer skills take on new meaning when they are integrated within the curriculum. Integration is incorporating technology in a manner that enhances student learning. Technology integration is using software supported by the business world for real-world applications so students learn to use computers flexibly, purposefully and creatively. Technology integration is having the curriculum drive technology usage, not having technology drive the curriculum. Finally, technology integration is organizing the goals of curriculum and technology into a coordinated, harmonious whole (Dockstader, 1999).

Unconference: Unlike traditional conferences, an unconference is a participant-oriented meeting where the attendees decide on the agenda, discussion topics, workshops, and, often, even the time and venues. The informal and flexible program allows participants to suggest topics of their own interest and choose sessions accordingly (Budd et al, 2015).

Limitations

Limitations for the research include the sample size and populations, the limited amount of available research on the topic, and potentially the familiarity of the participants with the researcher and the time available to conduct the research due to COVID-19. The respondents will come from one large urban school district in

California, and will include current educators from grades kindergarten through 12, which will be a strength of the survey.

As has been previously stated, there is little research available on the specific topic of the dissertation. There is a wealth of information available on personalized learning for students, but not that has conducted for professional development of teachers. Since the start of this dissertation there have been a few organizations that are discussing this idea, but the organizations and work are still in their infancy having embarked on their projects in the last 5-7 years.

Technology is ever evolving and trying to keep up can be frustrating. The original plan was for the researcher to develop online modules which would obviously be very time-consuming and a limitation on the research since the available topics would be relatively limited. Since embarking on the project, two vendors have been approached and are willing to allow the researcher to use their existing online platforms. Modules on both platforms were made available to teacher participants that volunteered for this project. If these partnerships are used, the large sample size may have to be reduced a bit to fit within the parameters of the agreement with the providers as the researcher is limited to the number of licenses available. In the end this did not become an issue, as there were 150 licenses available for MobileMind and 300-400 for Alludo and volunteers did not hit those limits.

The final limitation and area of concern is the familiarity of the population to the researcher, which might be viewed as either a negative or positive. The participants may be familiar with the researcher as a colleague, presenter, member of the educational technology community, teacher, and/or friend. Participants will be aware of my position

within the local district and my affinity for technology, which could skew the results. However, the reputation and work ethic of the researcher may also help get people interested in participating in the study and motivate participants to follow through and complete the surveys, modules, and interviews. Many staff members have asked about the dissertation focus and if they would be able to participate in the research.

Delimitations

There are several delimitations that have been established for this research study to allow for a timely and efficient collection and analysis of the data. One delimitation is the number of districts that will be included in the process. While I am working to incorporate and include other districts into the process, I do not know at this point if that will be allowed and the research may fall back to the local district only.

Another delimitation is that only one or two online platforms will be included in study. There are a variety of online platforms available, but participating teachers will not evaluate all online platforms for effectiveness and preference. Participants will only experience one of the two platforms used in the study. This factor would be the focus of future research.

As mentioned, there are an endless number of technology tools and systems that are used in the K-12 educational space and far too many to make available in the research for this dissertation. There will be a several topics across the participating platforms for the online modules included in the study from which the participants can choose to complete and that have been selected for their relevance to the focus district. There should be a module that is of interest for participating educators and staff. The topics that were made available to participants were Google Suite (Google Apps for Education)

productivity tools which includes Google Drive (Docs, Slides, Sheets, Drawing), Gmail, Google Classroom and Google Meet which became a commonly used tool during the remote learning caused by the COVID-19-19 pandemic. Other topics include, online learning tools that were made available to teachers this year like Pear Deck, Seesaw, Kami, Screencastify, and Zoom. Finally, some content focused on online learning and social emotional learning were selected due to the current remote learning situation for schools as schools were shut down due to COVID-19-19. Sharing resources about effective online teaching while supporting our teachers and students during this time seemed especially appropriate.

Summary

The proposed model for teacher professional development incorporates the tenets of personalized learning and applies them to professional development for teachers. The foundation of the model is based on the work of Knowles and Adult Learning Theory. Technology provides the opportunity to allow people to learn when they want and when they have time. This research leverages this technology to allow for participant choice and professional development driven by teachers when it is convenient and time permits. A new model for professional development for teachers and educators is needed to address the shortcomings of traditional professional development, teacher support by districts, and credential programs, but it is not yet known how the new model will be received by teachers.

The research will leverage the local urban school district and large professional learning network, which presents both positives and negatives. The positives are a large

pool of candidates to participate in the study and the negatives are the familiarity and relationship of the researcher to the pool.

CHAPTER 2: REVIEW OF LITERATURE

Introduction

The landscape of education has changed dramatically over the past few years with the Common Core State Standards, (Karge & Moore, 2015), the advances in technology (Iqbal & Ahmad, 2010; Lynch, 2017), and the media saturated backgrounds with which our students come to school (Porter, 2013; Richtel, 2012). Children use smartphones and tablets to play games and use apps with visually stimulating graphics and user interfaces before they learn to walk or read. Children also spend hours before they attend school in front of the television or computer screens passively consuming cartoons, shows, videos, and interactive games (Cleveland Clinic, 2020; Pappas, 2020; Reinberg, 2019; Reisinger, 2019; Sparks, 2020). The variables that have not changed are classroom instructional models and professional development for educators.

Generally speaking, teachers continue to teach as they were taught which has led to students that are not engaged, that drop out, or that continue to attend school, graduating unable to be successful in college or with subpar skills necessary to obtain a job (Busteed, 2019; Chen, 2019). There was a meme on Facebook with a picture of James Polk and a caption that read, "The learning tools of the future are here, but our methods of teaching haven't changed since James K. Polk was President." (Junkins, 2014). The Polk Administration was from 1845 through 1849 and over 150 years ago. Another quote from Thomas Edison circa 1913 that conveys that "…books will soon be obsolete, scholars will learn through visual mediums, which will completely transform our school systems within 10 years." (Anning, 2019)

Despite the ubiquitousness of technology, in our daily lives and the lives of our educators, technology remains absent in most classrooms (Hyndman, 2018; Klein, 2019). Teacher credential programs are not currently preparing new teachers for leading the modern 21st century classroom and are certainly not keeping pace with rapid advances in technology (Wait, 2018; Willis & Raine, 2001). Districts have also not kept pace with technological advances and training for their teachers and staff, professional development is still primarily delivered in face to face sessions (Boston Consulting Group, 2014; Rucker, 2018). It is time to reinvent professional development for teachers and to begin leveraging the technologies of the day to design a personalized approach to teacher training.

Personalized learning is a model that theorists and educators have discussed in a variety of formats for over 100 years (Brown, 2019; Herold, 2019; McVeigh-Murphy, 2019). Teachers are encouraged to differentiate their instruction to meet the needs of all students and to provide scaffolded support to meet kids where they are currently (Karge, 2014; Kluth, 2020; Miller, 2016). Much like the differentiated instruction that is expected for students, there is a need for scaffolded support for teachers instead of the traditional one size fits all offerings. Classroom teachers know this is a tall order and have tried this approach with centers and ability groups (Guido, 2016; Miller, 2016). Differentiated instruction is very difficult to do and/or sustain without leveraging current technology tools (Layton, 2017; McMahon, 2019; Ridgway & Ridgway, 2019). For reasons like this, personalized learning for students should be revisited, yet the model has gone largely absent in professional development (PD) for teachers. In this dissertation, the researcher will discuss adult learning theory, personalized learning, platforms and

learning models, badging, and conclude with a recommendation for districts interested in creating an online, personalized, professional development program

Adult Learning Theory

Adult learning theory or andragogy is a term used since the mid-1900s and originated in Europe (Henschke, 2016 & 2010). It is critical when working with educators to be aware of how adults learn and process information (Zalon, 1991; University of Queensland, n.d). Malcolm Knowles was the first to suggest andragogy as a theory in the United States in 1970, (Pappas, 2013; Keesee, 2011). Other authors have reviewed the work of Knowles and proposed learning models based on the earlier works, for example Characteristics of Adults as Learners (CAL) (Cross, 1981; Culatta, 2020). While there are potential concerns with and critics of both Andragogy and Characteristics of Adults as Learners, offer some guidelines and insight to how adults learn and how to design courses and professional development (Irish, 2019; National Highway Institute, n.d.; Pappas, 2014, Reis, 2016).

Andragogy is defined by Knowles as "art and science of helping adults learn" and includes six principles or assumptions about adult learning from University of Queensland, (n.d). The six principles of andragogy identified by Knowles include adults are internally motivated, adults bring experience and knowledge to the learning experience, adults are goal oriented and relevancy oriented wanting to know how the new content is related to their jobs, adults are practical and want to be respected. According to theory, as we age we move toward an independent, self-directed learner and possess a wide array of learning experiences that can provide a foundation for current and future learning if properly supported (Graham, 2017; Ota et al, 2006). Adults strive to see

immediate relevance and application to what they are learning. Younger students will accept learning content to be applied sometime in the future, but adults want to see how the material relates to solving problems in current settings at work and in their personal lives (Pappas, 2015; Pew, 2007). Intrinsic rewards and motivation drive adult learners who are less motivated by extrinsic reward (Battista & Ruble, 2014). Adults want a more active role in what they are learning and want some choice pertaining to when or where the learning occurs (Keesee, 2011; Pappas, 2013).

In the principles of the Characteristics of Adults as Learners (CAL) model, it outlines that learners are different across generations and depending on their current situation (Cross, 1981; Culatta, 2020). They should not all be treated the same as in traditional professional development plans, trainings and college courses. The two categories of the CAL model are personal and situational characteristics. Developmental stage, life phases, and age are variables of personal characteristics, while situational characteristics focus on the impetus for attending training and the duration of the learning. Situational characteristics include full or part time enrollment and whether the attendee selected the training or the attendance was compulsory (Culatta, 2020; Warnke, 2014). Professors and trainers need to consider these factors as they design courses and professional development trainings as these affect the learning of the adult student.

Personalized Learning

Personalized learning is not a new concept. For many years, teachers were expected to differentiate instruction and to scaffold support for students based on prior knowledge and skills (Karge, 2014; Jimenez, 2017). While there have been many examples of successful personalized learning environments, they are generally on a very

small and limited scale of tens or hundreds of students (Vargo, 2017). Personalized learning has not been successfully implemented in a large urban school district. Current advances in web based technologies, the affordability of low cost chromebooks and laptops for 1:1 learning environments and the Bring Your Own Device (BYOD) now provide an opportunity to attempt personalized learning at scale (Cavanagh, 2014).

Personalized learning "can unleash the potential of each and every student in ways never before possible" (Patrick et al., 2013, p. 3). The tenets of personalized learning are flexible learning environments, competence or mastery based grading or progression, project based learning, a change in role for the teacher from curriculum deliverer to facilitator or guide, and ultimately a student driven learning path (Garcia Matthewson, 2017). In a personalized learning situation, students only progress to new content once demonstrating mastery of current material. Most students have anytime/anywhere access to material outside of the brick and mortar school, working at home or away from school via wi-fi and online materials (National Center for Education Statistics, 2020). Learning activities are project based and involve much less direct instruction of content by the teachers as compared to traditional models. Instead, the role of the teacher is transformed as more of a guide and away from the primary dispenser of information and knowledge (Blair, 2012; Vogt, 2014; Wolf, 2010).

Linda Darling-Hammond (2010) details that flexible learning environments and the ability to personalize content have been successful in engaging students and righting the ship at low performing schools. Personalization allows schools to meet the needs of their diverse student populations and abandon the one size fits all models (Pollard & James, 2004). At full implementation, personalized learning can lead to an increase in

student motivation as students' interests and passions are included in learning goals. Instruction switches from a "sit and get" direct instruction model as students interact with more engaging materials, which are available outside of the classroom, and modern technology provides real time data for monitoring students' progress (Cammuso, 2015; Learning Accelerator, n.d.)

While personalized learning has shown success with students, it has been used very little with teachers in credentialing programs and district sponsored staff development (Vogt, 2014). Instead, these trainings are generally one size fits all in nature regardless of interest, grade level, or skills set of attendees. These trainings are also typically chosen at a district level with little to no input from participants, which is contradictory to adult learning theory (Bloom, 2008; Quattrocchi, 2014).

Is there better way? Can professional development leverage the advances in technology, collaborative tools, and web based materials? How can these issues be corrected? Social Media sites like Twitter, Facebook, and Google+ allow for the easy sharing of information and best practices. Each minute there are over five million YouTube videos viewed, over 400,000 tweets, and nearly 3500 pins on Pinterest (Sayce, 2020; Donchev, 2021; Ling, 2021). The surge of informal learning opportunities such as Edcamps or an "unconference" provide a chance for educators to share what they know and connect to other like-minded people (Vitala, 2016, Swanson et al, 2014). Professional development has changed significantly in recent years. The changes do not focus on content or strategies, but more focused on the overall design of the professional learning to incorporate teacher choice and the inclusion of discussion, sharing, and debate

Marcinek, 2015). Mark Edwards, author of Every Child, Every Day, discussed the shared vision and culture that is critical to a transition to digital content (Edwards, 2013)

Too frequently professional development is perceived as being done to teachers assuming the role of an added burden to their already stretched daily schedules and work laden to do lists, (Schwartz, 2019; Guskey, 2002). Trainings scheduled are generally a series of disconnected and competing agenda or topics, instead of as a cohesive system, which builds and scaffolds on previous content to address the needs of the teachers and staff (Blad, 2019; Loewus, 2019; Opfer & Pedder, 2011; West-Burns, 2010; Will, 2019). This top down approach must change to take full advantage of the professional development sessions (Bloom, 2008; Quattrocchi, 2014).

Platforms and Learning Models

In an asynchronous online learning module, Dr. Bonni Stachowiak (2015) discusses a variety of scheduling and emerging learning options. The content of the modules adds value to the current discussion of personalized training opportunities for teachers. The Educational Leadership doctoral program through Concordia University utilizes several of the scheduling options. The program employs a mixture of face-to-face, synchronous, and asynchronous learning activities briefly discussed below.

Asynchronous learning is available to the student at any time which is both a positive and negative. As a positive, students can access the course content as time permits and from anywhere, but it is also easy to put off work knowing that you can get to it later and completion rates may be lower in this scheduling option (B. Stachowiak, personal communication, February 1, 2015).

Synchronous learning is similar to a typical class in that the instructor and students meet at an assigned time and location online. In a traditional classroom, that location would be at a school or university. In an online course, that location would be in a learning management system or content management system. There are many such systems available, for example: Edmodo, Google Classroom, Schoology, Moodle or Adobe BlackBoard. With the added expectation that all students and teachers will be present at the same time, completion rates tend to be higher in this scheduling option (B. Stachowiak, personal communication, February 1, 2015). Some programs, for example, the Concordia University Irvine Ed.D cohort utilize both asynchronous and synchronous scheduling options.

"Just in time learning" or support is another option and as the name suggest, help is available when you need it (Andriotis, 2017; Brame, 2013; Hogle, 2016; Macey, 2017; Sierra & Karge, 2020). That help might be in the form of onsite tech support, a colleague, or accomplished online using Google, YouTube, and Twitter which enhances worker productivity and speeds up the learning process (Shift eLearning, 2018). A personal knowledge management system (PKM) or personal learning network (PLN) are also valuable assets for providing just in time help (Pappas, 2019; Trach, 2017; Trust, Krutka, & Carpenter, 2016). However, without the continued support of coaching and training, this could be more a Band-Aid approach, as opposed to successful, sustained change as defined by (Darling-Hammond, 2010; Fullan, 2010; Reeves, 2009; Senge, 2012).

Blended learning was a fast growing instructional model across the United States (Fluharty, Wood, & Hiebsch, 2014). Blended learning applied both face-to-face and

online learning options. Flipped instruction or flipped classroom may be the most well-known example of blended learning (Awaad, 2019; Mary, 2016; Tucker, 2019; Ziegenfuss, 2014). In a flipped classroom, the direct instruction, which is typically done in class, is now completed at home in the form of video generally and the homework or application activities are now completed in class where the teacher is able to provide assistance and ask guiding questions to lead the students to understanding (Keenan, Tyvand, & Wilson, 2014; Fluharty, Wood, & Hiebsch, 2014; University of Hong Kong, 2018). It is important to note that this "in class" homework was quite different from the traditional homework that may have been assigned. The work in class takes on more of a project based learning format where students applied the concepts and skills of the lessons (Kenney, 2019; Strauss, 2018)

The growth of social networking sites and the Connectivism learning theory were factored into the discussion of personalizing professional development for teachers (Tinmaz, 2012). Connectivism is a new learning theory designed to define learning in the digital era and explains that learning occurs through interaction within a connected community. The idea of PKM by Howard Jarche *Personal Knowledge Management Workshop Intro 2013* and PLN would be examples of this connectivism approach to learning. People with similar interests are able to connect on social media sites, e.g., Twitter and share information or resources which are then available for others that have questions about the topic using filters called hashtags. These interactions allow people to connect with others that share similar interests, despite the fact that these people may never be in the same physical location. The world becomes a community of connected

learners and these connections include sharing, collaborating, and discussing educational topics and practices (Cook, 2014; edWeb.net, 2013).

Badging and Micro-credentials

Micro-credentials are a form of digital certification in education that assess educator skills in both formal and informal learning situations. The badges are very similar to the awards or achievements that have long existed in video games. In the game, you receive an achievement for doling out x amount of damage using a particular weapon, finding and opening a certain number of treasure chests, or finding a set number of a certain items during the play of the game (Greene, 2019). Unlike the traditional professional development model where teachers are supposed to learn by watching, the micro-credential approach nurtures learning by doing (Acree, 2016). To earn the micro-credential or digital badge, educators must demonstrate competency of the skill by applying the skill to their practice, collecting evidence, and submitting work or projects as proof of mastery (Acree, 2016; NEA, 2020). Micro-credentials are a recent trend in education, however, micro-credentials have been used for many years in other industries like healthcare, business, and technology (D'Orio, 2019; Hodge, 2020; Tooley & Hood, 2020).

Micro-credentials can take on many formats, but there are some consistent features in common. Badges are competency based, backed by research, personalized and self-directed by the participant, job embedded, activity based where participant learns by doing, and available on demand (Digital Promise, 2020; NEA, 2020; Croft, et al, 2010). This approach is very different than traditional certification or course work which is available only at certain times and presented in a one size fits all model, based on seat

time, and learning is based on listening and the absorption of content (Bloomboard, 2020). Bloomboard equates the achievement of a micro-credential to passing the driver's exam, versus passing a college course (Bloomboard, 2020).

Is there a need for micro-credentials? The quality of teachers is the single most significant school-related factor to improve student learning (Johnson, 2014; Hanushek, 2011). The majority of teachers feel that their professional development doesn't lead to widespread utilization or help them improve their craft, and research shows that professional learning is frequently not effective in getting teachers to change their practice (The Mirage, 2015; Wolf, 2016). Traditional professional development operates under the assumption that the primary deficiency is a lack of knowledge and once educators know better, they will do better. However, research shows that the greatest obstacle for adoption and improvement is for teachers to apply the new information to the classroom (Bloomboard, 2020).

The make up or design elements of a digital badge is that the learning must be personalized and self-directed where educators can decide what they want to learn and the content needs to be available when they are ready to engage with it, earning the badge must be competency based and the educator can show evidence of mastery and completion (Yowell, 2018; West & Randall, 2016; Finkelstein, Knight, & Manning, 2013). The learning needs to be job embedded so educators can collect and apply evidence from their classrooms, and the badge needs to be research based to improve instruction and student learning. The process should be guided by feedback and provide for the opportunity to collaborate with peers (Acree, 2016; Wolf, 2016). It is also important to be clear what micro-credentials are not. Badges or credentials are not based

on accumulated seat time or Carnegie units. The course is not like a traditional online class, which is only available at certain times or presented in a one size fits all format. The delivery of the content cannot be based on simply receiving the information and devoid of context and application. Finally, proof of mastery cannot be assessed in a multiple choice format or one that can be automatically scored.

Badging and micro-credentials are being investigated across the US as a potential path for future. Organizations like Digital Promise and Kentucky Valley Educational Collaborative are leaders in these fields and providing frameworks for educators and districts to begin the hard work of classroom reform.

Summary

Districts and colleges need to better prepare their teachers and teacher candidates to lead 21st century classroom. This has always been a concern but has been exacerbated by our current worldwide COVID-19-19 pandemic forcing schools and districts to teach and work remotely from home. The method to adequately train teachers has long been a problem to balance all of the mandates from the state and federal governments, and local district needs. Generally, this is completed as after school, disjointed, one time drive by professional development and meetings where content is delivered by a fire hose. A more personalized systematic approach that incorporates teacher proficiencies, interests, needs and that includes some input and choice by teachers will yield better results than the current top down, compulsory, one size fits all approach. While this may seem logical, there is little research to support this idea and the discussion of this personalized system for teachers is still in its infancy. Despite being proposed for students for decades. One issue that quickly comes to mind is that of time. How to balance all of the

information that we need to relay to teachers and still accomplish high quality meaningful professional development. Another concern is that of compensation as teachers already do a lot of work outside of their contracted day. This researcher asserts that teachers need a series of learning opportunities that provide scaffolded support and teacher choice.

CHAPTER 3: METHODOLOGY

Introduction

The methodology used in the study is discussed in this chapter and organized into the sections of (a) setting and participants, (b) sampling procedures, (c) instrumentation and measures, (d) validity, (e) reliability, (f) anticipated ethical issues, (g) data collection, and (h) data analysis. The researcher originally intended to conduct a strictly qualitative study, but in the end decided on a mixed methods approach designed to gain deeper insight into teacher perceptions, reactions, and responsiveness to the online professional development format. The research employed a QUAN- Qual model (Gay, Mills, & Airasian, 2012, p 490) in which the findings in the quantitative research was used to determine the data collected in the qualitative study. The mixed methods approach was decided to dive more deeply into the teachers' attitudes and receptiveness to online professional development and the impact on teacher behavior and practice (ORAU, 2015; Lunenburg, 2008).

Impact of COVID-19-19 Pandemic

In March of 2020, the focus district, as many in the immediate area, and across the state were forced to close down schools as part of a state lockdown to flatten the curve and spread of the coronavirus as infection and death rates climbed. Similar steps were taken in other states in the United States as many countries around the world had been battling the transmission of COVID-19-19. As was the case with many districts, including the focus district, teachers were on Spring Break and schools were closed which created a difficult transition as students returned from break. Technology needed to be immediately checked out to students to begin class at home. Schools cleaned

Chromebook and removed power cables from carts. Teachers moved classes online using Google Classroom and quickly became familiar with video conferencing tools like Google Meet and Zoom. The district created Google Classrooms for all teachers so that they had a current set of students to being remote instruction and worked with partners to procure hotspots for students to use as an internet source while at home. The district was able to obtain 500 hotspots to help those students without the internet and to address issues of equity and access (Hussar et al., 2020). Packets were distributed to students to pick up from their schools as a stop gap for the first two weeks of distance learning while technology was checked out to students and teachers transitioned their content and lessons online.

The original timeline for completing the data collection for the study was the summer of 2020 which wasn't possible due to the continued support needed for teachers and schools in preparation for the start of the 2020-21 school year in distance learning. Instruction in the Spring, was a mixture of asynchronous and synchronous offerings and left for teacher and site discretion, but in preparation for the new school year, teachers and students were expected to be online together. The instructional technology team completed nine two-hour trainings on using Google Suite, Google Classroom, and Zoom for teachers during the summer and another eight trainings for parents, while supporting the instructional continuity plan which was the roadmap for the district and provided resources for both educators and parents. During this time, the researcher also expected to leverage the new teacher orientation to request volunteers and to introduce those interested to the online learning platform. Initially the idea was that the orientation would be online and digitally via an online learning platform. In the end, the new teacher

orientation was conducted remotely, but it wasn't feasible to get the content that is traditionally delivered face to face into a synchronous digital format with all that was going on at the time.

The impact of COVID-19 on the study may never truly be known, but what is known is that the pandemic impacted the timelines for the study, the populations that were to be included, that ultimately no interviews were conducted, and required a shortened data collection period. The researcher believes that there were less teachers that participated in the study due to fatigue, unwillingness to do anything extra or not required as they had been working very long hours preparing for instruction and leading their classes, and the very understandable need for a break. Overall, there were initially 216 staff members that expressed an interest in participating in the research and would have worked with the Alludo platform and 86 from the MobileMind sample population. The researcher expected both numbers to be higher and as will be evident later, there was attrition at each stage of the data collection process.

Setting and Participants

The study took place in a large urban school district in Central California serving approximately 40,000 students in grades pre-kindergarten to adult education at 54 sites. The sites are further broken down into 41 elementary schools (pre k-grade 8), four comprehensive high schools, four smaller high schools, two alternative high schools, five dependent charter schools, one adult school, and one school for students with special needs that serve students aged 3-22.

As of 2018-19, the district's student population was made up of 67% Hispanic or Latino, 10% Black or African American, 9% Asian, and 5% White, the remaining 9%

were made up of small subgroups of Filipino, American Indian, Pacific Islander, or students that did not disclose a race. Twenty-three percent of students are English Language Learners with the vast majority of students with a primary language of Spanish 22%, all other subgroups made up less than 1% of district's student population, specifically, Hmong, 0.7%, Khmer, 0.5%, Arabic and Filipino (Tagalog and Pilipino),0.3%, Arabic, 0.3%, and all others made up 1.4% combined. 80% qualify for free or reduced meals as the district is identified as a Title I district, and 1% of the students are foster children.

Current data was not available on the state dashboard as there is a lag on the data being posted, but the most recent data that was available is provided below. There were 1,816 full time teachers, of which 195 were first year teachers, and 176 were in their second year of teaching. The average teacher experience was 12 years as compared to San Joaquin County of 11 years. Ethnic make-up of the teaching staff was 48% White, 25% Hispanic or Latino, 10% Asian, 7% Black or African American, Filipino 4%, and all others made up less than 2% of the teacher population, none reported 1.9%, two or more races identified, 1.2%, American Indian, 1.2%, and Pacific Islander, 0.3% (Ed-Data, 2020.).

Primary audience was teachers, coaches, specialists, and site administrators in a large urban school district in San Joaquin County. The designated district includes 54 schools in grades preschool through adult. All teachers were given an opportunity to participate, but if available licenses became limited, priority would have been given to those that had attended recent technology trainings.

Sampling Procedures

A series of emails were sent out to school distribution lists which outline the study, benefits, risks, data privacy and request volunteers. People that were interested in volunteering submitted their information on a Google form which simply asked for their name, school, and email address which was necessary to create the accounts in the online platforms. This step was also necessary to send the interested teachers the pre-survey before getting started with the online learning portals on their assigned platforms. Interested teachers who volunteered to participate were sent a survey which included reminders on all rights, roles, benefits and protection to complete before beginning work in the online learning platforms. The purpose of the study, benefits, rights of the volunteers, and consent were also included in the pre-survey. A convenience survey was completed by as many educators as the researcher could get to participate and complete the survey from the designated district. Additional colleagues of the researcher on social media and learning networks were asked to complete the survey to add more depth and breadth of responses based on teaching and technology experience, student demographics and socioeconomic status of the educational environment. However, none of those colleagues volunteered to participate. The researcher expected to secure responses from 50-100 educators from the primary designated district.

Participants completed modules in one of two online learning platforms. These online platforms have prebuilt content modules that were made available to the participants. The designated district is working with MobileMind this school year. Alludo, will be the other platform used in the study and allowed the researcher to use the platform for the pilot review and data collection. Participants were able to self-select

from the available modules provided in the designated platform. Most modules focused on Google Suite, Google Apps for Education productivity suite or Chromebooks which were used by the district. These tools and devices were very important during the current pandemic of COVID-19 19 and the remote learning environment that the target district was in for the majority of the 2020-21 school year. The online modules also included best practices for technology, blended learning, social and emotional learning, and other online tools that the district provided to assist with the online and remote learning. The researcher expected to have at least 50 educators participate in the online professional development.

Instrumentation and Measures

Participants were asked to complete at least one online module from the learning platform that they were assigned. The online modules consisted of a series of related activities and required that the teacher submit work product as the basis for advancement through the modules. The work submitted was evaluated and approved by reviewers employed by the partner in the case of MobileMind and by the researcher in the case of Alludo. Participants were encouraged to complete more than one module for a better foundation and deeper understanding of the online asynchronous learning style. Once the data collection window closed, participants completed a survey developed by the researcher. The survey had been peer reviewed and piloted by colleagues not associated or involved in the study, but that are knowledgeable and familiar leading technology professional development. Any issues of clarity, miscommunication, or ambiguity in the questions or prompts were resolved before deploying the tool to the participants to provide the most accurate and relevant results (Blair, Czaja, & Blair, 2014). The

feedback from this review process was very helpful and provided some great feedback and modifications.

Participants were asked to complete a pre and post survey which were created in Google forms. Both forms are included in the appendices. The pre-survey included a potential total of 30-33 questions as there are some follow up questions which were dependent of submitted answers. The questions were categorized in sections on professional development, technology, technology in schools, and demographic questions. The majority of questions were four point Likert scale or multiple choice, but there were also some choose all that apply, fill in, and open ended responses.

The questions on the survey focused on the categories of 1. professional development, 2. technology in schools and their classrooms, 3 technology usage in personal and work lives, and included basic demographics. This pre-survey was also used to gain the participants consent. The survey is included in Appendix A. The survey was peer reviewed and piloted with a sample population. Scoring is primarily Likert scale, multiple choice, and select all that apply type questions. The pre-survey was completed at the onset of participation. Once the data collection process concluded, the participants were sent a link to the post survey which consists of 19-20 questions as one question included a follow up depending on the participant's response. These questions were primarily open ended in nature and sought to gain deeper responses and insights into the participants' experience with the modules and their opinions on this new format and structure for professional development.

This proposal sought to create an innovative new format for professional development for teachers that was founded upon the tenets of personalized learning and

Adult Learning Theory. The online learning system included flexible, anywhere learning, project based activities which incorporated authentic, job embedded learning experiences, competency/mastery based progression where teachers proceeded at their own pace. Participants were only able to move to more advanced modules after demonstrating mastery and progression was no longer based on attendance or seat time. In the new format, lessons provided scaffolded support, checks for understanding, and material was presented in manageable chunks, course materials that were relevant to current role as teacher and employed a combination of synchronous and asynchronous learning options. The content allowed for choice by the teachers and modules could be taken independently based on teacher needs and interests. The work submitted at the end of the module demonstrated mastery of materials and related to their current teaching assignment. Finally, the pièce de résistance is the ability to monitor time on task, successful acquisition of the content, and analytics could provide evidence and potential to compensate teachers for completed coursework or continuing education units from a partner university.

Reliability

The survey was designed by the researcher, peer tested by some colleagues within the doctoral cohort leading to a revised survey which was then piloted by members from the designated district tasked with technology leadership and professional development to gain deeper feedback and increase reliability of the survey. Reliability is the correlation that the tool measures whatever it measures consistently. From the various pilots described above, the survey was determined to have strong reliability.

Validity

Validity is that the tool actually measures what it is designed to measure. External validity is a concern with a convenience sample that will be used on the project. Having a control and experimental group will help protect against the variables of maturation, testing, and selection bias, which potentially affect internal validity.

In 2014, EdSurge surveyed 400 teachers, interviewed another 50 about teachers' attitudes, beliefs, desires, and practices regarding professional development. The researcher attempted to gain permission to replicate their study and potentially use their interview questions, but ultimately was unable to gain permission for the organization. Since permission to replicate the study was not obtained, this project loosely replicated the process from the EdSurge study.

A great resource from EdSurge, included a framework for future professional development and categorizes web based tools that support the proposed learning environment detailed above (EdSurge, 2015). The framework was developed based on surveys of 400 educators and then conducting follow up interviews with over 50 educators. These educators were surveyed about preferred learning styles and dislikes with the current method of professional development. EdSurge also included descriptions of many web-based resources that detailed how a resource was accessed, the delivery platform of instruction, content that is taught, and when the tool can be implemented. The framework outlines a professional development cycle that includes the steps of Engage, Learn, Support, and Measure and presents some key emerging insights that are consistent with the principles of adult learning theory, characteristics of adults as learners, and personalized learning (EdSurge Guides, 2014). The insight from the

educators' surveys and interviews revealed that teacher choice is valued, should include alternate forms of measurement beside observations and evaluations, video is a common tool for online training models, and the resources can be accessed anytime and anywhere. Other insights that emerged were the ability to set goals and measure if those goals were achieved and demonstrating mastery is critical as in the personalized learning and online models (Pappas, 2014).

A qualitative study must still be rigorous and consider other forms of validity according to Weinstein (2016), and seek to include internal, construct, and external validity. Internal validity seeks to determine if the data collected is a good reflection on what is observed in the field, construct validity which evaluates if the chosen techniques truly measure and reflect what the researcher thinks it does, and external validity which seeks to determine if the techniques and methodology can be used in other external studies. The use of external coders also helps strengthen the construct validity.

Data Collection

A series of emails were sent to all certificated staff at all sites, grades, and subject matter in the target district to request volunteers to participate in the research. Another email was sent specifically to teachers that had attended some technology trainings since the pandemic closed schools. Finally, a third set of announcements were included in the social media feeds of the researcher on Facebook and Twitter as a backup plan as people spend lots of time on social media and may miss the email request. All announcements asked those that are interested in participating to send an email to the researcher so that he can send the link to the pre-survey to them. This was the only time that the identity of the participants was known to the researcher, but it was necessary to create accounts in

the two online learning platforms. Other ideas were considered, but it was ultimately decided that this step was necessary to avoid adding work for the small instructional technology department which has been working to capacity supporting schools since the initial stay at home orders were enacted in California, and that this did not impact the potential risk for the participants. All future participation was anonymous from that point to completion as no identifying data was collected in either the pre or post survey.

The target district was working with MobileMind this year provided by grant funding from Google, but these licenses are limited. There was a technology steering committee in the district this year and those members were assigned to the MobileMind platform. The remaining licenses were used for those that are interested in participating and that have recently attended technology training since the closing of schools and remote learning began. These participants have access to the online learning platform until September 2021. The remaining interested participants will be assigned to the Alludo platform where licenses were not an issue. These participants will have access to Alludo for 60 days.

Upon receiving the interest response from the participant, the researcher sent the link for the pre-survey to the participant for completion. The pre-survey included a total of 30-33 possible questions as there are some follow up questions dependent on answers provided. The pre-survey included the consent form with a description of all rights and notification regarding the participation in the research. The other information collected included eight questions about traditional teacher professional development, six questions regarding the use of technology in learning from the teacher perspective, four focused on technology in the classroom, and ten demographic questions. Upon completion of the

pre-survey, participants were provided access to the assigned online learning platform and asked to complete at least one module during the data collection period. The researcher sent the login credentials and access information to the participants and reminded them to complete at least one module. Only very basic information about accessing the platform, overall information on the data collection period, and an overview of the content was shared as the researcher was curious about the ease of use of the platforms and modules. To encourage completion of the modules and participants to complete more than one module, the researcher conducted weekly raffles for gift cards or technology related books on Fridays. Data was pulled from the two platforms and participants that were active during the week, were added to the weekly raffle. Once the data collection period concluded, the participants were sent the link for the post survey which consists of 19-20 questions. The post survey is primarily open ended questions that sought to gather feedback on the experience with the online modules and the participants' opinion about this new format as a viable system for future professional development or for use in their classrooms with their students. Questions about the digital certification or badges and whether or not those were valued by the participants was also included.

Data Analysis

A variety of data analysis procedures were utilized in this research project including descriptive and inferential, open, axial, selective coding, and triangulation. The demographic data was described using charts and histograms. The Likert scale used on the survey will be a four-point scale ranging from Strongly Disagree to Strongly Agree. Open coding required the researcher to analyze data with an open mind, eyes free of bias,

and free of expectations and restriction to uncover the gems in the data which were similar to our coding activity in our current course (ChangingMinds.org, 2016.). Axial coding differs from open coding as it looks for links, themes, and relationships between the data, instead of simply naming and identifying data in the open coding phase. Selective coding helped with the integration of categories and sought to determine the overarching ideas and themes. Triangulation was used to develop the qualitative story with deep and robust data and artifacts (Cohen & Crabtree, 2006).

As discussed by Creswell, triangulation is the most effective method of validating our research findings (Creswell, 2015). Triangulation is to use one data source compared to another to eliminate potential alternative explanations (Creswell, 2013; Brender, 2006; Lawlor, 2017; Turner & Turner, 2009). Other external coders may also be used who are technology experts in the education field may also be utilized to ensure validity of the researchers coding of the data.

Ethical Issues

When working with school districts, universities or teacher prep programs, and participants, the issue on confidentiality and anonymity are areas of concern. Every precaution was made to ensure that identifying names, roles, positions, conditions, locations, etc. was avoided and participants were described only in general terms to protect and keep responses and opinions confidential. As we have learned in our courses, as researchers we must do no harm and do all in our power to protect our participants. As part of the Institutional Review Board process, we must further explain our processes and methodology that will ensure the anonymity of the district and participants. Informed consent was also be obtained from all participants after explaining what we are

researching, how the data will be utilized, discussed, and distributed, and that the researcher will do everything in his power to maintain confidentiality and anonymity of the participants that agree to complete the survey and potentially interviewed as part of the research (Oliver, P, 2010).

Other potential concerns and ethical issues could be my own personal bias and affinity for technology. The researcher is a strong believer in the use of technology in his personal and professional life and was technology was integrated in his classroom. These interests and beliefs were part of the journey that started the path toward becoming the Administrator of Instructional Technology. Technology is engaging for students, but merely dropping technology into a classroom doesn't make magic happen without some good professional development and pedagogy behind it. Technology is great in teachers' hands, but even better in a student centric technology approach. It is always interesting to observe the level of technology use in personal or home lives of teachers', but that tech is verboten and absent in their classrooms. The final area of concern is my role within the district and EdTech communities which could be viewed as both a concern and a positive. Local participants were aware of the researcher's role within the district and passion for technology. They may safely and easily assume that the research was designed to promote and expand the use of technology in schools which participants may or may not welcome.

Summary

Current research was limited as it related to the tenets of personalized learning being applied to the professional development for teachers, although much is written on the subject for students. There seemed to be a movement afoot to include performance

and mastery based learning for students and many states in the United States had recently implemented pilot programs for students. Incorporating personalized learning and applying it to professional development for educators was still in the gestation period. The EdSurge report of 2014 discussed the need for change in teacher professional development and surveyed the preferences of teachers. There are other organizations that were discussed and promoted work in this area. Digital Promise was one such group with the mission to accelerate innovation in education and to improve opportunities to learn. Their research included work on adult learning theory, micro credentials, and reinventing the classroom. The Kentucky Valley Educational Cooperative is putting these ideas into practice. Like Digital Promise, the mission of KVEC is to build human capital of educators, learners, and community members to work together to solve the often pervasive challenges that exist in their rural region. KVEC recently hosted an online summit on micro credentials which was attended by the researcher. Other areas of research that were applicable were that of Adult Learning Theory of Knowles (1970) and Characteristics of Adults as Learners model of Cross (1981). The results of this research established an alternative model for educators, teacher preparation programs and school districts to deploy and train their teachers and teacher candidates. The professional development was well received by the participants and is discussed in the following section.

CHAPTER 4: RESULTS

Introduction

Certificated staff from the district were emailed requesting volunteers and participants for the research. Those interested completed a Google form to express their willingness to participate and were then sent the pre-survey for completion, which also included the rights and responsibilities information, as well as the informed consent. The pre-survey included a potential total of 30-33 questions as there are some follow up questions which were dependent of submitted answers and was available for three weeks. The questions were categorized in sections on professional development, technology, technology in schools, and demographic questions. The majority of questions were four point Likert scale or multiple choice, but there were also some choose all that apply, fill in, and open ended responses. The pre-survey was completed at the onset of participation. Once the pre-survey was completed, the account and login credentials for the two platforms were sent to the participants to begin working with the online content and completing modules on self-selected topics. Over 200 teachers participated and completed the pre-surveys. Specifically, 113 staff members for Alludo and 76 for MobileMind.

MobileMind

Participants were added to the designated learning platforms which were available for the research phase. The district had a limited number of licenses to the MobileMind platform provided by grant funding from Google. Due to the limit on licenses, specific groups with the district's certificated staff were targeted for participation with this platform. The groups targeted included the district's newly formed technology steering

committee which consists of teachers, specialists, coaches, site administrators, and district technology specialists. The role of the steering committee is providing input and feedback on technology tools for the model modern classroom, purchasing, planning and revision of our three-year master technology plan. A license in MobileMind was offered to the steering committee members to explore the learning platform. Technology training has been a necessary expense and need since the school closures in the Spring due to COVID-19-19. The instructional technology team has provided many trainings since March on technology tools, pedagogy, and instruction for teachers which have been very well attended. Those participants were also offered a MobileMind license if they were interested. These groups were asked about their willingness to participate in the doctoral research and were informed that their participation was completely optional. Access to MobileMind was made available for all who were interested regardless of their participation in the current research study.

Alludo

The researcher established a partnership with the Alludo online learning platform and was able to obtain licenses for the completion of the research study. Alludo generously offered their platform for a few hundred licenses to participate in the study and to pilot their learning portal. Interested parties completed a Google form to express their willingness to participate and were then sent the pre-survey for completion. This pre-survey also included the rights and responsibilities information, as well as the informed consent. The pre-survey was identical to the one provided and discussed for MobileMind and once completed information was shared to participants regarding access the Alludo platform and content.

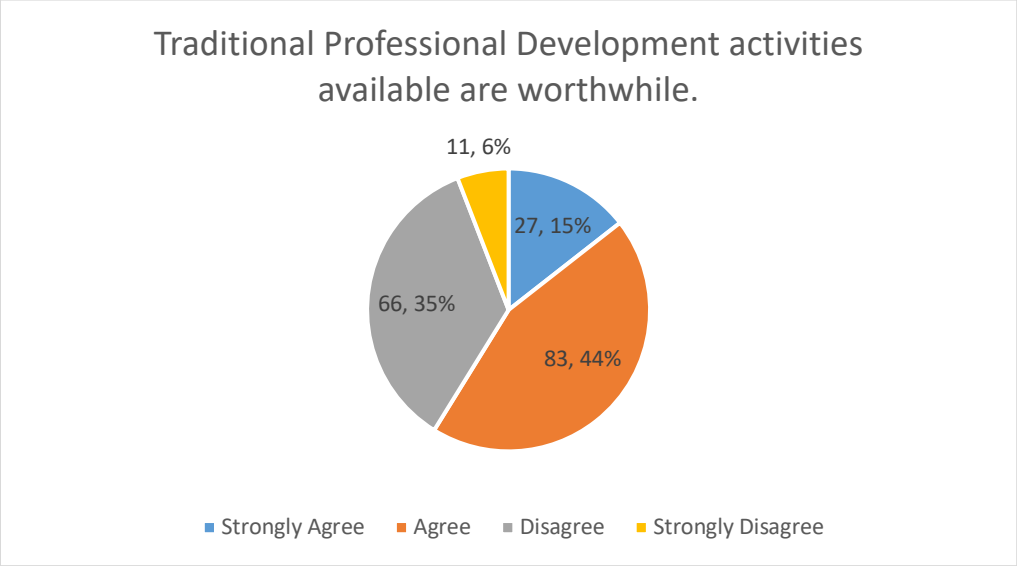
The online learning portals were available and the data collection period open for six weeks. Participants were asked to complete at least one module during the data collection period and highly encouraged to complete two for greater exposure to the platforms, how they worked, and the user experience to determine their likelihood to participate in similar professional development offerings in the future. The researcher conducted weekly drawings each Friday for technology pedagogy and instructional practices professional books which were purchased for this purpose and to encourage and motivate volunteers to complete as many modules and activities as possible. Once the data collection window closed, participants completed a post survey developed by the researcher.

Quantitative Data Analysis:

Teacher Opinion and Feedback on Traditional Professional Development

On the Alludo pre-survey, 59.4% of teachers felt that traditional professional development was worthwhile, with 17.1% strongly agreeing with the prompt. Similarly, from the MobileMind cohort where 57.9% supported traditional professional development, 10.5% strongly agreed with the prompt. Of the remaining responses, 32.4% and 39.5% disagreed from the Alludo and MobileMind surveys, while 8.1% from Alludo cohort and 2.6% from MobileMind strongly disagreed. Combined scores on the prompt if traditional professional development was worthwhile, 27 or 15% strongly agreed, 83 or 44% agreed, 66 or 35% disagreed, and 6% or 11 participants strongly disagreed.

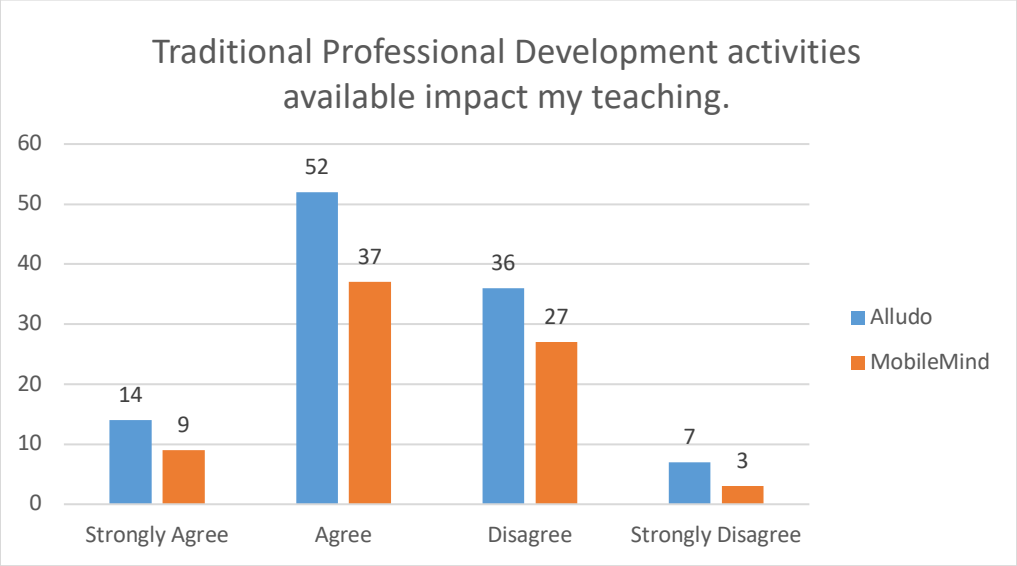
Figure 1



Traditional Professional Development Activities Are Worthwhile

Regarding the prompt that *traditional professional development impacts their teaching*, 60.5% of teachers agreed, with 12.8% of them strongly agreed. The exact same percentage of the Mobile Mind cohort agreed that professional development impacted their teaching, and 11.8% of them strongly agreed with the prompt. Of the remaining responses, 33% disagreed and 6.4% strongly disagreed from the Alludo cohort as compared to their colleagues 35% disagreed and 3.9% strongly disagreed. In total, the two groups responded 23 or 12% strongly agreed, 89 or 48% agreed, 63 or 34% disagreed, and 10 or 5% strongly disagreed.

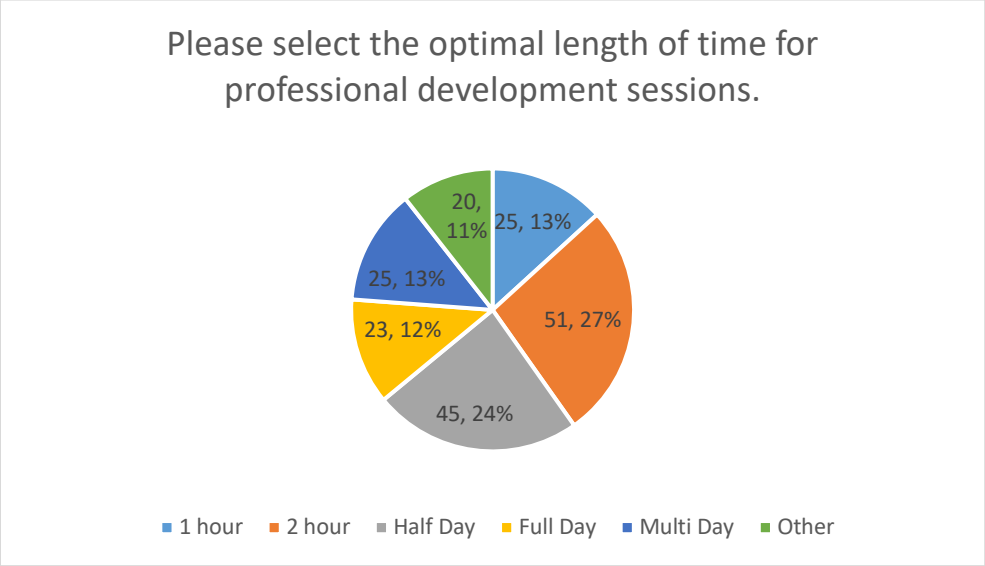
Figure 2



Traditional Professional Development Activities Available Impact My Teaching

When asked about the optimal length of professional development, the most common responses were two hour sessions (27.4% Alludo and 26.3% MobileMind) and half day sessions (27.4% Alludo and 18.4% from MobileMind group). Other options receiving 10% or higher support were one hour sessions (12.4% Alludo and 14.5% MobileMind), full day (11.5% Alludo and 12.2% MobileMind), and multi day (11.5% Alludo and 15.8% MobileMind). Many respondents reported that the optimal time may vary depending on a variety of factors which included the content, the presenter, the purpose and motivation of the professional development sessions. With the cohort responses combined, 25 or 13% replied one hour, 51 or 27% answered two hours, 45 or 24% replied half day, 23 or 12% replied full day, 25 or 13% responded multi day, and 20 or 11% replied something other than these choices of which the most common response was one and a half hours.

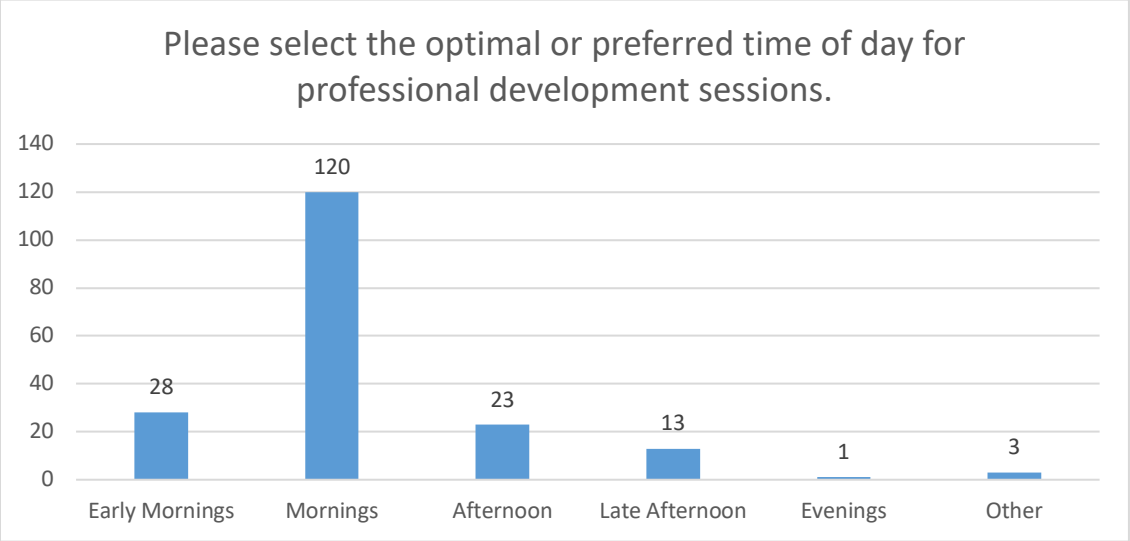
Figure 3



Please Select the Optimal Length of Time for Professional Development Sessions.

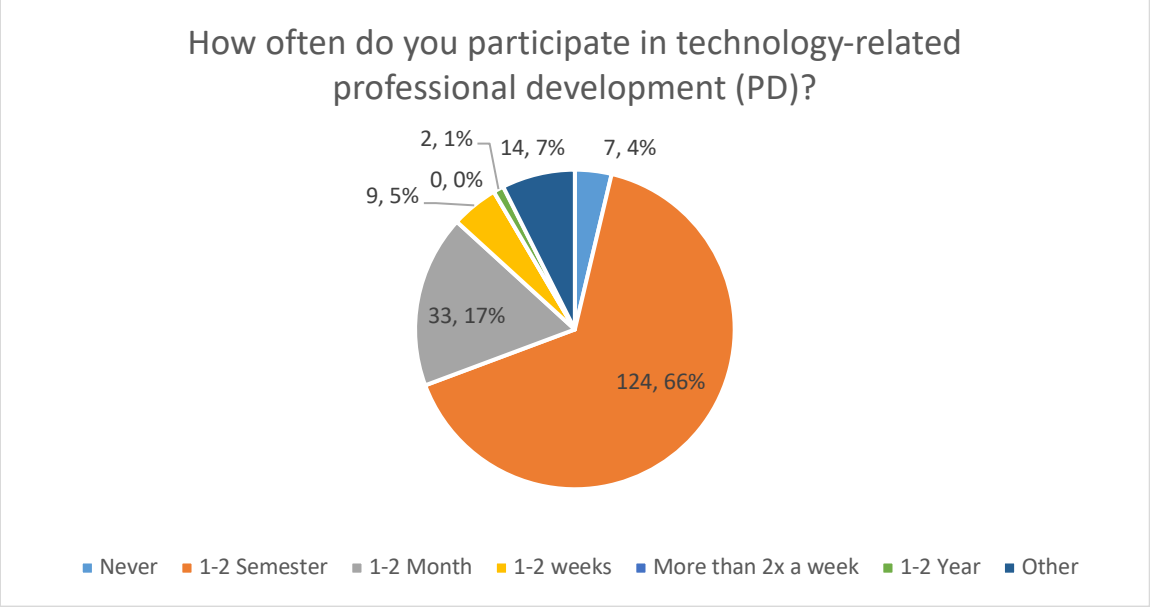
The clear preference for the timing for scheduling professional development was in the mornings. Sixty-one percent of responses from the Alludo group and 68% of the MobileMind group selected mornings. Similarly, the most common response, (67.3% of the Alludo group and 63.2% of the MobileMind group), for frequency of participation in technology related professional development was once or twice a semester. In total, 148 of 188 (79%) responses selected morning as the preferred time of day for a training, with 28 or 15% responding early mornings and 120 or 64% responding mornings.

Figure 4



Please Select the Optimal or Preferred Time of Day for Professional Development Sessions

Figure 5

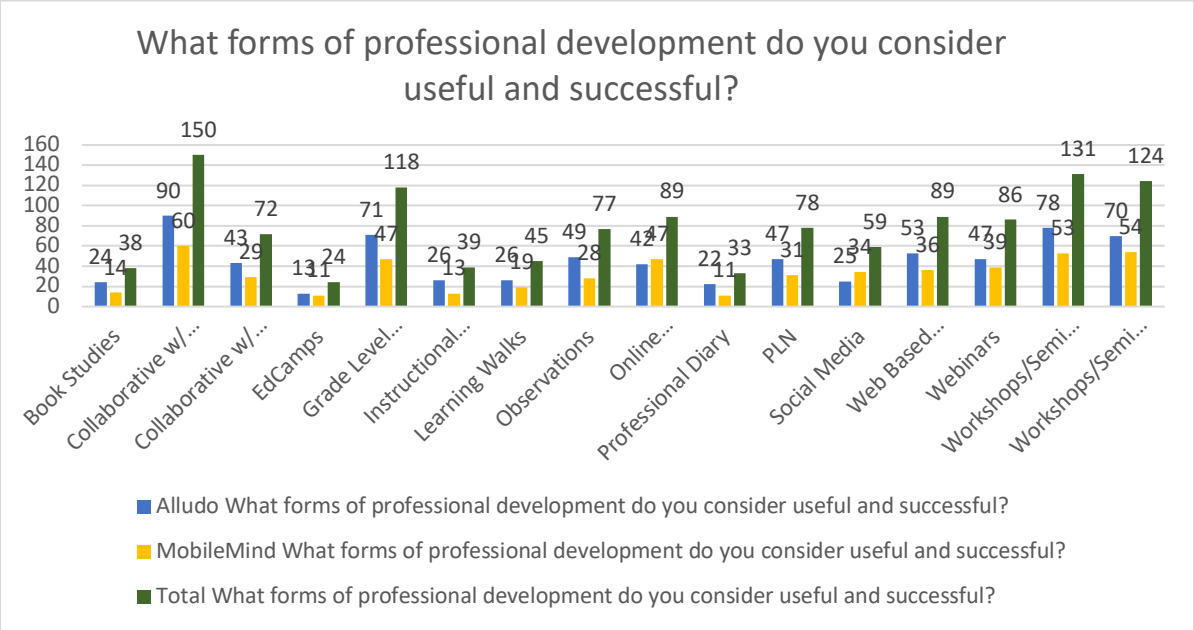


How Often Do You Participate in Technology-related Professional Development?

When participants were asked *what forms of professional development do you consider useful and successful,* the responses were varied. The prompt allowed for

participants to select all that applied for them. The most common responses were collaboration with colleagues, workshops/seminars in and out of the district, and grade level collaboration with colleagues which had at least 100 participants select them. Other common responses which received support of at least 50% of the respondents were web based tutorials, online modules/courses, and webinars.

Figure 6



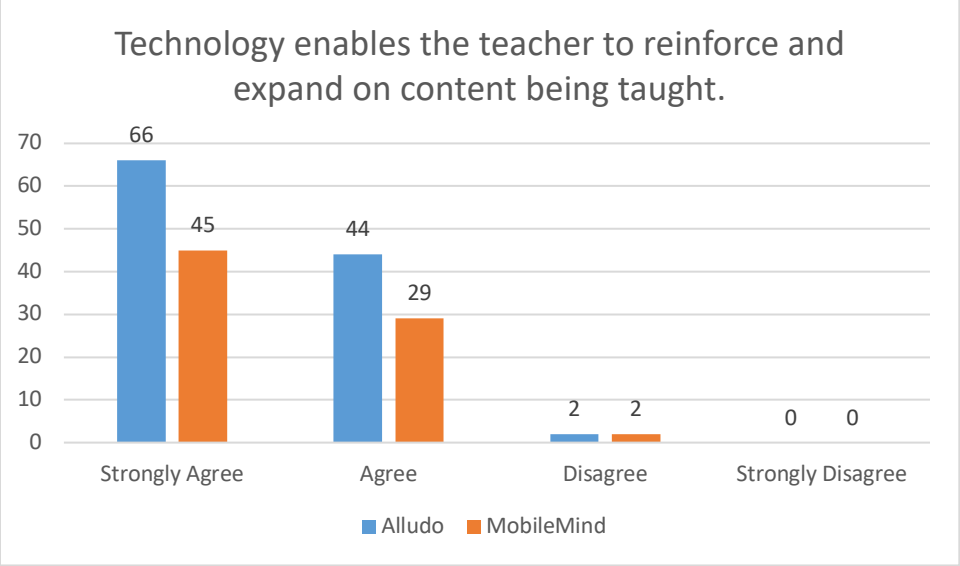
What Forms of Professional Development Do You Consider Useful and Successful?

When asked *what the ideal professional development would be or would include*, responses were quite varied although there were common themes. The most common response was that the training was ongoing and sustained which was included in 35 responses. Collaboration was included by 29 respondents, experiential or hands on learning were each mentioned in 24 responses, and that there were materials provided for review and documentation were included in 12 responses.

Attitudes and Beliefs on Technology in Classroom, Teaching and Learning

When asked if *Technology enables teachers to reinforce and expand content being taught,* 98.2% of the Alludo participants agreed, which is very similar to the MobileMind cohort where 97.4% of responses agreed with the statement. From the Alludo group, 58.9% strongly agreed, 39.3% agreed, and 1.8% disagreed. The responses from the Mobile Mind group were very similar in that 59.2% strongly agreed, 38.2% agreed, and 2.6% disagreed. 184 of 188 or 98% of which 111 or 59% strongly agreed. There were no participants that strongly disagreed with the prompt and only 4 people or 2% disagreed.

Figure 7

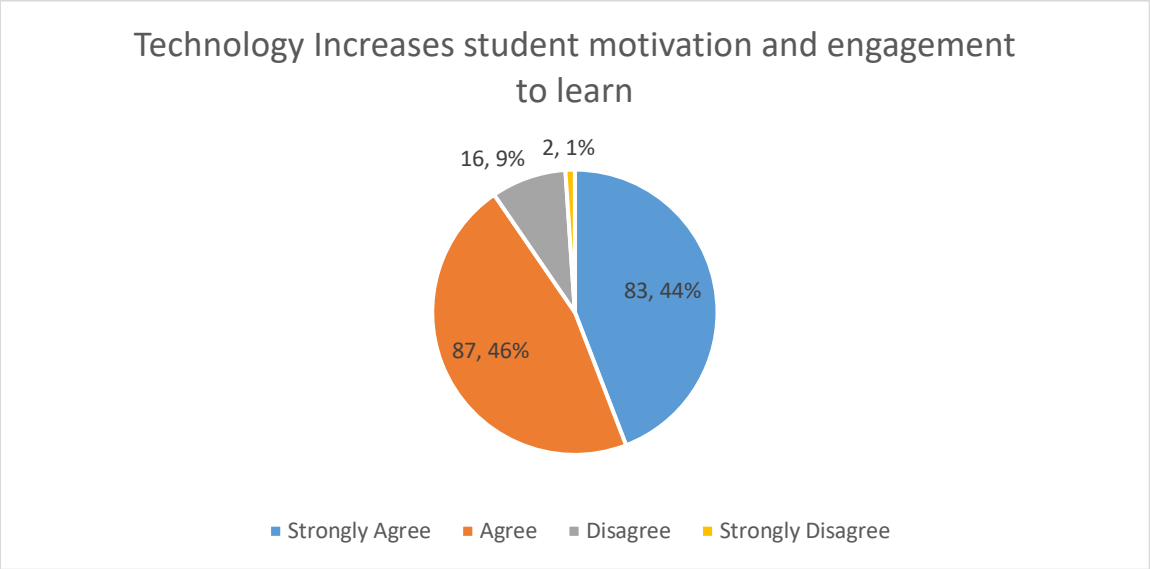


Technology Enables the Teacher to Reinforce and Expand on Content Being Taught

Ninety-four and eight-tenths percent of the MobileMind participants agreed with the prompt that *Technology increases student motivation and engagement to learn*, as compared to 87.5% of the Alludo responses. In the Alludo group, 41.1% strongly agreed, 46.4% agreed, while 11.6% disagreed and .9% strongly disagreed. While in the

MobileMind group, 48.7% strongly agreed, 46.1% agreed, 3.9% disagreed, and 1.3% strongly disagreed. When combined, 90% of responses agree to some degree with the prompt with 83 or 44% strongly agreeing and 87 or 46% agree. The remaining 10% of responses were divided with 16 or 9% disagreeing and two people or 1% strongly disagreeing.

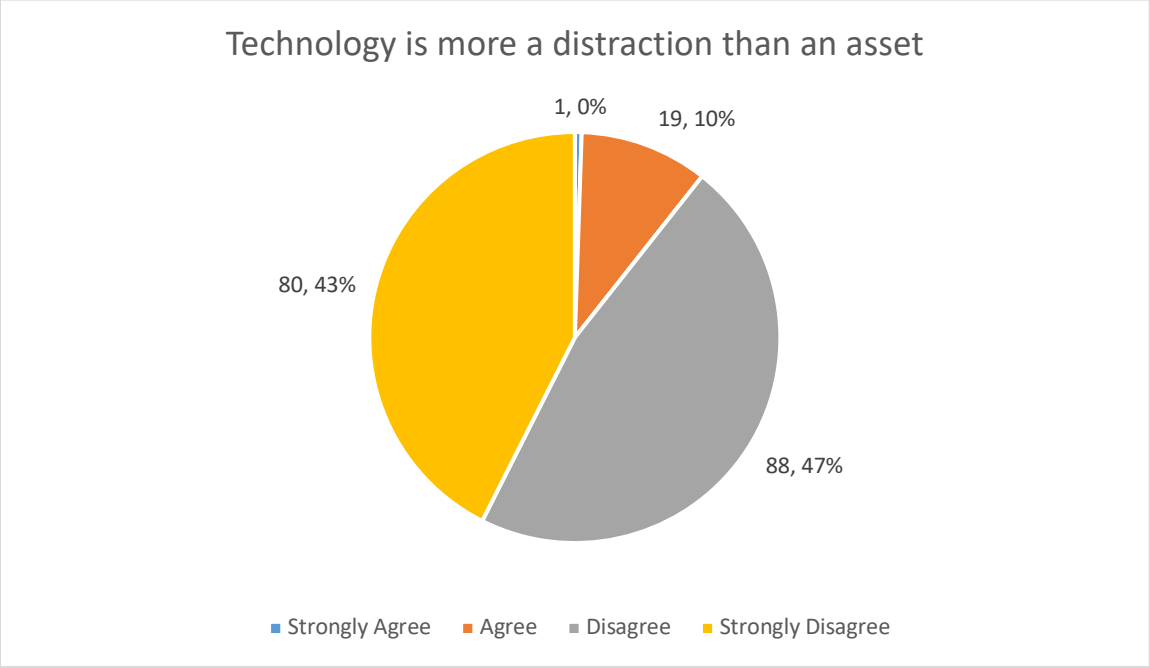
Figure 8



Technology Increases Student Motivation and Engagement to Learn.

When asked if *Technology is more of a distraction than an asset*, most teachers disagreed with this statement. Responses from the MobileMind group ranged from 1.3% strongly agreed, 3.9% agreed, 46.1% disagreed, and 48.7% strongly disagreed as compared to the Alludo respondents where 14.3% disagreed, 47.3% disagreed and 38.4% strongly disagreed. No one strongly agreed. When combined, 90% of the responses disagreed to some degree with 80 or 43% that strongly disagreed and 88 or 47% disagreed. The remaining 10% were made with of 19 people or nearly 10% that agreed and one person or less than 1% that strongly agreed.

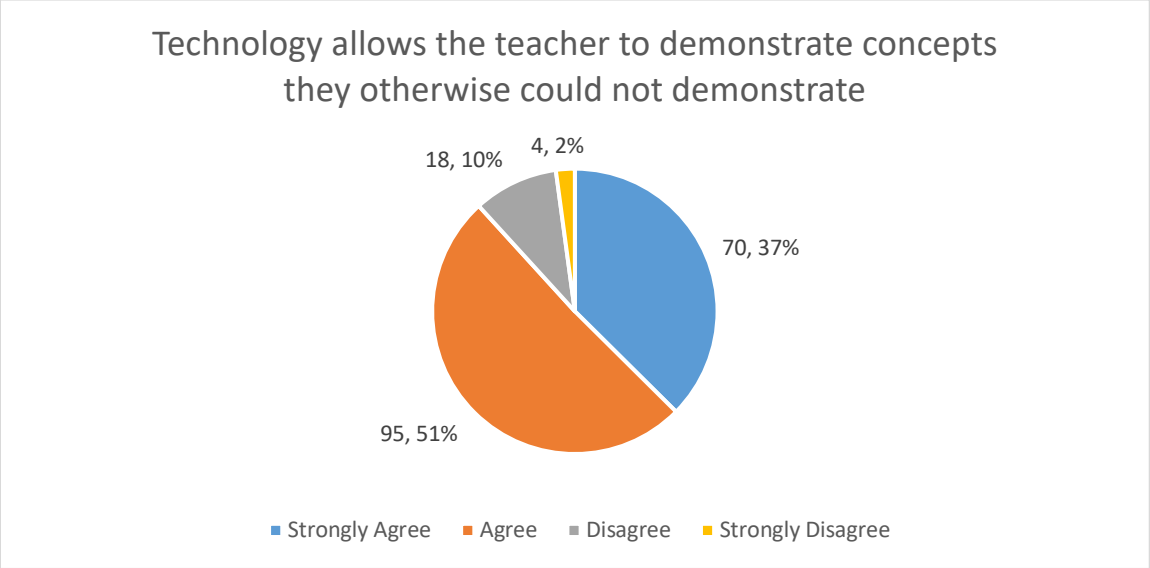
Figure 9



Technology is More of a Distraction than an Asset

Respondents clearly agreed with the prompt, *Technology allows the teacher to demonstrate concepts they otherwise couldn't demonstrate*. The responses from the Alludo group, ranged from 36% strongly agreed, 51.4% agreed, 10.8% disagreed, and 1.8% strongly disagreed, which was very similar to the MobileMind group where 39.5% strongly agreed, 50% agreed, 7.9% disagreed, and 2.6% strongly disagreed. Eighty-eight percent or 165 of 188 of participants agreed with this prompt to some degree, with 70 or 37% strongly agreed and 95 people or 51% agreeing. The remaining 12% were made up of 10% or 18 participants who disagreed and four people or 2% that strongly disagreed.

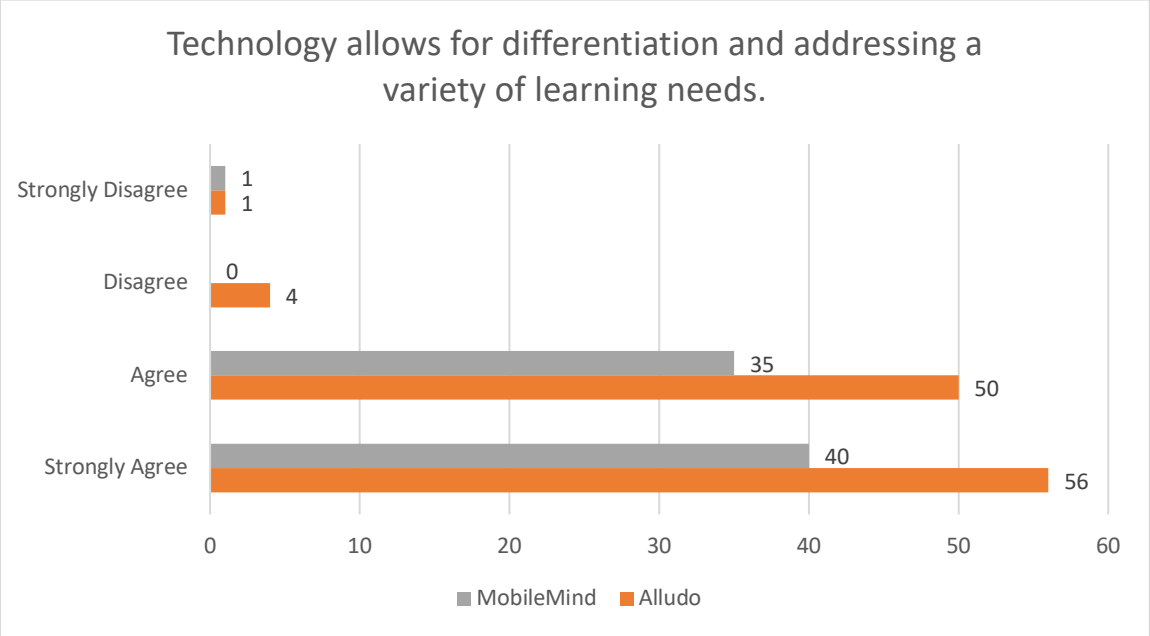
Figure 10



Technology Allows the Teacher to Demonstrate Concepts They Otherwise Could Not Demonstrate

Participants agreed with the prompt that *technology allows for differentiation and addressing a variety of needs.* The responses in the Alludo cohort varied from 50.5% strongly agreed, 45% agreed, 3.6% disagreed and .9% strongly disagreed. Responses were similar in the MobileMind group where 52.6% strongly agreed, 46.1% agreed, and 1.3% strongly disagreed. None disagreed. The two cohorts combined responses include 96 of 187 or 51% strongly agreed, 85 or 187 or 45% agreed, four of 187 or 2% disagreed and two of 187 or 1% strongly disagreed,

Figure 11

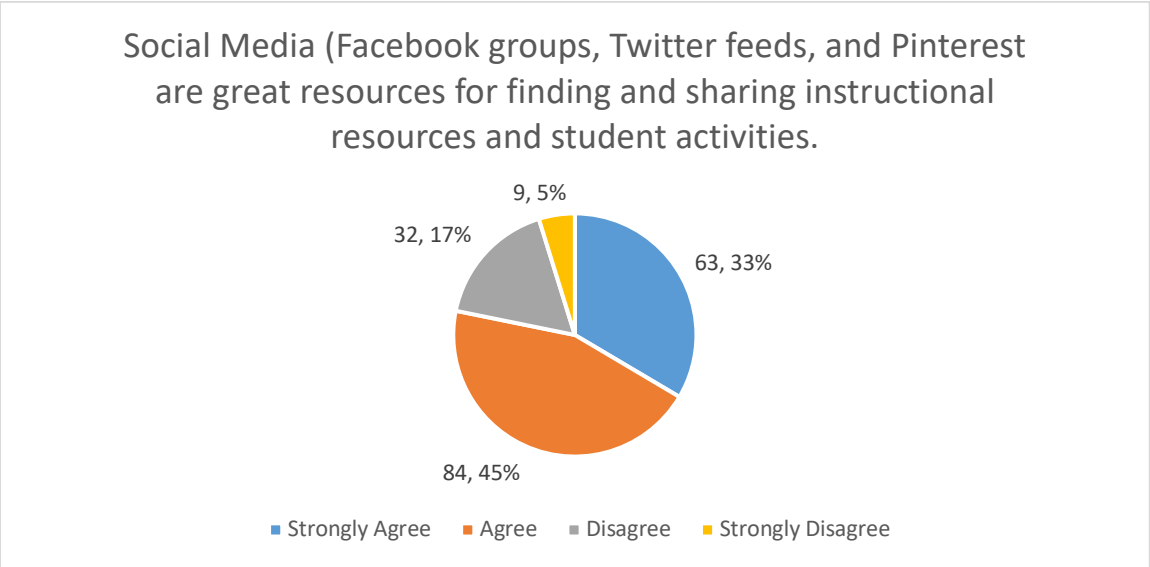


Technology Allows for Differentiation and Addressing a Variety of Learning Needs

The internet has information and resources on all topics. Education is no exception and a source for activities, ideas, support, and lesson plans for teachers. During the COVID-19 pandemic, social media feeds and groups have been born to support teachers with distance and remote instruction and learning (Burry, 2020; Ward, 2020). Facebook groups on Bitmoji classrooms (Edwards, 2021; Minero, 2020), and teachers sharing resources and ideas for the classroom have sprouted as schools closed and nations fought to handle the spread of the Coronavirus COVID-19-19. When asked if social media (Facebook groups, Twitter feeds, and Pinterest) are great resources for finding and sharing instructional resources and activities, the vast majority agreed. In the Alludo group, 26.8% strongly agreed, 44.6% agreed, 24.1% disagreed and 4.5% strongly disagreed. Responses from the MobileMind cohort agreed even more, where 43.4% strongly agreed, 44.7% agreed, 6.6% disagreed, and 5.3% strongly disagreed. When the

two groups were combined, 63 or 33% of responses strongly agreed, 84 or 45% responses agreed, 32 or 17% disagreed, and nine or 5% strongly disagreed.

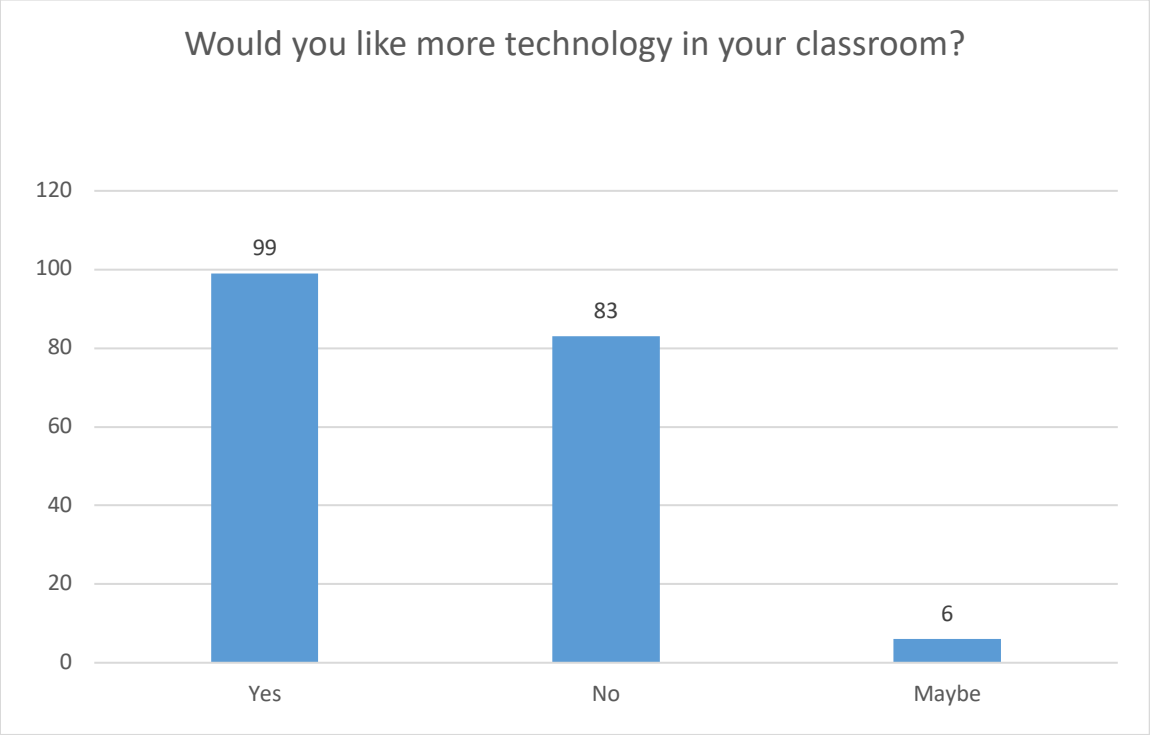
Figure 12



Social Media (Facebook groups, Twitter feeds, and Pinterest) are Great Resources for Finding and Sharing Instructional Resources and Student Activities

When participants were asked if *they wanted more technology in their classrooms*, the majority replied yes from the possible responses of yes, no, and maybe under the right conditions. The MobileMind group were split as 60.5% replied yes, while 39.5% replied under the right conditions. The Alludo group was more evenly split where 47.3% replied yes and maybe under the right conditions. 5.4% replied no. The combined responses regarding more technology in their classrooms were 99 of 188 replied yes, 83 said no, and six replied maybe.

Figure 13



Would You Like More Technology in Your Classroom?

Those that replied maybe under the right conditions were asked a follow up question about what those conditions would be and what technology they would desire. Those that replied yes to the prompt above, were asked what technology they would like to have in their classrooms. Regarding the right conditions for more technology, the most common response was that teachers were provided thorough training (29), that all students had the new equipment, or access to the new technology was mentioned 12 times, as was the ability to monitor students while using the equipment or programs. There were many other responses, but none were mentioned more than ten times.

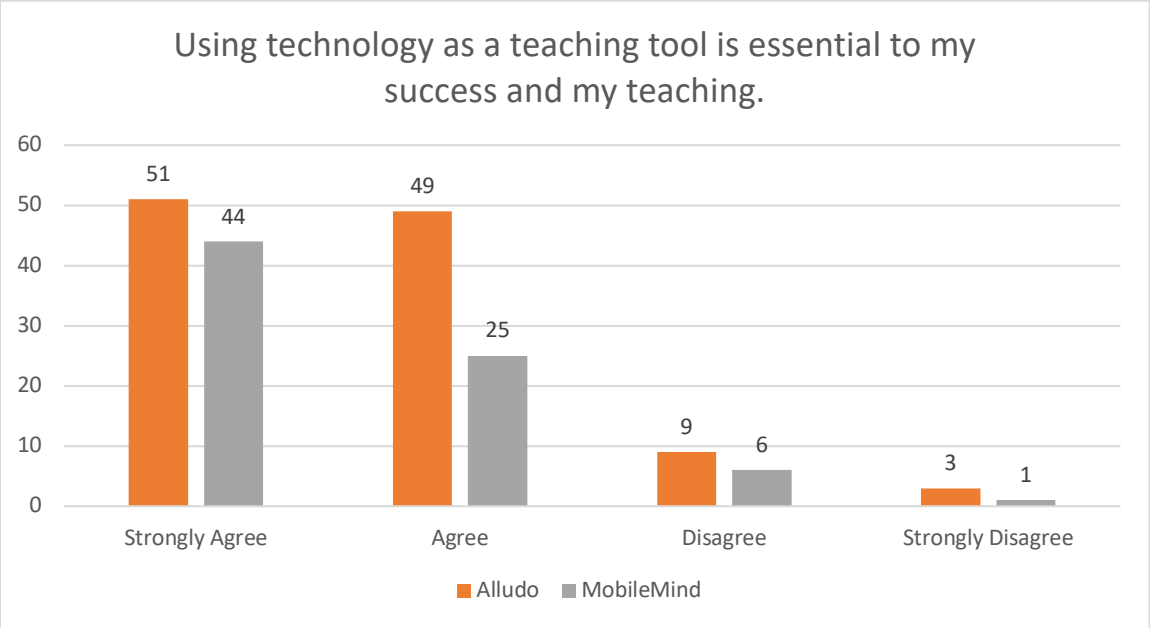
When asked what technology participants want for their classrooms, an interactive panel or SMART Board were mentioned 67 times and was clearly the most common response as the next most frequent responses only garnered 20 or so responses.

Chromebooks were included 24 times, tablets or iPads for teachers and students were included 22 times, and enough devices to be at a one to one computer to student ratio was mentioned 21 times. Sound systems, an additional monitor, and a new projector were also included by at least ten participants.

Technology Use in Your Classroom and Teaching

When asked if *Using technology as a teaching tool is essential to my success and my teaching*, responses were favorable. In the Alludo group, 45.5% of the participants replied strongly agree, 43.8% agree, 8% disagree and 2.7% strongly disagreed. Responses were similar from the MobileMind group where 57.9% strongly agreed, 32.9% agreed, 7.9% disagreed and 1.3% strongly disagreed. The total combined results include 51% of participants strongly agreed, 39% agreed, 8% disagreed, and 2% strongly disagreed.

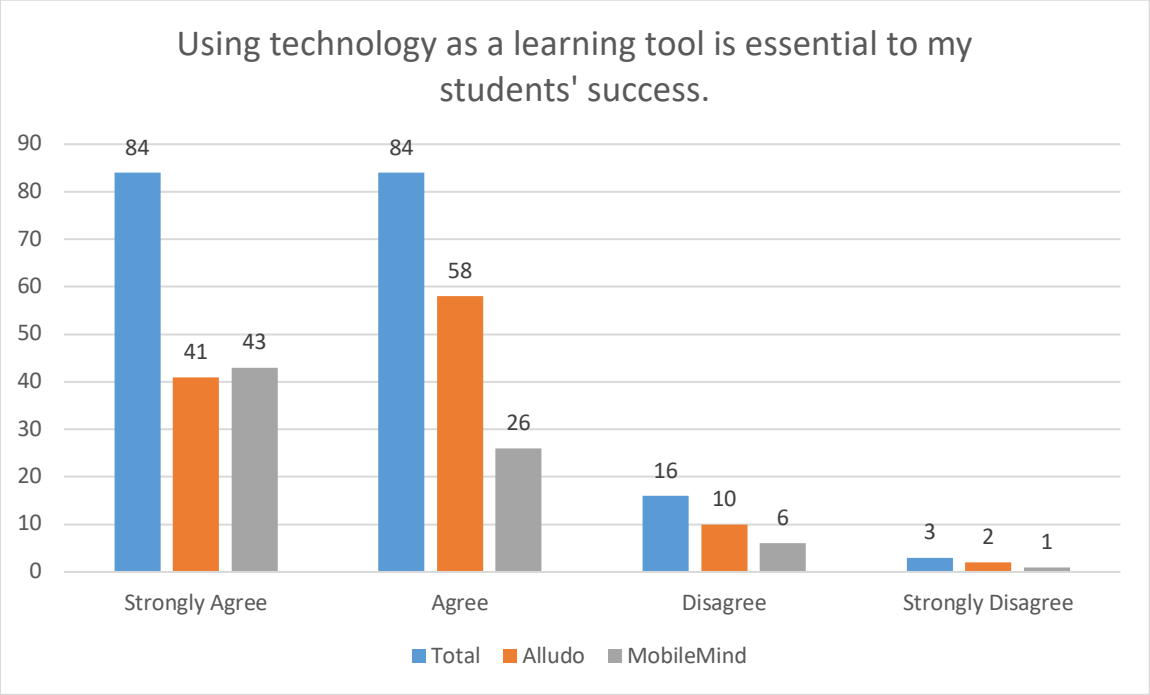
Figure 14



Using Technology as a Teaching Tool is Essential to My Success and My Teaching

In a similar prompt regarding *technology use being essential to students as a learning tool,* responses were aligned for both groups. Of the MobileMind group, 56.6% strongly agreed, 34.2% agreed, 7,9% disagreed, and 1.3% strongly disagreed, while in the Alludo group, 36.9% strongly agreed, 52.3% agreed, 9% disagreed, and 1.8% disagreed. With the two cohorts combined, 90% of participants agreed to some degree with 84 participants responding strongly agree and agree, while the remaining 10% consist of nearly 9% that disagreed and less than 2% who strongly disagreed.

Figure 15

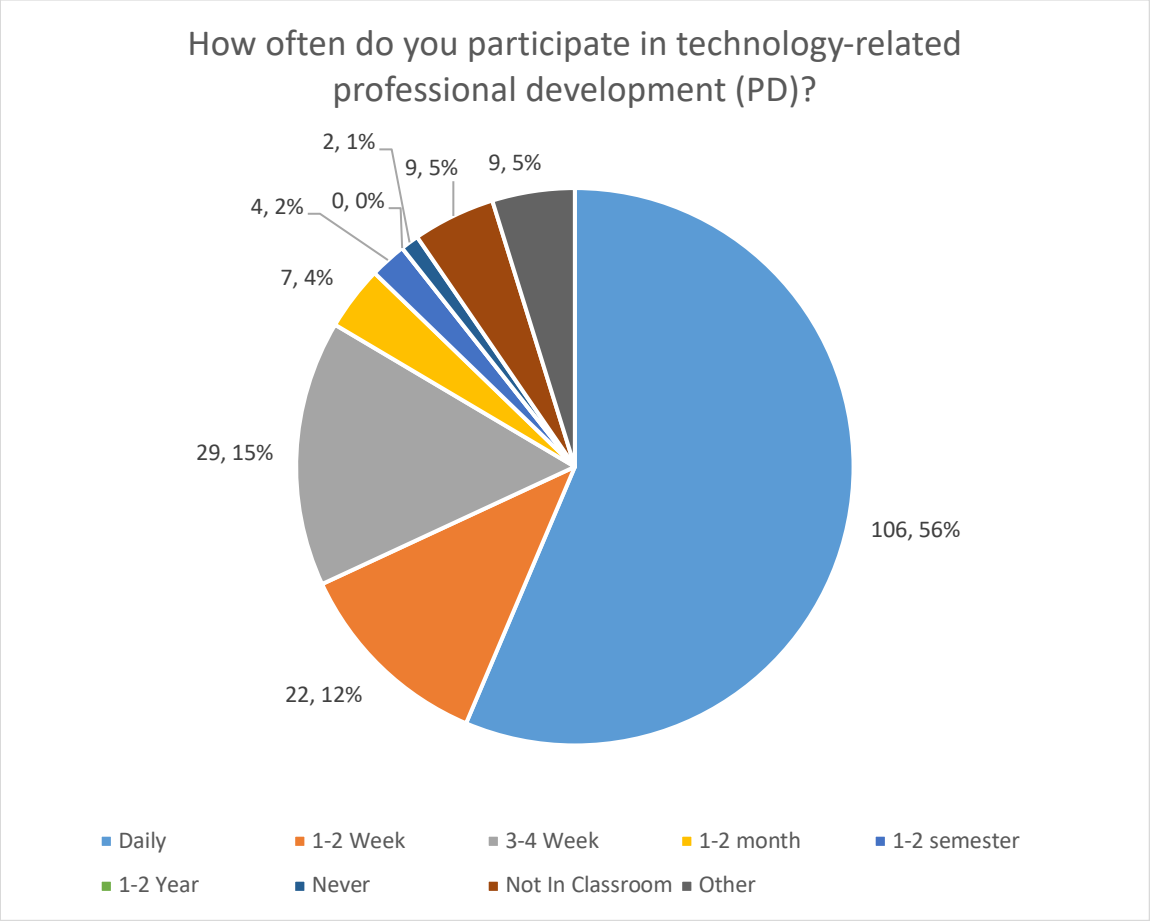


Using Technology as a Learning Tool is Essential to My Students' Success

When asked *how often participants integrate student centered technology into their classrooms*, the majority replied daily. Technology is clearly used weekly from the responses. From the Alludo group, where 84.9% stated they use technology at least 1-2 times per week. Fifty-five and four tenths' percent replied daily, 15.2% replied 3-4 times a week, and 14.3% replied 1-2 a week, 15.1% replied that they used technology less

frequently, were not classroom teachers and/or did not have a regular class of students. The MobileMind group responded similarly where 57.9% replied daily, 15.8% replied 3-4 times a week, and 7.9% replied 1-2 times per week which means that 81.6% incorporates technology into student activities at least 1-2 times per week. As compared to the MobileMind cohort, 18.4% incorporate technology less than 1-2 times per week or are support staff without a regular classroom. In the combined results, the two groups responses include 106 of 188 or 56% daily, 22 or 12% responded 1-2 times per week, 29 or 15% responded 3-4 times per week, 4% replied 1-2 times per month and 2% or 4 replied 1-2 times per semester. No one replied 1-2 times per year and 2 or 1% replied never. The remaining 10% consisted of responses that participants were not currently working in a classroom or other varied responses.

Figure 16

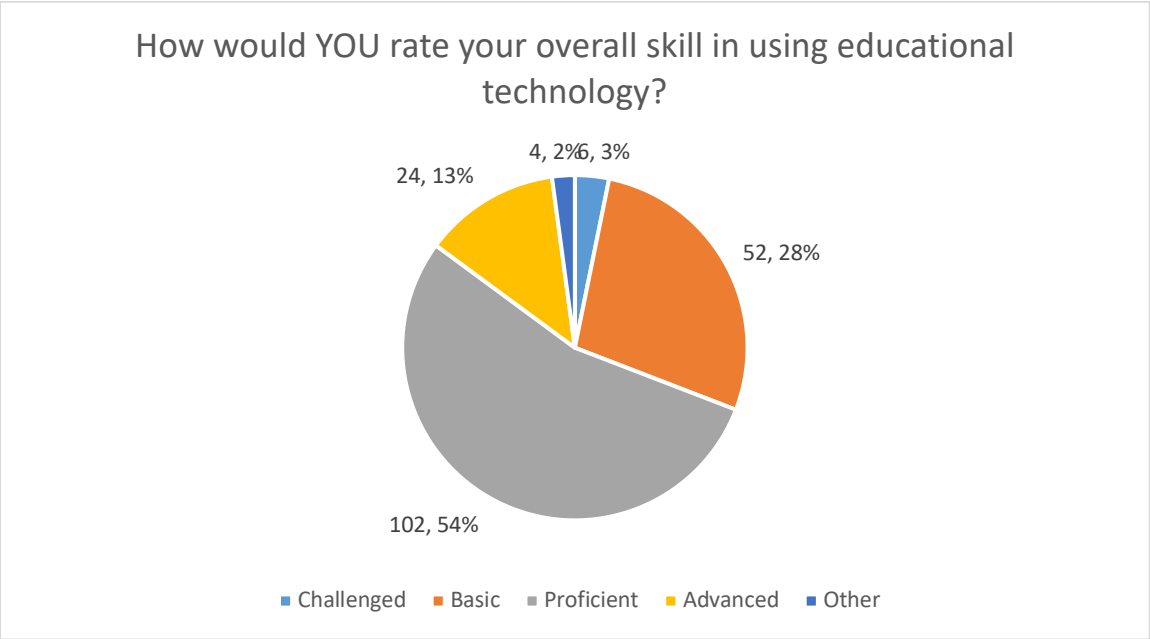


How Often Do You Participate in Technology-related Professional Development (PD)?

When participants were asked about their own technology proficiency, the results were varied. Within the MobileMind group, 52.6% self-identified as proficient, 30.3% basic, 11.6% advanced and the rest couldn't assign a specific label thinking they were between levels or referred to themselves as challenged. Responses from the Alludo cohort were quite similar where 55.4% responded proficient, 25.9% basic, 13.4% advanced, and 5.3% self-identified as challenged or between two of the levels. The combined responses reflect that 102 or 54% self-assessed at the proficient level, 24 or

13% reported advanced, 52 or 28% responded basic, and six or 3% responded challenged. The remaining 2% consisted of responses between levels.

Figure 17

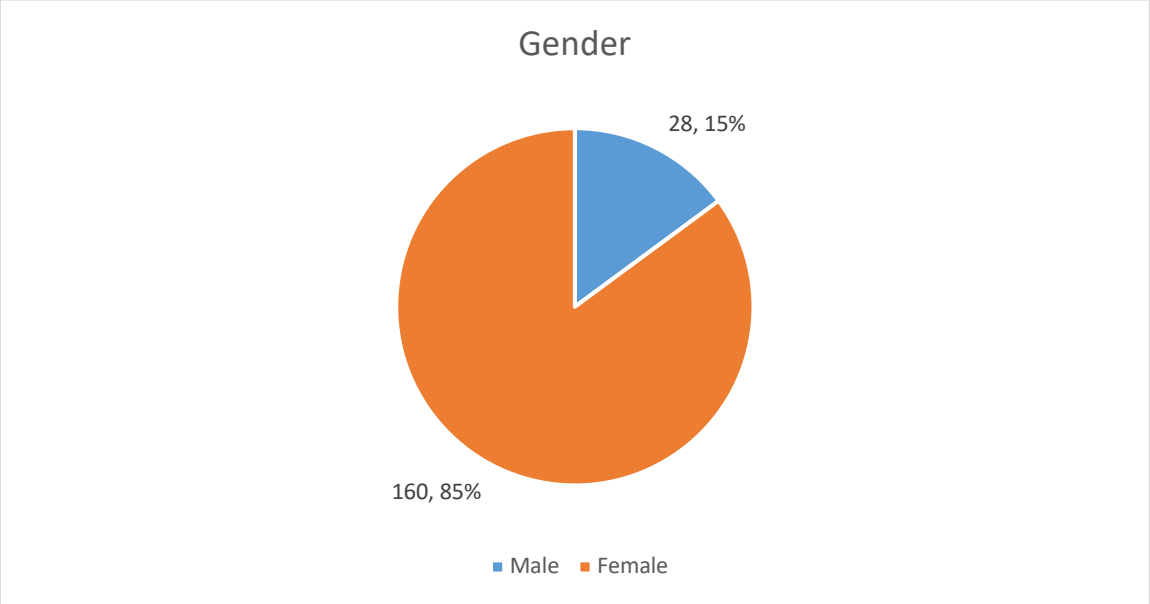


How Would You Rate Your Overall Skill in Using Educational Technology?

Demographics

The majority of participants were female. Seventy-nine and five-tenths percent of the Alludo cohort and 93.4% of the MobileMind group. Females were 85.1% (160 of 188) of all respondents and 14.9% were men. In total, 160 of the 188 or 85% of participants identify as female and 28 or 15% as male.

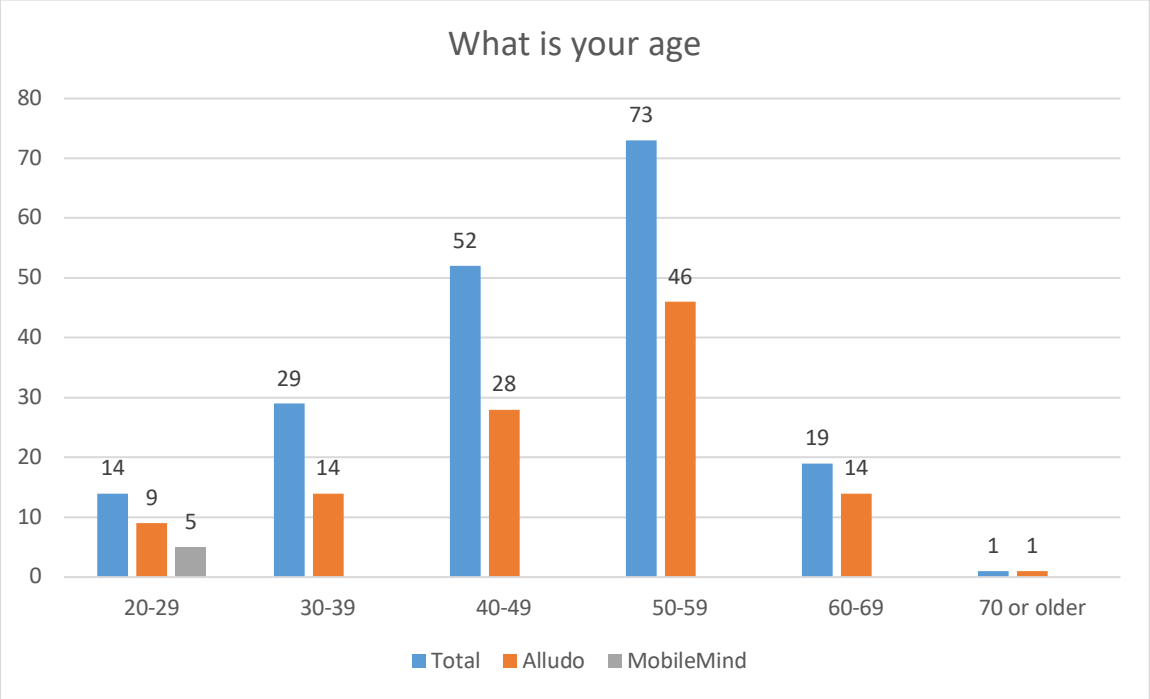
Figure 18



Gender

The majority of participants were between the ages of 50-59. The breakdown on ages for the MobileMind cohort were 6.6% were between 20-29, 19.7% in the 30-39 range, 31.6% between the ages of 40-49, 35.5% in the 50-59 age range and 6.6 between the ages of 60-69. The Alludo group was made up of 8% from the ages of 20-29, 12.5% from 30-39, 25% in the range of 40-49, 41.1% from 50-59, 12.5% from 60-69, and one who is 70 or older. The combined groups results include 7% from the age of 20-29, 15% from the age of 30-39, 28% from the age of 40-49, 39% from the age of 50-59, 10% are in their 60's and there is one person who was 70 or older.

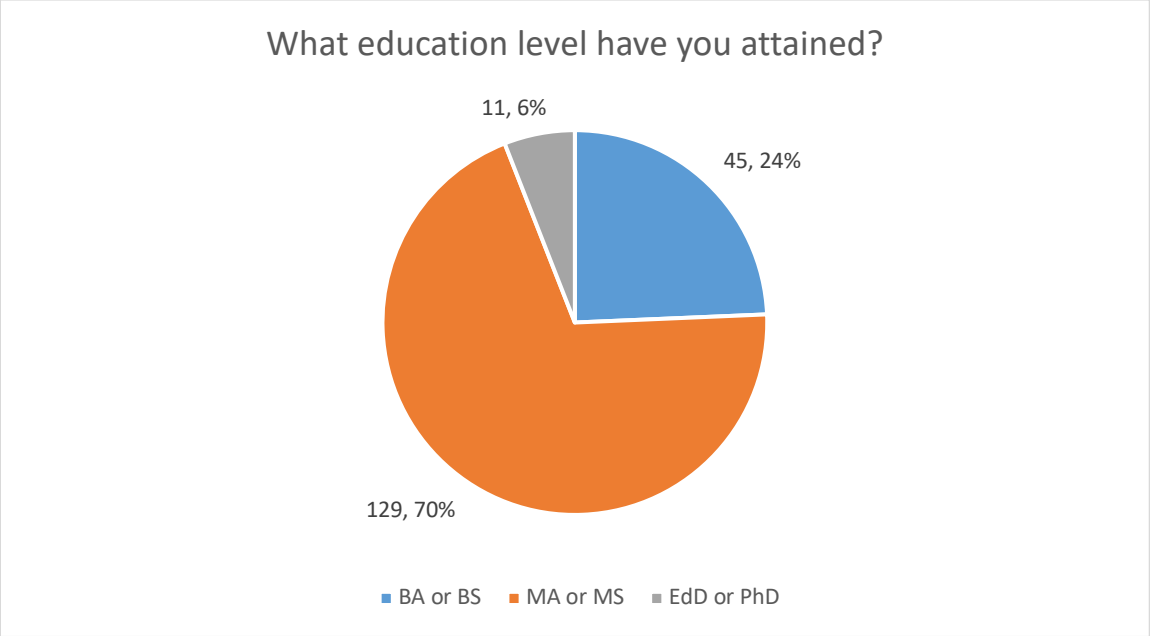
Figure 19



What is Your Age?

When asked about the highest degree that they had attained, the majority replied that was a master's degree for both groups. The responses from the Alludo cohort ranged from 70% had earned a master's degree, 21.8% a bachelor's degree, and 8.2% had a doctorate. The MobileMind group was split between 69.3% had a master's degree, 28% had a bachelor's degree, and 2.7% had completed a doctorate. Combined results for the two cohorts include 70% that have attained a master's degree, 24% with a bachelor's degree, and 6% or 11 of 185 that have completed a doctorate.

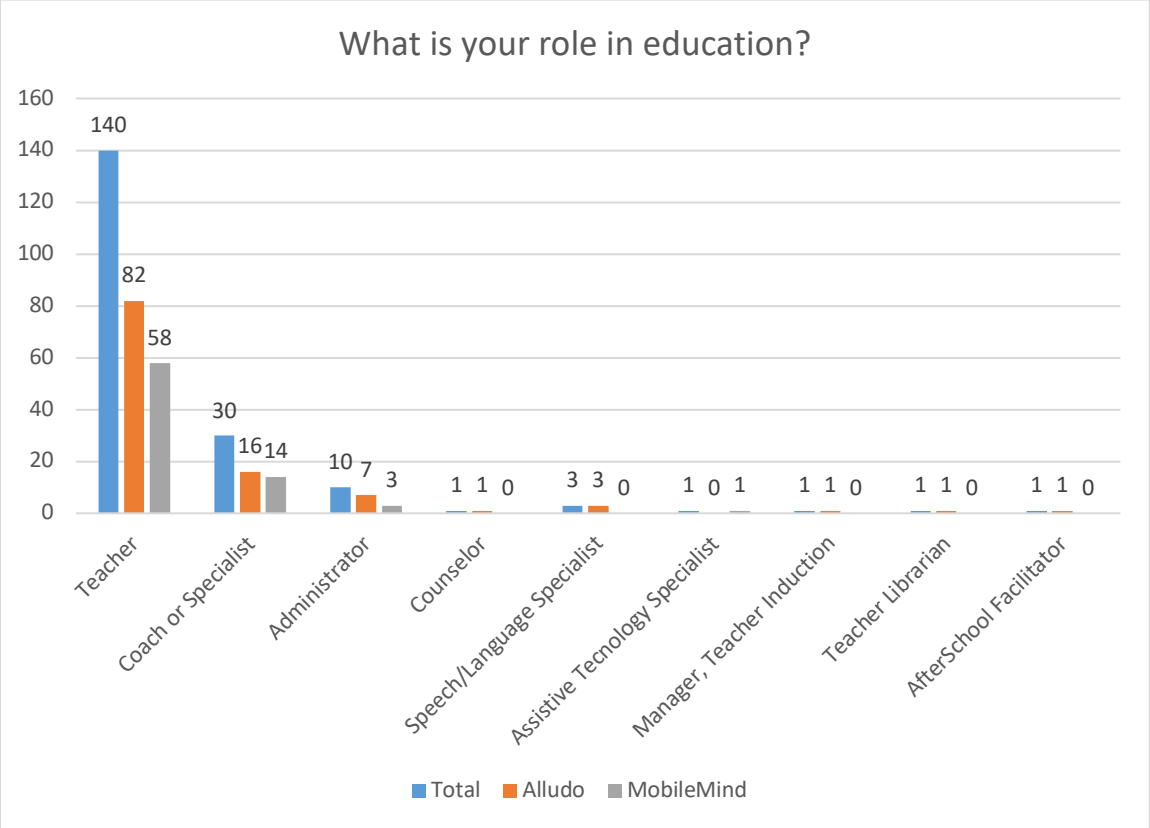
Figure 20



What Education Level Have You Attained?

The vast majority of participants were teachers. Totals: 76.3% of the MobileMind group were teachers. Of the remaining, 24.7%, coaches and specialists made up 18.4%, 3.9% were administrators, and 1.3% was an assistive technology specialist. In the Alludo cohort, 71.4% were teachers, 14.3% coaches or specialists, and 6.3% administrators. The remaining 8% were made up of one counselor, three Speech and Language Therapists, one teacher of the deaf, one Manager of the Induction program, one teacher and sports official, one afterschool program facilitator, and one librarian. In total, 140 of the 188 or 74% of responses identified as a teacher, 30 or 16% identified as a coach or specialist, 10 or 5% identified as an administrator, three or 2% were speech and language pathologists, and the remainder of the responses were one each or 1% of results identified as counselor, assistive technology specialist, a teacher/librarian, an induction manager, and an after school facilitator.

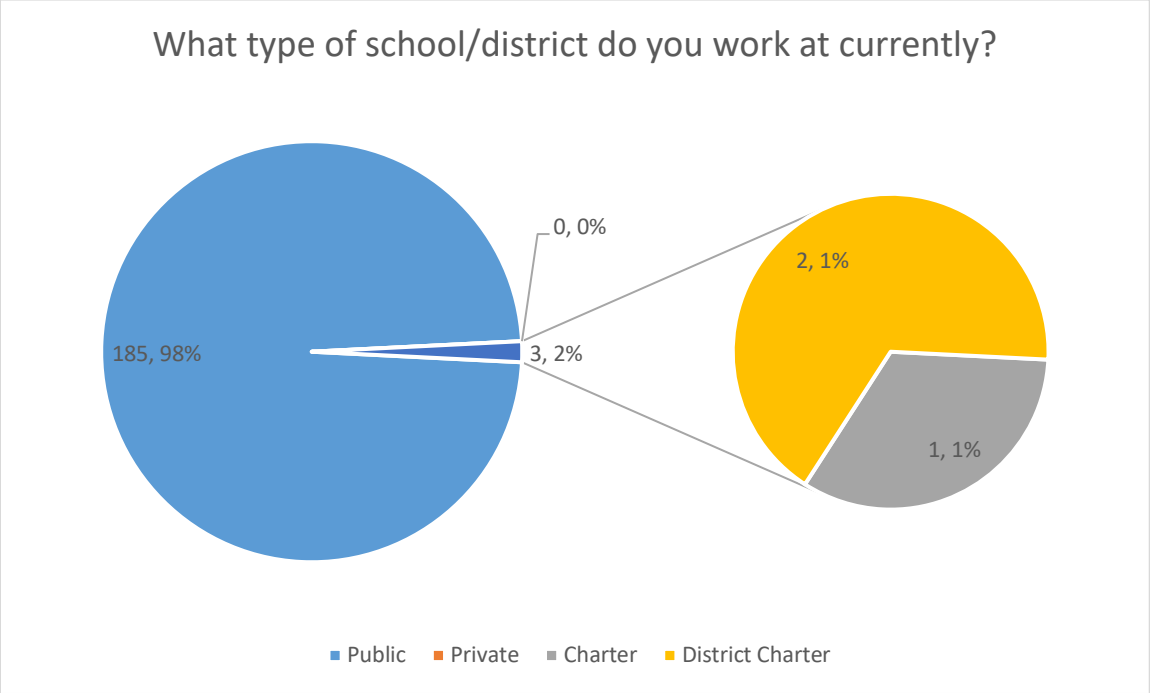
Figure 21



What Is Your Role in Education?

Nearly all of the participants were from the same unified school district. Of the Alludo participants, 98.2% work at the target district, one works at a dependent charter school, and one works at an independent charter school. In the MobileMind cohort, 98.7% work for the target district, and one (1.3%) work at a dependent charter school. 185 of the 188 participants reported working in public education, two work at district supported charter schools, one worked at an independent charter and none worked at private schools.

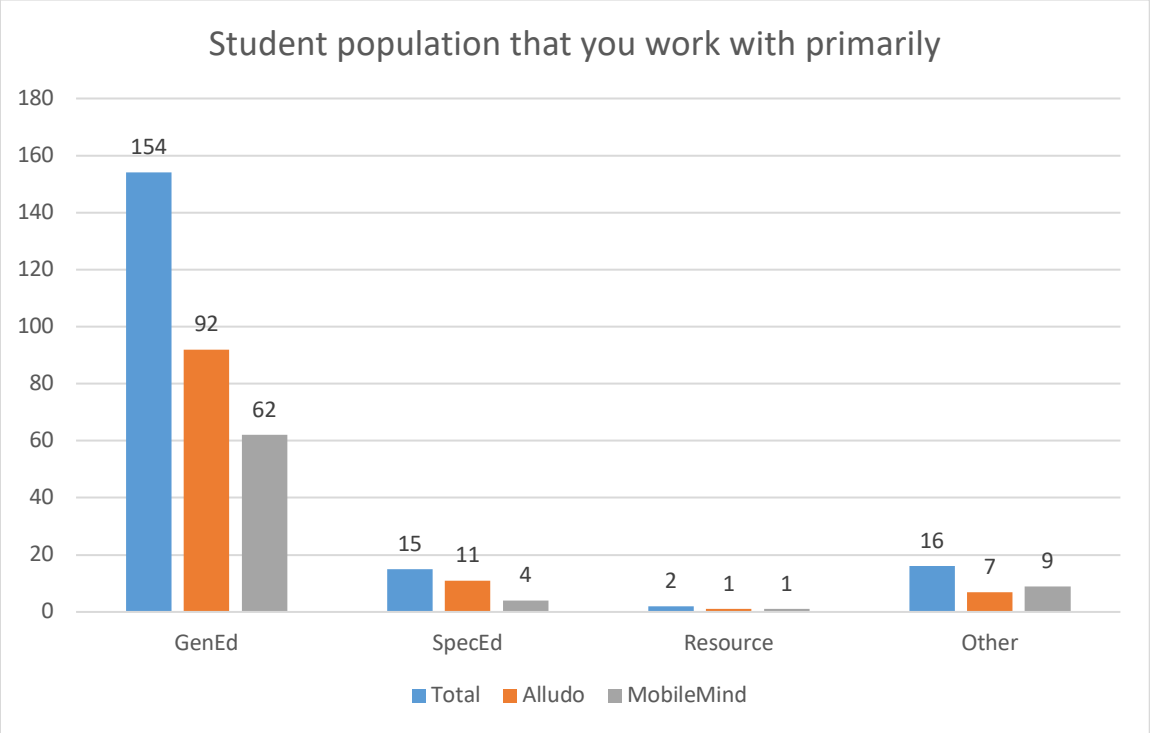
Figure 22



What Type of School/District Do You Work at Currently?

The majority of the participants are employed as general education teachers. 81.6% (62 of 76) of the MobileMind group 82.9% (92 of 111) of the Alludo group work with general education students. Special Ed makes up a smaller percentage as 5.3% of the MobileMind participants and 9.9% of the Alludo participants work primarily with special education students. The remaining 7.2% of Alludo participants and 13.1% of MobileMind participants are comprised of resource, students with individual learning plan, both general and special education students, new and beginning teachers, and ELD and RFEP students. The combined results for the two cohorts include 154 of 187 or 82% work in general education, 17 or 9% work in special education, and 16 or 9% responded with another choice.

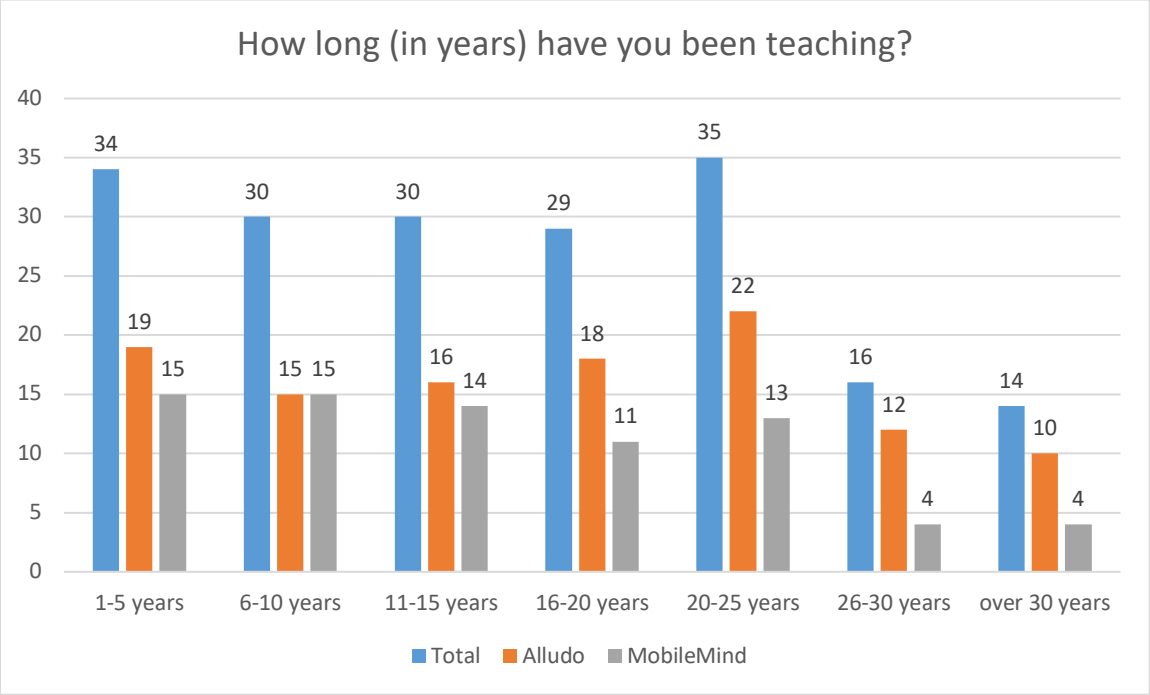
Figure 23



Student Population That You Work with Primarily

In response to the prompt about the number of years that participants have taught, the responses were varied, but leaned toward participants with less experience in education. The range of the data was 37 with a low of one year in education to a high of 38 years. The mean of the data was 16.111. The median was 16 years and the mode was 15 years. When the data was grouped into five year increments, the category with the most respondents in it was the 20 - 25 year range with 35. The next highest category was the 1-5 year range with 34, followed by the 6-10 and 11-15 year ranges with 30 people each in those categories.

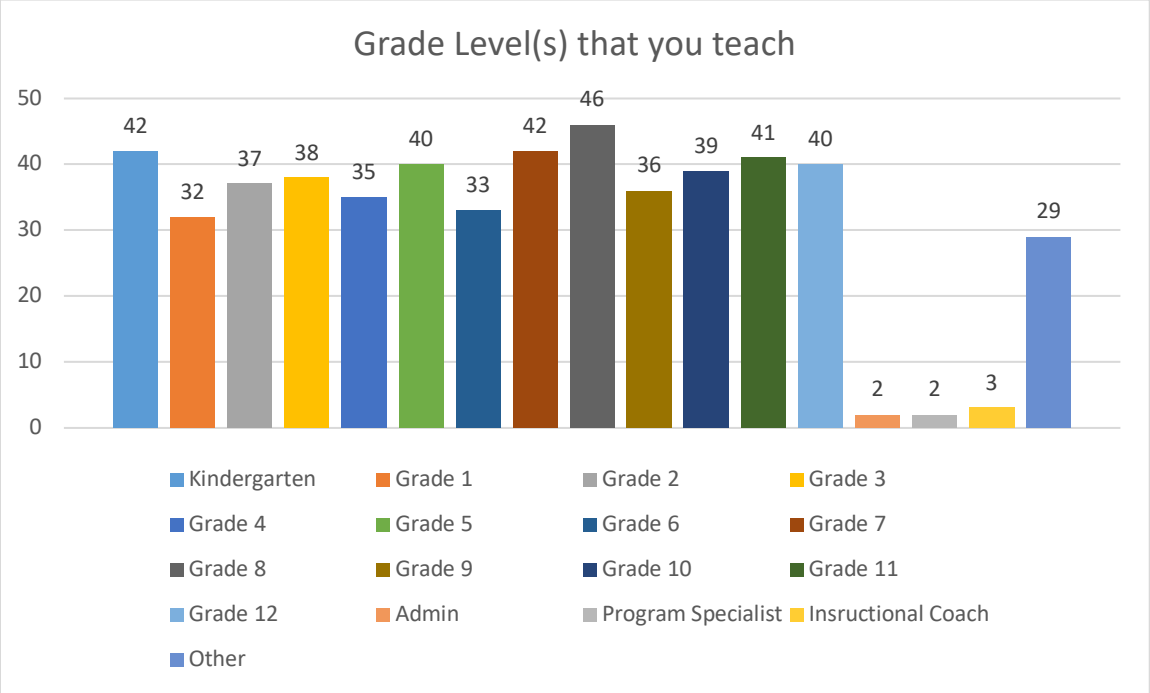
Figure 24



How Long (in Years) Have You Been Teaching?

The bulk of the participants are active Kindergarten through 12th grade teachers in both groups. Participants were allowed to pick more than one response to account for multi grade classes. Eighty-two percent of respondents in the Alludo work teach students in grades Kindergarten through 12th grade, as compared to 79.2% of participants in the MobileMind cohort. There are other educators that participated and include Preschool, Instructional Coaches, Program Specialists, Adult Ed, Transitional Kindergarten, and Site Administrators.

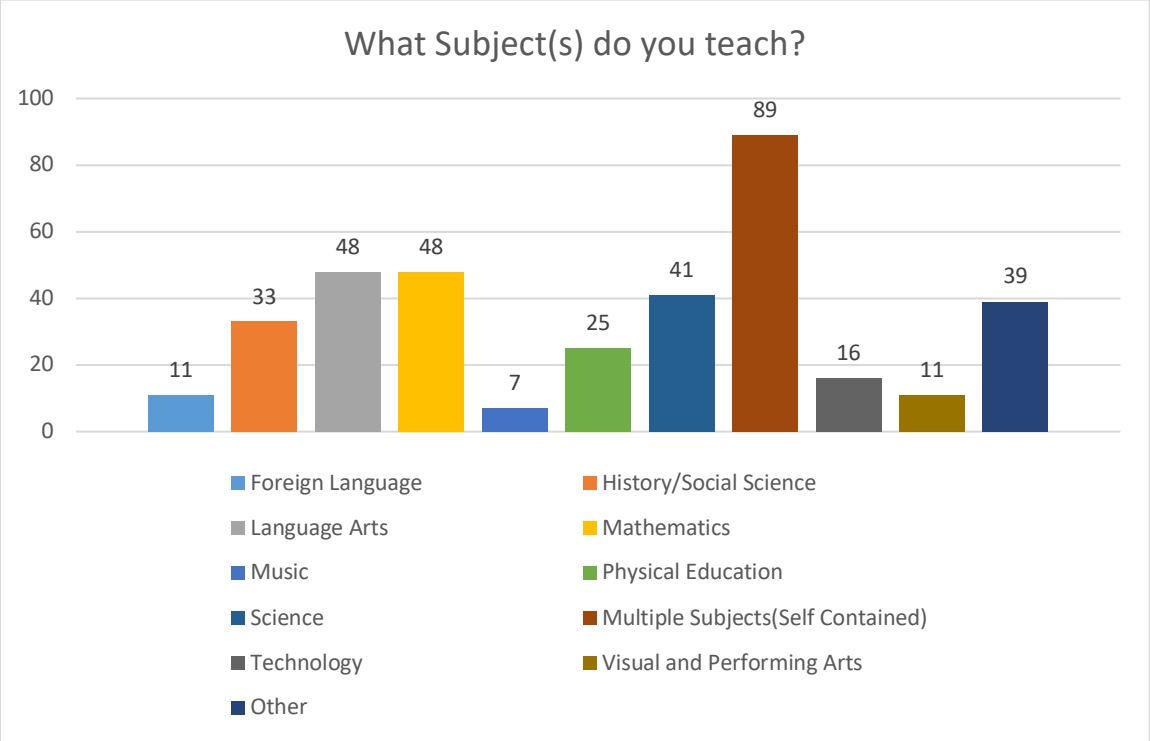
Figure 25



Grade Level(s) That You Teach

From the 185 responses, the most common response regarding the subjects that participants taught was multiple subjects in a self-contained classroom. In the MobileMind group, 58.7% and 40.9% of Alludo participants teach in this environment. The prompt allowed participants to select all that apply to account for as many teaching assignments as possible. The core subjects of Language Arts, Mathematics, Science and History/Social Science were the next most common responses. Other responses included Career Technical Education (CTE), Technology, Advancement Via Individual Determination (AVID), Visual and Performing Arts, Physical Education, Music, and several others.

Figure 26



What Subject(s) Do You Teach?

MobileMind

The data collection period for MobileMind ran from December 17, 2020 to January 31, 2021. In the six plus week period, there were 52 active participants that completed at least one online module. During this time, there were 1323 courses completed by the group with a high of 100 courses completed to a low of one course completed. The researcher had asked that participants would complete one online module, but that two would be desired. The mode for the courses completed data was two. The median was 16 courses completed, the mean of the data was 25.44 completed courses, and the range was 99. During the data collection period, there were 416 badges earned by participants in total with a high of 27 and a low of zero. The median of the data was two badges earned, the mode was zero, and the mean was 5.62 badges earned.

Finally, there were 333 hours and 52 minutes of professional development completed during the data collection period which ranged from a high of 25 hours and five minutes to a low of five minutes. The mode was 20 minutes spent on the platform while the median was 195 minutes or 3.25 hours using MobileMind. The median for the data was 294.79 minutes or 4.91 hours using the online platform.

Alludo

The data collection for Alludo ran from December 22, 2020 to January 31, 2021. In the nearly six-week data collection period, there were 73 active players. The players accumulated a combined 39,965 points with a high of 4900 points for an individual player and a low of zero. The total time spent on the online platform by the participants was 16,920 minutes or 282 hours of professional development with a high of 2430 minutes or 40.5 hours for a single player to a low of zero minutes. The group completed a total of 1039 activities with a high of 146 activities completed by a single player to a low of one. Viewed as a set, the mode of the data for points accumulated is 50, the median is 210, and the mean is 456.18. The mode for the time spent on the platform is 30 minutes, the median is 112.5 minutes, and the mean time spent in the online modules was 234.24 minutes or 3.9 hours. Regarding activities completed, the mode of the set was two activities, the median was eight activities, and the mean 14.83 activities completed.

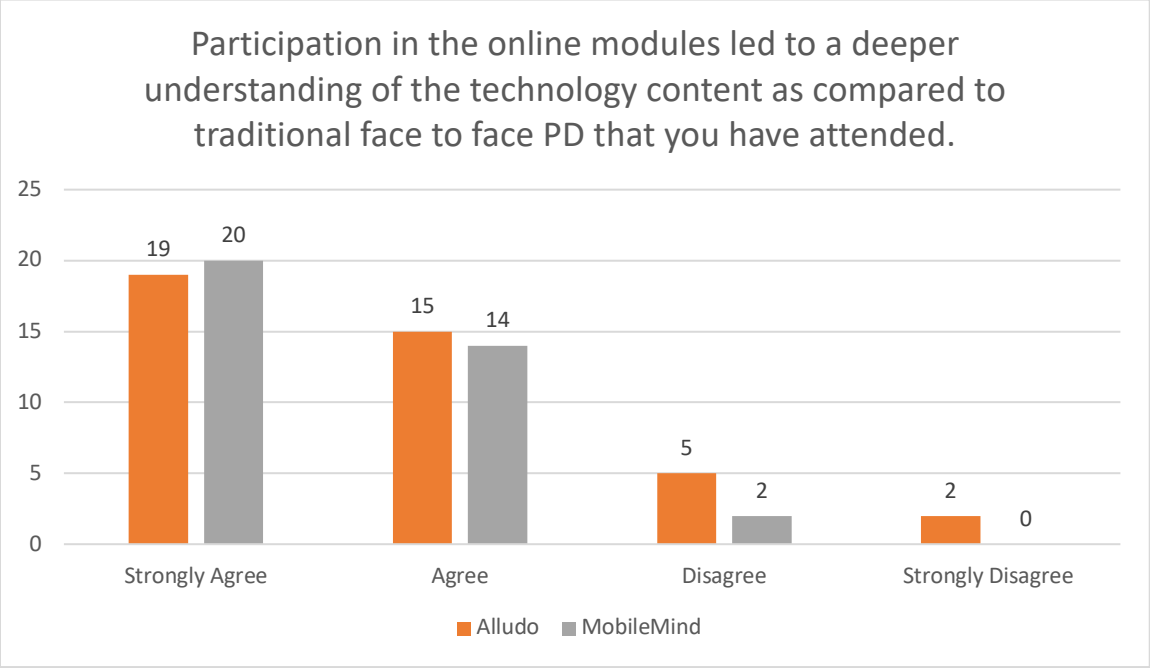
Findings from Qualitative Research

At the end of the data collection period, the participants were sent a link to the post survey which included 20 questions. There was an additional question for the participants that worked on the MobileMind platform to determine how many had completed any online certifications with Google as that was included in the platform.

Four of the questions were either multiple choice or Likert scale, and the remaining prompts were all open ended. Forty-two of the Alludo participants and 37 of the MobileMind group completed the post survey.

In response to the prompt, participation in the online modules led to a deeper understanding of the technology content as compared to traditional face to face professional development that you have attended, Nineteen of the 41 (46.3%) responses from the Alludo cohort replied strongly agree, 15 or 36.6% agreed, five or 12.2% disagreed, and two or 4.9% strongly disagreed. Results were similar for the MobileMind participants where 20 of 36 responses or 55.6% strongly agreed, 14 or 38.9% agreed, two or 5.6% disagreed, and no one strongly disagreed. The combined results for all participants included 39 of 77 or 51% strongly agreed, 29 or 38% agreed, 7 or 9% disagreed, or two or 3% strongly disagreed.

Figure 27

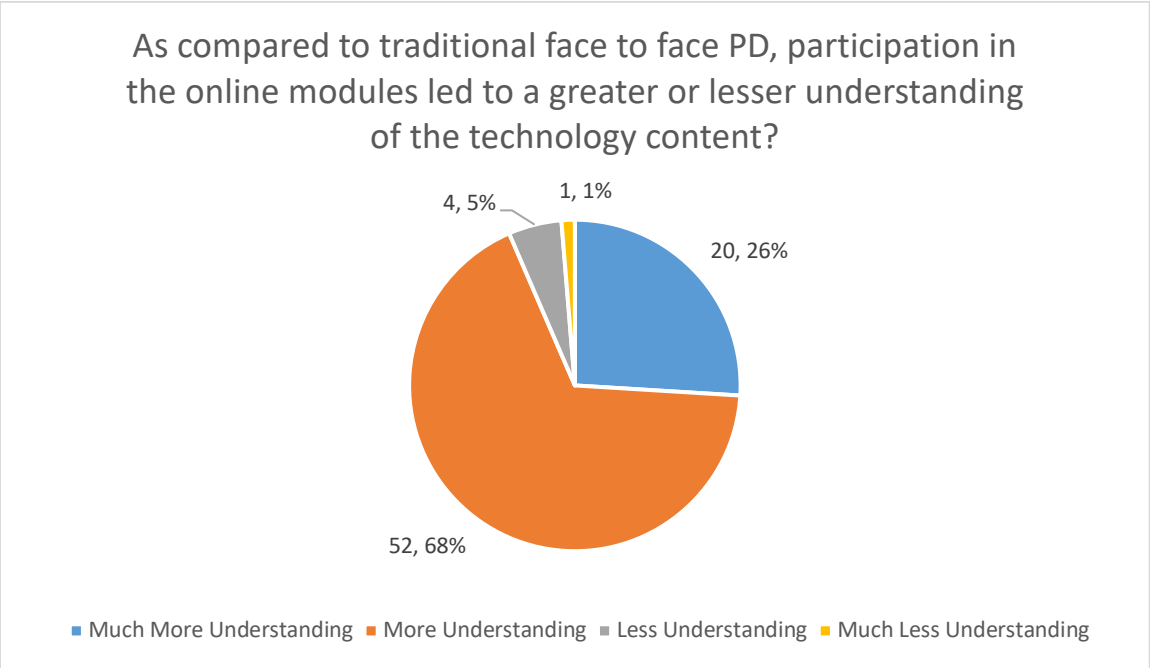


Participation in the Online Modules Led to A Deeper Understanding of the Technology Content as Compared to Traditional Face to Face Professional Development That You Have Attended.

When asked *as compared to traditional face to face professional development, participation in the online modules led to a greater or lesser understanding of the technology content,* most indicated that the online modules had a positive effect. In the MobileMind group, 12 of 36 or 33.3% responded much greater understanding, 22 or 61.1% replied greater understanding, two or 5.6% replied less understanding, and none replied much less understanding. The MobileMind group responded similarly in that eight of 41 or 19.5% responded much greater understanding, 30 or 73.2% selected greater understanding, two or 4.9% replied less understanding, and one or 2.4% responded much less understanding from the online modules. When the groups are combined, the results include 20 or 26% replied much more understanding, 52 or 68% selected more

understanding, four or 5% responded less understanding and one or 1% responded much less understanding.

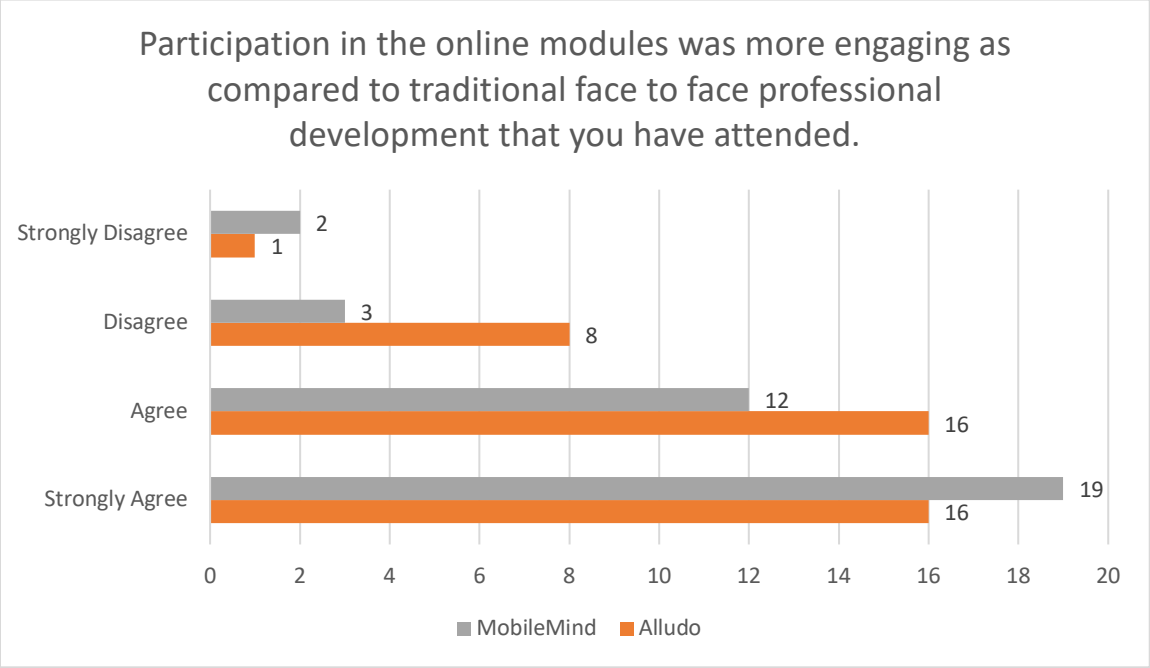
Figure 28



As Compared to Traditional Face to Face PD, Participation in The Online Modules Led to A Greater or Lesser Understanding of the Technology Content?

When participants were asked *Participation in the online modules was more engaging as compared to traditional face to face professional development that you have attended*, the combined responses included 35 of 77 or 45% strongly agreed, 28 or 36% agreed, 11 or 14% disagreed, and three or 4% strongly disagreed. More specifically from the Alludo cohort, 16 or 39% replied strongly agree, 16 or 39% agreed, eight or 19.5% disagreed, and one or 2.4% strongly disagreed. Within the MobileMind participants 19 of 36 or 52.8% strongly agreed, 12 or 33.3% agreed, three or 8.3% disagreed, and two or 5.6% strongly disagreed.

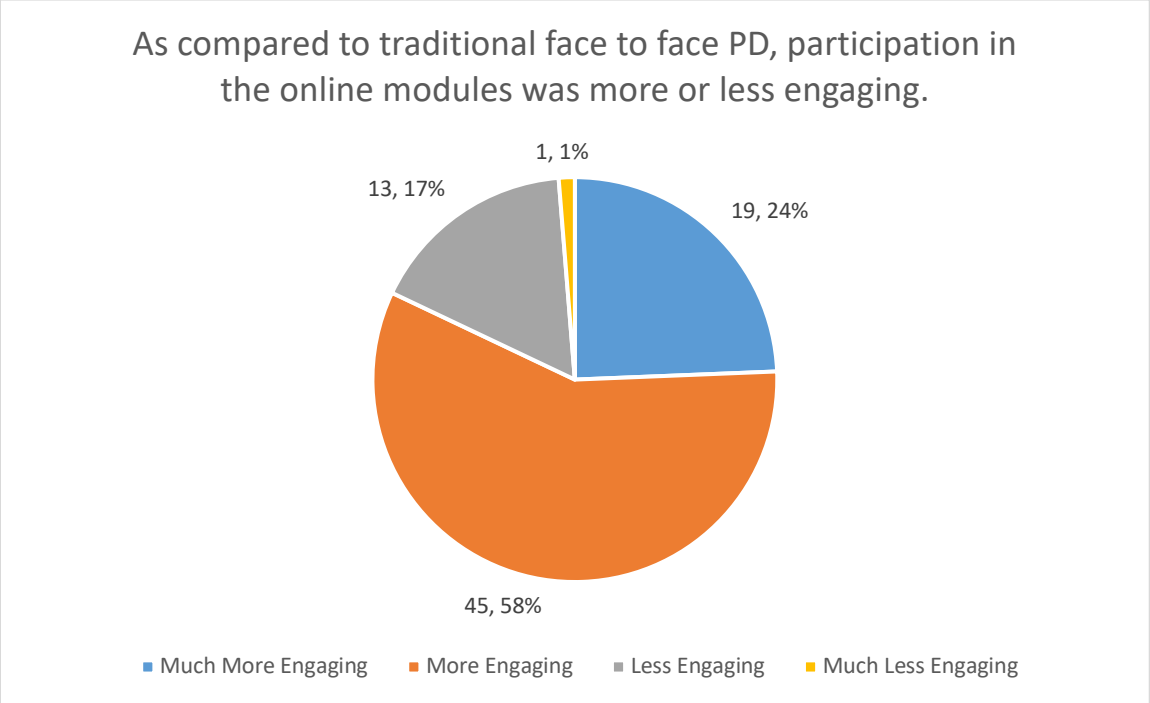
Figure 29



Participation in The Online Modules Was More Engaging as Compared to Traditional Face to Face Professional Development That You Have Attended

In response to the prompt, *as compared to traditional face to face professional development, participation in the online modules was more or less engaging*, the combined responses include 19 of 78 or 24% responded much more engaging, 45 or 58% selected more engaging, 13 or 17% responded less engaging, and one or 1% responded much less engaging. From the MobileMind group specifically, 11 of 37 responses or 29.7% replied much more engaging, 22 or 59.5% responded more engaging, four responded less engaging, and none replied much less engaging. Results from the Alludo participants were similar in that eight or 19.5% replied much more engaging, 23 or 56.1% responded more engaging, nine or 22% responded less engaging, and one or 2.4% responded much less engaging.

Figure 30



As Compared to Traditional Face to Face PD, Participation in the Online Modules Was More or Less Engaging

When participants were asked *What did you enjoy most about this asynchronous style of learning through online modules and activities? What did you least enjoy with this format,* the most common positive comment was that participants were able to choose the content that they were to learn; that they could move at their own pace, and the flexibility to participate when their schedule allowed. Sixty-one people responded that the most enjoyable aspect was that they could select the content and move at their own pace, while 36 responses included a comment about the flexibility of schedule with the online platform. The least enjoyed aspects were that there was no one to clarify if there was a question or if there was an issue (seven responses), the lack of collaboration

with colleagues (seven responses), and the lack of or limited accountability (eight responses) that some felt with having to schedule time to participate.

In regard to the prompt, "*Did you enjoy this asynchronous style of learning through online modules and activities more or less than traditional face to face professional development?"* responses strongly favored the asynchronous online modules over traditional professional development. Fifty-eight of the 77 responses preferred the asynchronous model while nine stated that they preferred the face to face model. Some of the reasons that were offered as to the reasons that they preferred this model, 16 appreciated the self-pacing of the online modules, while others responded that they could review and rewind as needed and that this model fit their schedules better. Some of the negatives or reasons that participants favored face to face professional development were the ability to collaborate with others, and a person to ask questions and get clarification.

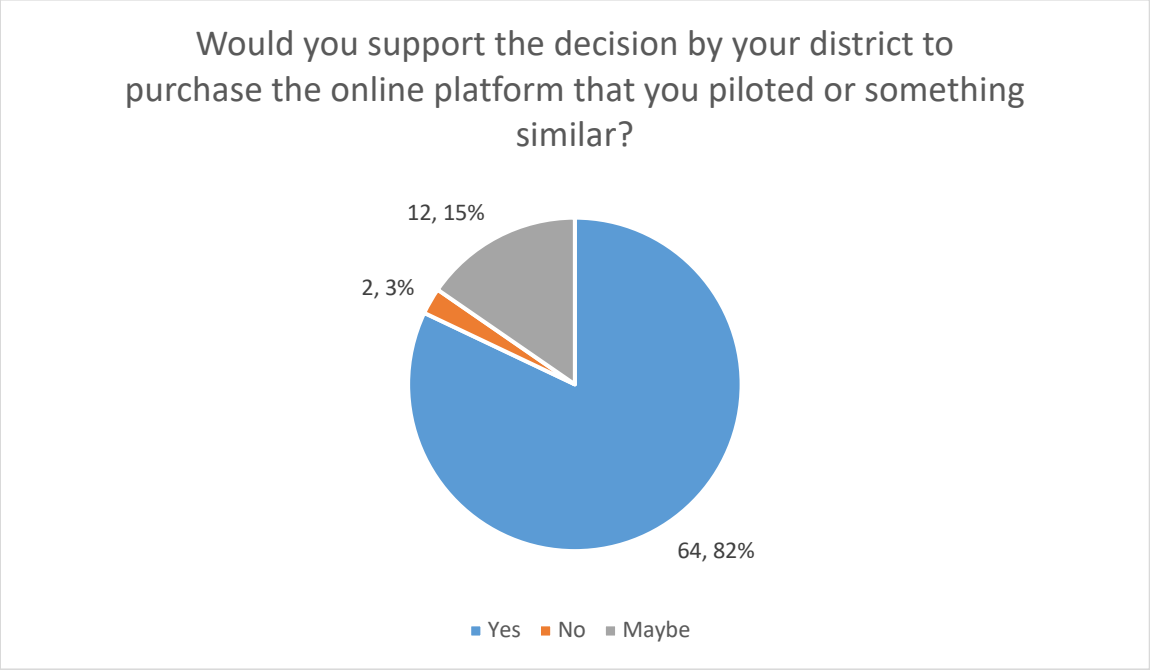
When participants were asked *if you engaged with the content delivery and format of the online modules? Please describe your experience and reasons for your responses.,* 64 of the respondents said that they were engaged with the online modules in Alludo and MobileMind. There were several common reasons and features that were included as support which included the format of the platforms (40 responses) which use videos as instruction, content that is chunked in small activities (10 responses), allowed participants to choose the modules that they completed (eleven responses), six that stated that they had to apply the learning to proceed, four that commented on the quick feedback and three that appreciated not being slowed down by the questions or needs of others.

In response to the question, *if opportunity is provided, would you be willing to participate in more training of this nature? Please include the reasons for your response.*

What conditions would improve or change your response?, 68 of the respondents said that they would participate again if the online modules were made available. The reasons varied, but there were some common themes. The most common responses that the modules were self-paced (19 responses), the convenience of the online modules and the asynchronous model fitting their schedules (11 responses), that they were able to improve their tech skills (nine responses), and that they were able to choose the modules that they participated in (nine responses). For those that replied concerning conditions that would improve their experience and possibly change their response, the most common request was for a person to ask for clarification or instruction or some face to face debrief or help line if they got stuck, which was shared nine times. The other ideas for improvement that were offered was the option for collaboration with colleagues (four responses) and for compensation for completing the professional development (five responses).

Question 9 asked if the participants *"would you support the decision by your district to purchase the online platform that you piloted or something similar?"* most replied that they would support such a decision. From the Alludo group, 30 of 41 responses or 73.2% replied yes, nine or 22% replied maybe, and two replied no. Support was more positive from the MobileMind participants where 34 of 37 responses or 91.9% replied yes, three or 8.1% replied maybe and none replied no. When results are combined, 64 participants or 82% support the district providing an online module for professional development, 12 or 15% replied maybe, and two or 3% did not support such a purchase.

Figure 31



Would You Support the Decision by Your District to Purchase the Online Platform That You Piloted or Something Similar?

All that responded no or maybe were asked a follow up question of *"what conditions would impact or change your decision?"*, and 13 of the 14 possible people responded to the prompt and the responses are included in the table below:

Table 1

	Question 10: What conditions would impact or change your decision?
Participant 1	Accountability feature. Team working on module together, not in isolation. Direct benefit highlighted that support a professional or personal growth.
Participant 2	The inclusion of a face to face Zoom or in person summary class and formative assessment.
Participant 3	It depends how it would be implemented district wide. Would it be voluntary or mandatory? Would teacher be provided time or compensation for completing modules? It's a good method for providing technology support or PDs, but there is opportunity for district abuses.
Participant 4	Not having to provide evidence for answering questions. I'm not meeting graded. I felt like I was in school again.
Participant 5	If training occurred on how to set up the learning progression or there was a list of resources to pull from and not have to create all my own from scratch.
Participant 6	More training
Participant 7	I would require more assistance, such as easy to follow example how-to videos to maneuver through activities.
Participant 8	It being available to all and voluntary. I would definitely explore more and direct teachers to it at a time of need.

Participant 9	Make the site dummy proof
Participant 10	Budget constraints, ability to use modules to meet the needs of my constituents' professional development.
Participant 11	Budget constraints
Participant 12	It depends if the programs can be utilized in a high school setting and fit the needs of my students. I'd have to be more disciplined and more consistent in participating with the program
Participant 13	"The conditions would need to include time and the specific application of the software as it pertains to the class. I would also like for the videos to be revised to include district faces, voices and examples."

When participants were asked *"how did your experience with the online asynchronous modules compare to traditional face to face professional development you have attended?"* responses varied. Fourteen participants replied that they preferred the online platform versus two that directly stated that they prefer face to face traditional professional development. The most common responses were that they appreciated working at their own pace with no waiting on others (31 responses) and that online professional development was more efficient working on their own timeline (29 responses). Other popular responses included that there were less distractions with the online platform (15 responses), followed by choice and flexibility both with 13 responses, participants appreciated being responsible for their own learning (11 responses), and that the work included more application of content than traditional professional development

(10 responses). The most common complaint or negative with the online platform was the lack of social interaction or collaboration (13 responses).

Question 12 asked participants to *"Please share any positives/benefits to this asynchronous style of learning through online modules. Any negatives or barriers?*". The most common positives or benefits that were mentioned were working at their own pace (42 responses) and the ability to choose what they wanted to learn (25 responses). The next most common positive responses were the ability to work remotely (11 responses), the micro sessions or small chunks of info in the courses (10 responses), the content being able to be reviewed if needed and that the content asked participants to apply what they were learning with nine responses. The most common negative or barrier was the lack of social interaction which was mentioned 18 times. The remainder of the barriers or negatives were that participants were responsible for their own learning (15 responses), issues with time management (10 responses), content was already known (four responses), concerns over the length of time that grading took or that the content was not current with some of the tools in the platform (three responses).

When participants were asked *"how has the participation in the research and online modules impacted your work with students or teachers you support?"*, the most common responses were that teachers had learned new technology skills (33 responses), they had applied their learning to their lessons and classrooms which was mentioned 28 times, and that they were more confident and comfortable using technology which was included 22 times. Other responses to the prompt included that they had shared what they learned with colleagues (15 responses), they had a new mindset or opinion of online

learning (11 responses), and an improved understanding of the student experience in online learning and improved troubleshooting were each mentioned three times.

In response to question 16 on the post survey which asked *have you noticed any changes to your instruction or work with teachers that you support? Have you integrated more or less technology into your work? Please include examples*, the most common response was that participants reported using more technology tools and programs which was mentioned 29 times. The next most frequent responses were that participants felt more confident (27 responses), that they were incorporating more technology into their lessons and student work (24 responses), and that they were sharing what they had learned with colleagues and teachers that they support was mentioned 19 times.

The online platforms both included badges and online credentials. Participants were asked to "please discuss the importance or influence of the badging and online certification on your completing the activities. Responses strongly favored the badging component as there were 51 positive or affirmative comments, 15 neutral comments, and eight negative comments or that expressed that badges were not a motivator for them. There were 53 additional comments offered either in support for badging or that explained why badges were not important for them. See Appendix C for additional information or reasons.

Similarly, when participants were asked to *describe the importance of choice and your ability to self-select the modules you completed in your overall experience*", responses were overwhelmingly positive. Seventy-four of the 77 responses stated that choice was an important/positive factor in their participation with the online modules. One response was neutral and one was said that choice was not important for them. In

addition to the information above there were 65 additional responses to support their feelings on the importance of choice. Please see Appendix D for additional information that was shared regarding choice.

In response to question 17 which asked *"what would improve your experience with this asynchronous style of learning through online modules? What would you change about the online modules to make the experience better?"*, the most common response was the ability to collaborate with others or to have a follow up session to debrief what was learned which was suggested 22 times. The next most common response was that people had a positive experience and didn't have any suggestions which was included 20 times. Other suggestions included some ideas for improved navigation or platform enhancements which was included 12 times, the inclusion of reminders or schedules to complete modules (eight responses), improved support for new teachers to the platform (seven responses), the time delay or waiting for activities to be graded or approved was mentioned four times and a request for a wider variety of content was included four times in regard to MobileMind.

When asked *"what did you do while you were waiting for activities to be approved? How did this waiting impact your experience?",* most replied that there was minimal or no impact or that they did not have to wait. No or minimal impact was mentioned 20 times and didn't have to wait or wait was not very long was included 18 times. The most common response was that people were working on multiple pathways and courses so they would just work on something else while waiting for approval. This was mentioned 38 times. Other mentioned that this was an opportunity to stop for the day or work on other things they needed to do (16 times), 11 said that the wait slowed

and impacted their progress, three said they checked back frequently and resisted the urge to contact the researcher, and three used the opportunity to review and work a bit more on the content they had just learned.

In response to the question *"could you see the asynchronous learning style of the online modules working for students or yourself as teacher using this style of learning with students?"*, results were quite mixed. Forty-six participants responded with a yes or positive comment, while 12 were neutral in their response, and 10 expressed that they did not think the asynchronous model would work well for their students. Many of the neutral and negative responses included information about the grade level and age of the students that they work with primarily. Teachers of special populations like special education, resource, and teachers of primary grades of kindergarten through second grade did not think it would be a good fit. In additional to the information above, 22 responses included some deeper discussion or rationale. See Appendix E for more information and actual participant responses.

The final question on both post surveys was an opportunity to provide *"any other thoughts or information that you would like to share or you wish you had been asked?"*. There was not much additional information that was added or of value with this prompt. 32 participants thanked the researcher for the opportunity to be involved and expressed that it had been a positive experience which was the most common response. Eight participants reiterated that they hope that the district will purchase the online platform and that they will use it more if that occurs, three that wished the data collection period was longer, and one that wondered if the content was available in other languages; one

that thought it was an effective way to provide training, and one that wanted a wider variety of content in the online platform.

The participants that worked with MobileMind were asked one additional question about whether or not they had taken and passed any Google certifications. This was only asked of the MobileMind group because the platform includes trainings that are specific to the Google certifications and a voucher to pay for the exam. During the six-week data collection period, there were five people that took and passed the Level 1 Google Certification and expressed interests in completing the Level 2 certification during Spring Break in March. Many responses said that they had not taken the exam yet but planned to do it before losing access to the platform and/or they may have still been working on the online certification coursework.

Summary

An email was sent to all certificated staff requesting volunteers to participate in this research. Over 200 people agreed to participate and completed the pre-survey. Once the pre-survey was completed, participants were given their login credentials and instructions for one of the two online learning platforms. The data collection period ran for six weeks which included the winter break for the school district. During the time, there were 125 active players in the online learning platforms. Players self-selected the courses and content that they would like to learn. Players were updated each week as to the progress of the group regarding the number of courses completed, badges earned, and the time spent on professional development. Active players for the week were entered into a drawing on Saturdays to keep interest and motivation of the participants. Winners of the weekly raffle received a book on technology pedagogy appropriate for their

educational role and grade level taught. At the end of the data collection period, participants had completed over 600 hours of professional development, over 2300 courses and activities, over 400 badges in MobileMind, and nearly 40,000 points in Alludo. At the end of the data collection, 42 of the Alludo participants and 37 of the MobileMind group completed the respective post survey.

CHAPTER 5: DISCUSSION

Introduction

The topic of this dissertation has been an interest and passion of the researcher for many years. The researcher's primary role in education is that of a technology integration specialist responsible for scheduling, designing, delivering, and supporting technology professional development for the school district. One of our team goals is for technology to be accessible and user friendly for the students, teachers, and support staff. We aggressively seek to remove obstacles, impediments, and excuses for not using the technology, both hardware and software, provided and supported by the district, and we continually strive to improve our level of support.

It is difficult to find the necessary time to train all of the nearly 2000 certificated staff with the district as they manage their classrooms, schools, responsibilities, families, continued credential and certification requirements, and lives. That task is made more difficult when attempting to provide ongoing training and professional development which as we all know is needed for the successful acquisition and implementation of new technology skills. In traditional face to face professional development, teachers are provided an initial overview of the software or tool and some information on the basic purpose and usage of the technology. The trainings are one size fits all and go too fast or too slow for many of the participants. These concerns coupled with the length of time between the initial training, being able to provide follow up sessions and the limited number of trainers available, frequently leaves all parties frustrated. Trainers are frustrated when teachers don't use the available technology in their classrooms and with their students. Attendees are frustrated going over information that they already know,

while others get lost or overwhelmed at the volume of the content or pace of the training. In our current era, with all of the technological available and advancements, for this dissertation the question became, was there a way to leverage that technology to address these very valid and often expressed concerns. Was there a better way? This was guiding notion at the start of the doctoral journey and has continued throughout this project and the daily work of the instructional technology team. The research questions are included again below for reference as the researcher discusses the findings of the study, the implications for future research, recommendations for the future, and a summary of the study.

Research Questions

1. Does personalized, competency-based, online professional development better engage teachers over traditional professional development methods?
2. Does personalized competency based online professional development lead to deeper technology integration and better transfer of content from training to implementation?
3. How can professional development be improved to be more effective and increase teacher engagement and implementation?
4. Will teachers be receptive to online professional development?
5. Will online professional development be utilized by teachers and seen as a viable professional learning activity?
6. Will Badges and Online certifications be valued by teachers?

Summary of the Study

This project began with a series of research questions to explore opinions, provide experience, and gather feedback on the concerns discussed above to determine if traditional professional development was fulfilling the needs of the teachers and if traditional professional development led to increased technology integration. The project also sought to explore some available technology learning platforms to determine if any resolved some of the issues and concerns of traditional professional development and lead to deeper technology learning and integration. These research questions are discussed in the following section.

Personalized Competency-Based Online Professional Development

Research Question 1 stated: Does personalized, competency-based, online professional development better engage teachers over traditional professional development methods? Of the Alludo group, 32 of 41 agreed (16 or 39%) or strongly agreed (16 or 39%) with the prompt that participation in the online modules was more engaging than traditional face to face professional development. The MobileMind group responded positively as well where 31 of 36 responded strongly agree (19 or 52.8%) or agree (12 or 33.3%). Furthermore, when asked how much or less engaging the online modules were compared to traditional professional development, 22 of 37 or 59.5% of the MobileMind group reported that it was more engaging, 11 of 37 or 29.7% responded much more engaging, and four of 37 or 10.8% stated less engaging. Responses from the Alludo group were more positive where 23 of 41 or 56.1% responded more engaging, 8 or 19.5% responded much more engaging, nine or 22% stated less engaging and the last that modules were much less engaging.

Research Question 2 stated: Does personalized competency based online professional development lead to deeper technology integration and better transfer of content from training to implementation? The responses were again very positive. Within the Alludo cohort, 82.9% strongly agreed (19 or 46.3%) or agreed (15 or 36.6%) with this prompt which was very similar to other group. Of the MobileMind cohort, 20 or 56.6% strongly agreed and 14 or 38.9% agreed. These trends continued when the groups were asked if the online modules lead to a greater or lesser understanding of the technology content as both groups stated that participation lead to greater understanding. Specifically, 30 of 41 or 73.2% of the Alludo group reported greater understanding, 8 or 19.5% stated much greater understanding, two or 4.9% stated less understanding and the final response was much less understanding. The MobileMind results were similar where 22 of 36 or 61.1% responded greater understanding, 12 or 33.3% replied much greater understanding, and two or 5.6% stated less understanding.

Research Question 3 stated: How can professional development be improved to be more effective and increase teacher engagement and implementation? The two most common positive or supportive responses and themes to this prompt were that participants could work at their own pace without waiting on others (31 mentions) and that the online modules were more efficient because participants could set their own schedules and timelines (29 mentions). Other positives that were added included that there were less distractions with the online modules which was mentioned 15 times, the ability for participants to choose the content to be learned was mentioned 13 times as was the flexibility to schedule and work when it was convenient. Eleven people mentioned that they were responsible for their own learning and while some thought this was a

positive aspect, many others suggested some built in accountability and deadlines would help them stay on track which seems to indicate that this theme is more neutral than the others. The most common negative themes as it relates to the online modules was that there was no social interaction which was mentioned 13 times, and a desire for more variety in the applications and content which made sense as the MobileMind platform is predominantly Google centric in their courses. This request was for more application and variety was made 10 times from the MobileMind group.

Other data relevant to this research question was collected from Question 12 on the post survey which asked participants to share any positives/benefits to this asynchronous style of learning through online modules. Any negatives or barriers? The single most common benefit mentioned was that participants could work at their own pace which was mentioned 42 times, followed by the availability of choice by the participants which was mentioned 25 times. Other positives or benefits were more than ten times were that participants could work and train remotely (11 mentions) and the content being chunked into smaller micro sessions which was mentioned 10 times. Regarding barriers or negatives experienced by participants the lack of social interaction was mentioned most frequently with 18 comments, followed by the feeling that participants were responsible for their own learning without someone to ask for clarification or a question which was mentioned 15 times. Finally, the need for time management on the part of the participants was mentioned 10 times.

Question 17 from the post survey asked participants what would improve their experience with this asynchronous style of learning through online modules? What would you change about the online modules to make the experience better? The single most

common response to the prompt was the suggestion for including some form of collaboration or a post course debrief session for participants to discuss how they might use what they have learned in their classrooms which was mentioned 22 times but was mentioned only two more times than those that stated they had a positive experience and offered no suggestions for improvement. Suggestions for platform enhancement or improved navigation were mentioned 12 times. The remainder of the suggestions were all mentioned by less than ten participants and list here in descending order of frequency. The other suggestions were a request for reminders and a schedule (eight), for more support for new teachers (seven), faster approval time and less time waiting for approval (four), a wider variety of modules (four), the ability to work as a team (two), a request for additional resources (one) and a leaderboard to see how others were doing (one). The suggestions for the leaderboard and a wider variety of content were specific to MobileMind which is predominantly Google Suite and tool specific. Alludo has a leaderboard which includes the Top Schools and Players Overall and for the specific week. As mentioned in Chapter 3, instructions were specific to accessing the assigned learning platform and of the data collection period. The researcher was interested to see how user friendly the platforms were on their own. Early in the data collection period, it became evident that participants were operating under the idea that they needed to complete the Alludo content in a linear path, despite the information shared that participants could pick and choose the professional development content and journey. As the initial Alludo activity was approved, the researcher reminded participants that they were free to select the desired content to learn as a reminder.

Research Question 3.1 stated: Will teachers be receptive to online professional development? On the post survey participants were asked if opportunity is provided, would you be willing to participate in more training of this nature? Please include the reasons for your response. What conditions would improve or change your response? Participants were overwhelmingly supportive of participating in the online professional development platforms again as 68 of 76 or 89% replied Yes, they would participate. The most common reasons offered in support were that the modules were self-paced (19 times), that participants were allowed to choose their professional development path (nine mentions), and that the modules improved their technology skills and comfort level(nine mentions).

Question 9 from the post survey asked participants would you support the decision by your district to purchase the online platform that you piloted or something similar? Participants strongly supported the purchase of an online platform for professional development as 64 of 78 or 82% replied yes and only two of 78 or 3% replied no. The remaining 12 people or 15% replied maybe and were asked what conditions would impact or change your decision? Responses from the 13 that replied were quite varied and not much commonality. The suggestion of an accountability requirement, being compensated, the suggestion to provide training, and whether participation would remain voluntary or mandated by the district were all mentioned twice be participants.

Research Question 3.2 stated: Will online professional development be utilized by teachers and seen as a viable professional learning activity? Question 6 on the post survey asked if participants enjoyed this asynchronous style of learning through online

modules and activities more or less than traditional face to face professional development. The online asynchronous platforms were the clear favorite as 58 of 77 or 75% explicitly stated this was the preferred medium for training. Only nine or 12% explicitly stated that they preferred face to face training, while the other responses offered suggestions or positive aspects of the online modules. Further evidence that was mentioned above are the 89% that stated that they would participate in this form of training again.

Research Question 3.3 stated: Will Badges and Online certifications be valued by teachers? At the time that the project was embarked upon and at the onset of the data collection period, the researcher had no idea if participants would value online certifications or badges. In fact, the researcher wasn't even sure if they would know what a badge was at all. Participants were asked directly, please discuss the importance or influence of the badging and online certification on your completing the activities. Responses were categorized either positive, neutral, or negative. There were 51 positive comments about badges, 15 neutral comments, and eight negative comments from the participants. In addition, there were 53 additional comments that discussed the reasons for that rating. For most, the badging was an incentive for the participants. Please see the table of responses in Appendix F for more information on these additional insights.

For most the online certification and badging was a motivator. After reviewing the data from the pre-surveys, it was clear that traditional professional development was not effective for the teachers and site leadership. Participants had very clear ideas on how professional development could be improved and what types of professional development were helpful and effective for them. Upon the completion of the pre-

surveys, participants began course work in one of two online platforms and were asked to complete at least one course, but were encouraged to complete two for a broader experience with the platforms. The researcher didn't want the experience to be solely based on one course and thus forming an opinion on one really good or really bad experience. What happened from there was a surprise and joy to see as participants fully embraced the learning platforms and completed many more courses than the researcher had anticipated. Once the data collection concluded, post surveys were sent to all that had logged into their assigned learning platform and the results were very positive. Overall, participants really gravitated to the new online content and modules. After thoroughly reviewing and coding the results, the participants grew from the experience with the platforms and expressed that growth in their comments of being more comfortable with technology, having shared what they learned with their students or teachers that they support, and that they would encourage the district to purchase a learning platform to make the trainings available for all staff in the district.

Implications for Practice

After all the surveys, courses, badges, and completed activities, one thing that is clear is that teachers are interested in meaningful professional development. Considering that participants completed over 600 hours of professional development, over 2300 activities, over 400 badges in MobileMind, and nearly 40,000 points in Alludo during the data collection period. Teachers very much appreciated the option to work and learn at their own pace and from any location, the option to select the professional development path, that the learning accommodated multiple learning styles, was able to be reviewed, and was available in smaller, micro sessions.

Age of Participants

One interesting or surprising discovery after administering the pre-surveys was the age of the participants which revealed that 50% of the participants were aged 50 years or older, 78% were 40 years of age or older and one participant was older than 70 years of age. This information was a surprise to the researcher and also his dissertation chair. There could be several reasons for this data. One possibility is that the more veteran teachers felt the need for more technology training and volunteered to participate. Another potential reason was the COVID-1919 pandemic which closed schools almost a year ago and forced teachers to utilize technology daily for their instruction and to connect with their students. Veteran teachers may have felt more out of sorts with this learning style and felt compelled to better learn the technology tools as a means of survival while younger teachers use technology more regularly. It has been the experience of researcher in the college and teacher credential courses that he has taught that while younger teachers may use more technology in their daily lives, that use of technology frequently stops at the doors of their classroom which is something that they have in common with the veteran teacher. Younger teachers may have a busier schedule as the work to complete or clear their credentials while working as an intern, a resident, or enrolled in the induction program. A final possibility could be related to the researcher himself who has worked in the district for 27 years and has worked in technology support for the last 15 years. Staff may have been willing to volunteer due to the past relationship, familiarity with the researcher or having received support or training from him.

Professional Development on the Go

Under normal pre-pandemic times a teacher's workload is intense and much time is spent at home, evenings, and weekends planning lessons, grading assignments and tests, contacting parents or guardians, conducting conferences, or completing report cards. Since March 2020 when the United States shut down TK-12 schools and colleges to address the spread of the Coronavirus, that workload has increased many fold. Teachers are now balancing the work above, while adapting their daily lesson plans to be taught over a video conference solution like Google Meet or Zoom. The attendance tracking process has changed dramatically during this time and now include student engagement forms that have different codes or entries for students that actively show up in class and for those that complete work. Teachers also needed to learn how to assign work, share resources, and communicate with students and guardians using an online platform like Google Classroom, Class Dojo, or Seesaw.

The online learning platforms piloted during the data collection period of the research were available whenever teachers had time to login. This was a benefit that was mentioned over and over throughout the responses. Teachers very much appreciated the ability to complete training around their busy schedules, and that the content was directly relatable and applicable to their classroom teaching or teacher support as was mentioned many times in the feedback. Participants appreciated that they could work at their own pace, select their own courses and pathways, and access the platforms when they were available. They also appreciated not being slowed down by others in the training who may be less tech savvy, having less distractions in the online trainings, and not having to sit through content that they already knew in this personalized format.

As schools prepare to return to in person learning, as the COVID-19-19 numbers continue to decrease, and more adults are vaccinated against to virus, there will still be a need for this form of professional development. As discussed earlier, it is very difficult to provide sustained and ongoing training for all the certificated staff in the district while accommodating all the district programs, initiatives, and mandated programs. Trying to keep up with this schedule is akin to a hamster on the wheel. No matter how fast you go and how long you are on it, you never get anywhere as district priorities change and morph due to a variety of outside influences like government mandates or Office of Civil Rights (OCR) complaints and findings. Asynchronous professional development will still need to be an option and might be the only solution that allows teachers to get the trainings that they desperately need. Each year the district provides a weeklong orientation for new teachers which accommodates 40-400 new teachers depending on the year for which teachers are compensated. Representatives from departments like Research, EdServices, Curriculum, Language Development, Human Resources, and Instructional Technology provide training during this week, as well as an opportunity for the new teachers to meet their site support. The annual issue is that as soon as this orientation concludes several to many more teachers are hired throughout the year and do not get this training. If each of the above departments prepared online content to cover what was shared during this week, new teachers could still receive the benefit of this information regardless of when they are hired. Since the platforms require evidence of completion, mastery of content to be demonstrated, and track time on the platform, teachers hired after the weeklong orientation could still be compensated once they complete the coursework.

The online asynchronous platforms provide professional development on the go and accommodate all schedules and roles. For years, people have asked the researcher how he stays current on the rapid advancements in educational technology and he has led conference sessions on similar topics which leverage social media platforms and professional learning networks. The beauty of the technology, the online learning platforms, social media, and the professional learning network is that all can be accessed anywhere at any time. Whether teachers are early risers, or night owls, they can complete training based on their schedules and preferences and this was described many times in the comments and feedback. The online portals can also be accessed while teachers (parents) wait for the child's softball practice or dance class are in session. Finally, as binge watching or streaming a series has been very common where someone watches several episodes or an entire season at one sitting, the online learning platforms can be accessed similarly. Again, this is something that was shared several times as a benefit and positive of the online portals as the participant can complete several activities or an entire course in one sitting and then not log in again for several days until time is available again. In a district of nearly 2100 certificated staff, only an online learning platform that allows for asynchronous work can ensure that training is offered in a sustained manner.

Discussion of Results According to the Theoretical Framework

The theoretical framework for this dissertation was Adult Learning Theory by Malcom Knowles which consists of six principles. The key principles of ALT are that adults need to know why they are learning something, adults are internally motivated, adults want to know how the content will benefit them specifically, adults bring prior

knowledge and experience that serves as a foundation for learning, adults are self-directed and want to be in charge of their learning, and adults find the most relevance from task oriented learning which aligns with their reality. Throughout the responses on the two surveys, participants have mentioned aspects of adult learning theory repeatedly, whether or not that was intended is unclear.

Adults need to know why they should learn something and everyone is aware of the Simon Sinek book entitled Start with Why. The asynchronous platforms support this aspect and each course begins with an overview and introduction of the content to be learned. During the research, teachers had access to a great many courses all of which were relevant to online teaching and learning, as well as social emotional support for both teachers and students which is very important during remote learning. Many responses mentioned that wanted to learn about new programs that the district had purchased or to better utilize the Google suite and Chromebooks which is available to all in the district. This notion of why was mentioned 16 times on the pre-surveys.

Adults are internally motivated and everyone that participated in the research was a volunteer working during their winter break, after school, or on weekends. Several mentioned that they had to remind themselves that they had signed up for this pilot as their interest waned or as they got busy being back at work. They had signed up because they wanted to learn and improve their technology skills and level or to complete a Google certification. The researcher sent one email a week reminding participants that the platforms were available, updating participants on what had been accomplished during the week, and to announce the winner of the weekly raffle drawn from those that were active during the week. The weekly raffle was a technology pedagogy and

integration book, instead of a Starbucks gift card. Once the random number had been selected and the winner identified, a book that was applicable to their role and grade level(s) that they taught was selected and ordered.

Adults want to know how the content will benefit them specifically. The online modules were directed relatable and useable for the participants as the online modules only included content that was directly related to the current education environment. Modules on the Google Productivity Suite, Chromebooks, instructional technology like Pear Deck, Kami, Padlet, Screencastify, and Seesaw which had been provided by the district this year, online learning and instruction, and social emotional wellness were all included. As many participants shared, they were able to apply their learning with their students or teachers that they support. Many expressed that as a result of the trainings, they were more comfortable and confident with technology and had shared what they had learned with colleagues. This idea of job relevance and applicability of the content was mentioned 73 times on the pre-surveys when asked about the ideal professional development.

Adults bring prior learning and experience to the training. Many mentioned that they appreciated not having to sit through content that they already knew and where able to dive in and begin learning right away as they were able to bypass or skip things that they already knew. This is certainly a flaw with traditional face to face professional development which are generally one size fits all. In the course of a staff meeting or a staff development day, it is difficult to account for the myriad of skill levels and prior knowledge. This task is made more difficult as attendees are not very good at assessing their level on their own. The researcher frequently uses a golf analogy when this topic

comes up. On a given Sunday, if the researcher is dropped in the locker room of the local muni or club, then he is a pretty good golfer, but if dropped into a PGA locker room, the comparison is much less favorable. Technology trainings are similar. In the right group, the attendees can zip through the material, but get the person dropped into the PGA locker room and the training drags with what some would call pedestrian or rudimentary questions and leads to a five-hour round of golf.

Adults are self-directed and want to be in charge of their learning. These sentiments were mentioned man, many times throughout the feedback as participants mentioned how important and liberating that they were able to pick the content that they wanted to learn. The ability to choose their journey was a very motivating factor. Participants appreciated being treated as a professional, and able to assess what content was of greatest value to them. Self-directed was mentioned specifically seven times on the pre-surveys but was a repeated theme when asked about the benefits and positives of the learning platform that they had utilized.

Finally, adults find the most relevance from task oriented learning which aligns with their current reality. Again, this was specifically mentioned by participants many times on the pre-surveys regarding the ideal professional development. Participants alluded to task oriented learning in comments such as hands on, practical strategies that could be used the new day in class, time to learn, review, and practice what was learned, content that built on the prior lesson, and micro activities and sessions. These ideas were described 23 times on the pre-surveys and many times when asked about the benefits, positives, or advantages of the online asynchronous platforms.

Compensation and Collective Bargaining

It is common knowledge that the job of educator is never done and that educators spend many hours away from work and away from their families spent planning lessons, grading assignments, searching the internet for new ideas or a way to reach their students, and completing paperwork like report cards or the attendance logs that were discussed earlier which are required due to the COVID-19-19 shutdown of schools. This time spent outside the hours in the classroom is frequently raised during negotiations and as new requirements or tasks are assigned and discussed. While the participants in the research where volunteers, please let it be known and clear that this is not the expectation if a district was going to roll out this form of learning. It is interesting that compensation was only mentioned five times on both the pre and post surveys.

Educators are professionals and like all professions, there is an expectation of continued learning and education. As mentioned in the feedback, the content of the modules is of benefit to both the educator and the students, but the researcher does not want this learning to be strictly voluntary. Please let it be clear that there needs to be compensation for the completion of the trainings, or the trainings will not be utilized by everyone. The biggest hurdle is how to provide this compensation. As we move away from the Carnegie unit and base learning and compensation strictly on seat time, there will need to be some discussion on how to fairly compensate for the completion of the modules. All activities and courses on the platforms include an estimate of time that the task should take, but is that true for all users? A more tech savvy user may take less time while a less tech savvy user may take considerably more, especially when you factor in

the approval of the submissions which could (and did during the pilot) require multiple submission before gaining approval.

There will need to be direct discussions with the various unions to come to an agreement on how to compensate for this online learning. Districts and unions will need to agree on a system of compensation for this professional development and it most likely won't be based on time logged on the platform as this would be ripe for abuse and again would be inequitable based on tech skills and savviness. Instead, a better method would be a stipend or set amount for the completion of the module or game as it is referred to in Alludo. In general, the course is expected to take about 45 minutes. Districts could compensate based on the expected time and all participants would receive the same compensation regardless of if they finished earlier or took longer to complete. Alludo assigns points for activities so there could also be a payment scale based on a per point basis. Those that complete more activities and acquire more points would make more than those that play less or don't participate at all. The researcher feels like the system should be some blend of all the above and has seen some districts beginning to move in this direction. Games are assigned during a semester and players that complete expected levels or accumulate a certain number of points are compensated. This method still leverages all the aspects of adult learning by allowing participants to choose the content, self-direct and pace their learning, and task oriented, job embedded content.

A small rural high school district was doing something like this idea, but instead of during the semester, the district will release a new game around regular scheduled break like Winter or Spring break and allow a few months to complete. Educators have the choice to participate or not, and those that complete are compensated with swag and

/or stipend. For instance, the district might drop a new game at Spring break which contains multiple levels. Those that complete levels one and two are paid a stipend based on the districts professional development schedule which was around $125. Those that completed levels three and four received another stipend of $125. All that participated received some sort of free swag accumulated from conference vendor halls.

Gamification and Scalability for a Large District

Throughout the responses and feedback, many participants mentioned the competitiveness and motivation from the leaderboard and weekly emails that provided updates during the collection period. Several participants relayed that they didn't know how competitive they were. Being able to compensate for the completed games and courses is great and most likely the best incentive that can be offered to get people to participate, but the researcher also envisions providing some other options.

Building on the competitive human spirit, the researcher plans to offer incentives for schools and individual educators to participate which has proven a successful motivator when asking schools to complete annual technology surveys, Google permission slips, or other required activities. Reminder emails with a leaderboard that includes sites with completion rates is a strong motivator for teachers and administrators. No one wants to underperform when compared to their friends, colleagues, or schools of similar size or location. To leverage this, the proposal would be to offer a prize for the top three or top five schools at the end of the semester or year. Potential prizes could be things like interactive panels, 3D printers, sound systems, class sets of headsets, etc. These are high value prizes and should provide an adequate motivator to gain buy in and interest.

That said, one could still see the potential that some sites might choose not to participate as fully as another and an individual teacher that was excited and participating could become demoralized with the lack of progress or interest from their site. To account for this possibility and to keep that lone educator motivated, there should also be an option for an individual reward or prize. The proposal would be to reward the top ten individual teachers across the district and take them to a technology conference or summit. The state tech conference occurs each Spring. Points could be accumulated over the first trimester of the year from August to December for example. Other time ranges could also be explored. Perhaps a June to December time frame might work too. This strategy is similar to that which was employed during the data collection phase where the reward for participation in technology training was more technology training in the form of the book on tech pedagogy and strategies.

A successful proposal and program will require the agreement of both the unions and the school district. The proposal will need to be equitable in terms of the compensation schedule and the professional development being completed. The proposal and incentives are strengthened by the offering of both school and individual rewards which afford all participants an option to be recognized.

Connections to Prior Research

In the literature review, the finding that teachers generally teach as they were taught, despite the advances in technology that have occurred was discussed. Through the information and research from Busteed (2019), and Chen (2019), we learn that this form of instruction leads to students that are ill prepared for the rigors of college or career. Thomas Edison said that the tools of the future are here and that books will soon

be obsolete (Anning, 2019; West & Bleiberg, 2013). Sadly, this quote was attributed to Edison around 1913. In this study, teachers participated in training that was very much not how they learned in the classroom and the results were very positive. Teachers enjoyed learning with the online modules. Several expressed that they were now more comfortable with technology and that their technology skills had improved. Others also responded that they had shared what they learned with colleagues and teachers that they support. The tools of the future are here again and by introducing teachers to different methods of learning, perhaps we can now begin to leverage the power of the current technologies.

Klein (2019) discussed that although teachers use technology in their daily lives, that usage many times is absent from their classrooms. While the research of Wait (2018) and Willis and Raine (2001), show that teacher credential programs are not preparing teachers to lead in the current classroom using the common tools of the day. In this study, a new training platform and paradigm was used, and veteran teachers found new ways to learn and teach in the 21st century classroom. Participants in this study were predominantly veteran teachers. The median age of the participants was in the 40-49 age range and the mode was in the 50-59 age range with 73 of the 188 responses falling in that range. Participants had been teaching an average of 16.11 number of years, the median of the years taught data was 16, while the mode was 15. As has been discussed, the results were very favorable based on the feedback and many felt the online modules were a viable form of professional development. Despite the fact that most teachers teach as they were taught, this study helped veteran teachers improve their technology

usage and integration. Granted, the COVID-19-19 pandemic may have provided much of the motivation for teachers due to school closures and distance learning.

The research of McMahon (2019) and Ridgeway and Ridgeway (2019), discuss the difficulty differentiating instruction for students without the use of technology. Consultants and teacher preparation programs all discuss the need to differentiate instruction and the reasons that it is so important, but many do not show how that can be done. This study provided a strategy for differentiating professional development for teachers and advanced the research in this area.

Recommendations for Further Research

This research was conducted in a large urban school district in central California over the course of a six-week period in the middle of the COVID-19 -19 pandemic. One recommendation would be to replicate this study in the same district with a different sample, in a rural area and in a smaller urban school district to see if the results are similar and generalizable. As schools prepare to reopen in the coming months, it would also be interesting to see how the results would compare in the post pandemic era. The researcher will always wonder how the results may have been different if there had been no pandemic and shutdown of schools. The COVID-19-19 pandemic and the tragic loss of lives are terrible, but if one looked for a silver lining, it would be that the school closures and distance learning have forced teachers across the country to improve the technology skills and usage unlike any other situation or offer could have done.

Initially the researcher wanted to focus on personalized learning for students and develop a plan to pilot personalized learning for students in a large urban district which had not been done at that point. Most of the instances, were in small urban districts or in

rural consortiums or consolidated districts. The researcher is still very interested in implementing a personalized learning system in a large urban school district. The biggest obstacle to such a notion has been the reliance on technology integration, getting teachers to try new forms of learning and assessing, and providing a combined synchronous and asynchronous activities and instruction. It has been difficult for teachers to imagine what this might look like when discussed in teacher credential courses, professional development trainings, or conference sessions. The last year of working remotely has forced teachers to do things differently and now could be a great time to begin the discussion anew.

The trainings in the study were primarily focused on technology. Specifically, how to use various productivity tools like Google Drive, Docs, Slides, and Forms, or applications like Kami, Padlet, Pear Deck, Seesaw, and Zoom. There was other content about social emotional wellness for teachers and students and online learning pedagogy. As has been discussed, the results were very encouraging and the feedback from participants very positive. The researcher wonders if that positivity will hold for all content areas. Will teachers still be excited to participate when the training is on other topics or were they driven to participate as a means of surviving education in the midst of a pandemic? Will this be an effective platform for mandated trainings on blood borne pathogens or our status as mandated reporters? Can classroom management, team building, physical education be taught as an online module or is there a sweet spot of content that works best for online learning.

Summary

Chapter 5 has provided the final discussion of all the data and feedback that were completed and gathered as part of this study. Professional development has long been a difficult problem to solve for schools across the nation as showed by the research, especially for the large urban school district which suffers from frequent changes in district leadership. The study has shown that teachers and staff welcomed sustained meaningful technology professional development and they are supportive of the district providing a similar platform for all staff. COVID-19-19 has changed the landscape of instruction over the last year and forced teachers and schools to connect with their students and communities in different ways. Due to the mandated periods of shelter in place during the year, schools being closed to students and staff, and the fear of transmission of the virus, this communication had to be conducted electronically and digitally. Classrooms moved online to online learning managements systems, like Google Classroom or Seesaw and daily instruction which came to be known as synchronous instruction was completed via video conferencing platforms like Zoom and Google Meet. While teachers worked remotely helping students, parents, and families, it became even more difficult to provide the necessary professional development since the entity which is education was in survival mode.

While not available to all in the district due to limitations in licenses, the study allowed for teachers to get some much needed training on the tools that they were relying on and that had been provided by the district. Based on the feedback, participants had a very positive experience. Feedback coupled with the completion and participation rates

in the platforms present a strong case for continuing with an online asynchronous learning platform.

Finding a budget to fund the procurement of an online learning portal is one of the next steps. Another is relaying the feedback of the participants to the partners to work on integrating and improving the platforms. Internally, the instructional technology team can discuss a viable means to incorporate the personal connection that was mentioned by many of the participants as a negative or the aspect that was missing from the online platforms. There were some great suggestions proposed by participants like an end of session wrap up and collaboration for educators to discuss how they may use the resource or tool in class or the option of an office hour where those that were struggling could ask a question or seek clarification. Finally, while discussing a budget to purchase the system, there also needs to be concurrent discussions between the district and union(s) to establish an appropriate payment schedule and plan.

Conclusions

At this start of this journey was a desire to improve the education and engagement of students utilizing the personalized learning approach. Along the way, it became apparent that without teachers on board, the work would all be for naught. At this time, the work began again as a desire to improve professional development for educators and to increase technology literacy and integration. Theories like Andragogy or Adult Learning Theory and the work on Dr. MaryAnn Wolf were found and served as the foundation of the work going forward to design an improved professional development system for teachers.

In Innovate to Educate, Dr. Wolf describes the essential tenets of personalized learning and the environmental factors that need to be in place for successful implementation. The essential elements are flexible anytime/everywhere learning, a redefined role of the teacher, project based authentic learning, student driven data path, and master or competency based progression. The policies to be enacted are less reliance on the Carnegie unit and calendar, performance based, time flexible assessments, equity in access to technology including device and internet, funding models that incentivize completion and a preschool to 20 continuum and non-letter grade based system. Andragogy explains that adults want to know why they are learning something, want to have the content apply directly to their work or lives, that they are internally motivated, are self-driven and independent, and bring a wealth of experience to their learning which they want to be leveraged and acknowledged. This study became a quest to integrate these systems and to provide an online competency based professional development program for teachers.

After the review of the literature and finding only limited resources, the researcher began on this path to find all that could be found on the topic at conferences, symposiums, online communities, from his personal learning network, and scholarly articles and research. He found districts that were also thinking about ideas like this and like the researcher, each was designing their systems and working in isolation. Over the years, organizations like Digital Promise and the Kentucky Valley Educational Cooperative began to provide research, resources, structures and examples of what personalized learning for teachers might include and how it might look.

Throughout the travels and exploration, the researcher discovered new learning platforms like KYTE learning and Alludo which provided the content and platforms for online competency based learning for educators, but how would these platforms and style of learning be received? The researcher began discussions with the vendors about the possibility of piloting their platforms within the school district to better understand the set up and navigation of the platform, the content that each offered, and the method of delivery of the instruction. A meeting of the minds or kindred spirit was formed with Alludo several years ago when the researcher explained his dissertation topic to the representative and the researcher asked if Alludo would be willing to allow the use of the platform for a limited time for the purpose of conducting the research phase of the dissertation. Parameters, duration, and number of licenses were discussed and an agreement was made to use the platform for 60 days.

During this time, life and COVID-19 interrupted the progress on the study and delayed the data collection to the Winter of 2020. Adaptations and modifications were made to allow for data collection during the remote learning period due to the school shut down and a grant from Google to help districts provide professional development to support teachers leading distance learning. A similar platform to those above was found and the grant provided a limited number of licenses for use which were made available to the district's technology steering committee and for certificated staff that had recently attended a technology training in the Spring or Summer. Participants were queried about their interest in being included in the pilot and the research and it was made well known that participation in the research was completely voluntary. Many opted into the research and pilot of MobileMind, others did not, but all were provided access to the MobileMind

platform. The results only include the work from those that opted in and consented to be included in the research.

The data collection ran for six weeks for the MobileMind group and five and a half weeks for the Alludo cohort. Over 200 certificated staff members completed the pre-surveys, 113 utilizing the Alludo platform and 76 that would be using MobileMind. At the end of the data collection period, there were 52 active learners on the MobileMind learning platform and 73 that used the Alludo system. The data collection was very successful and combined the groups had completed over 600 hours of professional development and over 2300 courses and activities. There were over 400 badges earned in MobileMind, but it wasn't possible to have an accurate count for Alludo. Instead, there were nearly 40,000 points accumulated by the players from activities that vary in weight from five to 100 points.

The results have been analyzed, discussed, and presented in Chapter 4. The data from the surveys provided interesting findings, positive and favorable feedback for the online platforms, suggestions for improvement, increased comfort using technology, deeper integration of technology as reported by the participants. The results were even more favorable when the age of the participants and the length that they had been teaching is considered. The mean of years teaching for the sample population was 16.11 years. The professional development from the online modules had impacted their teaching in this short time and these veteran teachers reported that they were using more technology as a result of the online modules.

Chapter 5 providing a discussion of the results, key findings and themes, a comparison of the results and previously reviewed literature, the implications for

practice, and recommendations for future research. The study sought to answer six research questions regarding online competency based professional development and whether or not this form of professional development would be used and welcomed by teachers. As has been discussed, the feedback and results were very positive. Participants completed many more modules than they were asked to complete as part of the study and the majority supported the district providing this method of professional development to all staff. There were several interesting findings and implications for practice like the age of the participants which trended to an older, more veteran group, being able to compensate following the completion of the online trainings. Although very few asked or mentioned compensation, the researcher feels this is the correct practice and will lead to a longer, more successful implementation. The results of the study were also discussed as through the lens of Adult Learning Theory which was the theoretical framework for this study. The discussion ended with some recommendations for future research.

REFERENCES

Acree, L. (2016, January 26). Seven lessons learned from implementing micro-credentials. Friday Institute for Educational Innovation. https://www.fi.ncsu.edu/news/seven-lessons-learned-from-implementing-micro-credentials/

Andriotis, N. (2017). *What is just-in time training (and how to adopt it in corporate training)* [Blog]. EFront. https://www.efrontlearning.com/blog/2017/10/just-time-training-best-practices-adopt-business.html

Anning, R. (2019, May 2). Are textbooks becoming obsolete? ELearning Industry. https://elearningindustry.com/textbooks-becoming-obsolete

Awaad, A. (2019, April 16). *Students harness the skill of preparedness through blended learning.* Blended Learning Universe. https://www.blendedlearning.org/students-harness-the-skill-of-preparedness-through-blended-learning/

Battista, L., & Ruble, V. (2014, January 13). *Nine strategies to spark adult students' intrinsic motivation*. Faculty Focus-Higher Ed Teaching & Learning. https://www.facultyfocus.com/

Blackstone, A. (2012). Survey research: A quantitative technique. In A. Blackstone (Ed.), *Principles of sociological inquiry: Qualitative and quantitative methods*. Saylor books [pp. 90-107]. http://www.saylor.org/books

Blair, J., Czaja, R., & Blair, E. (2014). Designing surveys: A guide to decisions and procedures, 3rd Edition. Thousand Oaks, CA: Sage Publications, Inc.

Blair, Nancye. (2012). Technology integration for the new 21st century learner. *Principal, 9*(3), 8-11. https://eric.ed.gov/?id=EJ975531

Blad, E. (2019, May 14). *When the PD plate is overfull*. Education Week. https://www.edweek.org

BloomBoard - Educator Career Advancement. (2020). *What are micro-credentials?*. https://bloomboard.com/what-are-microcredentials/

Bloom, A. (2008). "Teachers need a personalised touch, too." TES: Times Educational Supplement, (4781), 30–30.

Boston Consulting Group (2014, December 5). *Teachers know best. Teachers views on professional development* [Study]. Bill and Melinda Gates Foundation https://usprogram.gatesfoundation.org/-/media/dataimport/resources/pdf/2016/11/gates-pdmarketresearch-dec5.pdf

Bowman, J. C. (2019, November 1). *Critics of public education should be more constructive*. The Tennessean. https://www.tennessean.com/

Brame, C. (2013). *Just-in-time teaching* (JiTT). Vanderbilt University Center for Teaching. https://cft.vanderbilt.edu/

Brender, J. (2006). *Handbook of evaluation methods for health informatics* [pp. 253-320]. Academic Press. https://doi.org/10.1016/B978-0-12-370464-1.X5000-X

Brown, C. (2019a, July 25). *The history of personalized learning* [Blog]. Classcraft Blog. https://www.classcraft.com/blog

Budd, A., Dinkel, H., Corpas, M., Fuller, J. C., Rubinat, L., Devos, D. P… & Rowland, F. (2015, January 29). Ten simple rules for organizing an unconference. *PLoS Computational Biology, 11*(1), e1003905. https://doi.org/10.1371/journal.pcbi.1003905

Burry, M. (2020, May 20). *6 Amazing ways teachers are using social media during the pandemic*. Teach For America. https://www.teachforamerica.org

Busteed, B. (2019, March 29). *Why aren't graduates ready for work? They're the least working generation in U.S. history*. Forbes. https://www.forbes.com/

Cammuso, K. (2015, June 3). *School technology: Monitoring students' progress in real time*. YouTube. https://www.youtube.com/watch?v=5honqC0vmoc

Cavanagh, S. (2014, October 22). *What is "personalized learning"? Educators seek clarity*. Education Week. https://www.edweek.org/

Changingminds.org. (2016). *Ethnographic coding*. Retrieved 22 February 2016, from https://changingminds.org/explanations/research/analysis/ethnographic_coding.htm

Chen, G. (2019, January 2). *Are high school graduates ready for college? Studies are dismal* [Blog]. PublicSchoolReview.com. https://www.publicschoolreview.com/blog/are-high-school-graduates-ready-for-college-studies-are-dismal

Cleveland Clinic Newsroom (2020). *Toddlers get too much screen time, study says.* https://newsroom.clevelandclinic.org/2020/02/06/toddlers-get-too-much-screen-time-study-says/

Cohen, D., & Crabtree, B. (2006). *Qualitative research guidelines project: Triangulation.* Qualres.org. Retrieved from http://www.qualres.org/

Cole, K. (2019, June 11). *Pedagogy in education: More than a buzzword*[Blog]. Schoology Exchange . https://www.schoology.com/blog/pedagogy-education-more-buzzword

Cook, S. C. (2014). *Connected leadership: It's just a click away* (1st. Ed.). Corwin.

Cox, E. (2015). Coaching and adult learning: Theory and practice. *New Directions for Adult & Continuing Education, 2015*(148), 27-28. https://doi.org/10.1002/ace.20149

Croft, A., Coggshall, J., Dolan, M., Powers, E., & Killion, J. (2010, April). *Job-embedded professional development: What it is, who is responsible, and how to get it done well* [Issue brief]. Learning Forward. https://eric.ed.gov/?id=ED520830

Cross, K. P. (1981). *Adults as learners. increasing participation and facilitating learning*. Jossey-Bass. Retrieved from https://eric.ed.gov/?id=ED200099

Creswell, J. (2015). *A concise introduction to mixed methods research*. Sage Publications. Los Angeles.

Creswell, J. (2013). *Qualitative inquiry and research design*. Sage Publications. Los Angeles.

Culatta, R. (2020). Adult learning (K. P. Cross). InstructionalDesign.org. InstructionalDesign.Org. https://www.instructionaldesign.org/theories/adult-learning/

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017, June 5). *Effective teacher professional development* [Report]. Learning Policy Institute. https://learningpolicyinstitute.org/product/effective-teacher-professional-development-report

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. New York: Teachers College Press.

Darling-Hammond, L., & McLaughlin, M. W. (2011, March). Policies that support professional development in an era of reform. *Phi Delta Kappan, 92*(6), 81-92. https://doi.org/10.1177%2F003172171109200622

Digital Promise (2020). *What are micro-credentials*. Retrieved from https://microcredentials.digitalpromise.org/

Dockstader, J. (1999, January). Teachers of the 21st century know the what, why, and how of technology integration. *T.H.E. Journal, 26*(6), 73-74. https://eric.ed.gov/?id=EJ584319

Donchev, D. (2021, November 3). *37 mind blowing YouTube facts, figures and statistics*. FortuneLords. https://fortunelords.com/youtube-statistics

D'Orio, W. (2019, June 11). *What's in a microcredential?* Higher Ed Dive. https://www.highereddive.com/news/whats-in-a-microcredential/556606/

EdSurge. (2014, June*). How teachers are learning: Professional development remix* [Report]. Retrieved from https://www.edsurge.com

EdWeb.net (2013, December 18). *How to personalize learning plans for your teachers* [Webinar]. Retrieved from https://home.edweb.net/how-to-personalize-learning-plans-for-your-teachers/

Edwards, M. A. (2013). *Every child, every day: A digital conversion model for student achievement* (1st edition.). Boston: Pearson.

Edwards, L. (2021). *What is a bitmoji classroom and how can I build one?* Tech & Learning. Retrieved from https://www.techlearning.com

Ferguson, M. (2018, August 24). Washington view: Public opinion on teachers and teaching. *Phi Delta Kappan, 100*(1), 40-41. https://kappanonline.org

Finkelstein, J., Knight, E., & Manning, S. (2013, July 16). *The potential and value of using digital badges for adult learners* [Report No. 508]. American Institute of Research. https://lincs.ed.gov/publications/pdf/AIR_Digital_Badge_Report_508.pdf

Fluharty, M., Wood, B. & Hiebsch, H. (2014). *25 Tips for blended learning success when implementing a program to personalize education*. FuelEducation. Retrieved from https://www.eschoolnews.com/

fueleducation (2014). *The five phases to planning and implementing a successful blended learning program*. Retrieved from https://docplayer.net/1681929

Fullan, M. & Knight. J. (2011, October). Coaches as systems leaders. *Educational Leadership, 69*(2), 50-53. https://eric.ed.gov/?id=EJ963533

Garcia Mathewson, T. (2017, February 6). *These 7 trends are shaping personalized learning*. K-12 Dive. https://www.k12dive.com/news/these-7-trends-are-shaping-personalized-learning/434575/

Gay, L. R., Mills, G., & Airasian, P. (2012). *Educational Research* (p. 490). Pearson Education.

Graham, S. (2017, May 22). *A simple, easy to understand guide to andragogy*. Cornerstone University. https://www.cornerstone.edu/blogs/lifelong-learning-matters/post/a-simple-easy-to-understand-guide-to-andragogy

Greene, P. (2019, February 16). *Education micro-credentials 101: Why do we need badges?* Forbes. https://www.forbes.com/sites/petergreene/2019/02/16/education-micro-credentials-101-why-do-we-need-badges/

Groshell, Z. (2019, January 11). *After 100 years of the same teaching model it's time to throw out the playbook*. Education Rickshaw. https://educationrickshaw.com/2017/12/02/after-100-years-of-the-same-teaching-model-its-time-to-throw-out-the-playbook/

Guido, M. (2016, October 12). *20 Differentiated instruction strategies & examples*. [Blog]. Prodigy Math Blog. https://www.prodigygame.com/blog/differentiated-instruction-strategies-examples-download/

Guskey, T. (2002). Professional development and teacher change. *Teachers and Teaching-theory and Practice, 8*(3), 381-39. https://doi.org/10.1080/135406002100000512

Hanushek, E. (2011, January). Valuing teachers: How much is a good teacher worth? *Education Next, 11*(3), 41-45. https://eric.ed.gov/?id=EJ960476

Henschke, J. A. (2010). Beginnings of the history and philosophy of andragogy 1833-2000. In V. Wang, (Eds.), *Integrating adult learning and technologies for effective education: Strategic approaches* (pp. 1-30). IGI Global. http://dx.doi.org/10.4018/978-1-61520-694-0.ch001

Henschke, J. A. (2016). *Self directed learning (sdl) and andragogy: My take on their contrasting and complementary relationship*. *IACE Hall of Fame Repository*. https://trace.tennessee.edu/utk_IACE-browseall/477/

Herold, B. (2016, December 16). Teacher prep programs should focus on tech integration, Ed. dept. says. *Education Week*. https://blogs.edweek.org/edweek/

Herold, B. (2019, November 6). What is personalized learning? *Education Week*. https://www.edweek.org/technology/what-is-personalized-learning/2019/11

Hirsh, S. (2009, August). A new definition. *Journal of Staff Development, 30*(4), *10-14.* https://eric.ed.gov/?id=EJ861309

Hodge, E. (2020, January 17). *Levelling up: Why micro-credentials are disrupting professional education*. Keystone Academic Solutions. https://www.keystoneacademic.com

Hogle, P. (2016, November 8). *Buzzword decoder: Just-in-time training.* Learning Solutions Magazine. https://learningsolutionsmag.com/

Horn, M., & Arnett, T. (2017, February 27). Competency-based learning for teachers. *Education Next, 17*(2). https://educationnext.org

Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., …& Dilig, R. (2020). *The condition of education 2020* [NCES Report 2020-144]. U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020144

Hyndman, B. (2018, August 13). *Ten reasons teachers can struggle to use technology in the classroom.* The Conversation. https://theconversation.com

Iqbal, J.J., & Ahmad, M. (2010). Enhancing quality of education through e-learning: The case study of Allama Iqbal Open University. *Turkish Online Journal of Distance Education-TOJDE 11*(1), Article 5. https://dergipark.org.tr/en/download/article-file/156081

Irish, K. (2019, January 10). *What is adult learning theory and why is it important?* Ej4.com. https://www.ej4.com/blog/what-is-adult-learning-theory-and-why-is-it-important

Jacobson, L. (2019, March 25). *Should teachers choose their own pd?* K-12Dive. https://www.k12dive.com/news/should-teachers-choose-their-own-pd/551138/

Jimenez, A. (2017, July 13). *Steps for teachers & site leaders to apply differentiated instruction* [Blog]. Illuminate Education. https://www.illuminateed.com/blog/

Johnson, B. (2014, September 16). Why quality professional development for teachers matters. Edutopia. Retrieved from http://www.edutopia.org/blog/why-quality-professional-development-teachers-matters-ben-johnson

Junkins, S. (2014, February 18). *This Presidents Day take time to honor James K. Polk by not teaching like he's still in office*. @sjunkins On Twitter. https://twitter.com/sjunkins/status/435193821803339776

Kampen, M. (2019, April 24). *5 Ways to make teacher professional development effective [with examples]* [Blog]. Prodigy Game. https://www.prodigygame.com/main-en/blog/

Karge, B. D. (2014). *Engage eleven: Strategies to promote student engagement in common core lessons*. Vista CA: The Discovery Source.

Karge, B. D. & Moore, R. (2015). Common core: Teaching optimum topic exploration (TOTE). *Contemporary Issues in Education Research. 8*(1). 45-48. http://dx.doi.org/10.19030/cier.v8i1.9089

Karge, B. D. & Phillips, K. (2016) Engagement strategies for enhancing college teaching. *Research in Higher Education, 30*, 1-6. https://www.aabri.com/manuscripts/141864.pdf

Keenan, C., Tyvand, T., & Wilson, K. (n.d.). 25 Ideas for online learning success. Retrieved from https://docplayer.net/9735167-25-ideas-for-online-learning-success-tips-from-three-experienced-educators-tips-and-best-practices.html

Keesee, G. S. (2011). *Teaching and learning resources / Andragogy--Adult Learning Theory.* Teaching Learning Resources-PB Works. Retrieved from http://teachinglearningresources.pbworks.com

Kenney, J. (2019, October 11). *Flipped classroom: A framework for in-class activities*. Chemical Education Xchange. https://www.chemedx.org/blog/flipped-classroom-framework-class-activities

Klein, A. (2019, October 1). *Ed-tech usage levels are low: What should schools do*? Education Week. https://www.edweek.org/

Kluth, P. (2020). *Encouraging differentiation*. PaulaKluth.Com. https://www.paulakluth.com/readings/differentiating-instruction/encouraging-differentiation/

Knowles, M (1970). The modern practice of adult education: From pedagogy to andragogy. New York: New York, Association Press.

Knowles, M, Holton, E., & Swanson, R. (1998). The adult learner: The definitive classic in adult education and human resource development. Houston, TX: Gulf Publishing. https://eric.ed.gov/?id=ED428293

Layton, S. (2017, July 20). *9 Tips for using technology to differentiate instruction* [Blog]. Applied Education Systems. https://www.aeseducation.com/blog/9-tips-using-technology-differentiate-instruction

Lawlor, D. (2017). Triangulation in aetiological epidemiology. *International Journal of Epidemiology, 45*(6), 1866–1886. https://doi.org/10.1093/ije/dyw314

Learning Theories (2020). *Andragogy - Adult Learning Theory*. https://www.learning-theories.com/andragogy-adult-learning-theory-knowles.html

Learning Accelerator.Org. (n.d.). *Real-time data use*. Retrieved from https://practices.learningaccelerator.org/strategies/collecting-real-time-student-data

Ling, Y. (2021, April). *10 Pinterest statistics every market should know in 2021* [Infographic]. Oberlo Pinterest Statistics. https://www.oberlo.com/blog/pinterest-statistics

Loewus, L. (2019, May 14). *A clearer vision for teacher professional learning*. Education Week. https://www.edweek.org/ew/articles/2019/05/15/a-clearer-vision-for-teacher-professional-learning.html

Lunenburg, F. C. & Irby, B. J. (2008) *Writing a successful thesis or dissertation: Tips and strategies for students in the social and behavioral sciences*. Thousand Oaks, CA: Corwin Press.

Lynch, M. (2017, March 4). *7 Ways technology is impacting modern education.* The Tech Edvocate. https://www.thetechedvocate.org

Marcinek, A. (2015, June 17). *Professional learning opportunities and the teachers they create.* Edutopia. https://www.edutopia.org/blog/professional-learning-opportunities-teachers-create-andrew-marcinek

Mary, A. J. (2016). Blended and flipped: exploring new models for effective teaching & learning. *International Journal of Emerging Trends in Science and Technology, 3*, 4784-4787. https://doi.org/10.18535/IJETST%2FV3I11.10

Macey, T. (2017, July 14). *7 best practices for implementing just-in-time learning.* Advantage Performance Group. https://www.advantageperformance.com

McKeown, S. (2018, July 23). *Digital badges: The 21st century credential*. Naylor Online. https://www.naylor.com/associationadviser/digital-badges/

McMahon, W. (2019, September 3). *Differentiation is hard but necessary. (Don't worry, there's help.).* EdSurge News. https://www.edsurge.com

McVeigh-Murphy, A. (2019, November 14). *What the history of personalized learning teaches us today* [Blog]. Schoology. https://www.schoology.com/blog/what-history-personalized-learning-teaches-us-today

Miller, A. (2016, January 8*). 6 strategies for differentiated instruction in project-based learning* [Blog]. Edutopia. https://www.edutopia.org/

Minero, E. (2020, August 14). *Educators turn to bitmoji to build community and engagement*. Edutopia. https://www.edutopia.org

Moir, E. (2013, May 23). *Evolving from professional development to professional learning*. EdSource. https://edsource.org

Morin, A. (2019, August 5). Personalized learning: What you need to know. understood. https://www.understood.org/

National Highway Institute (n.d.). Principles of adult learning & instructional systems design. NHI Instructor Development Course. Retrieved from https://www.nhi.fhwa.dot.gov/

NEA. (2020). *Micro-credential guidance.* NEA. Retrieved from http://www.nea.org/home/microcredentials.html

NWEA. (2020, August 6). *Why investing in professional learning is essential for educators and students too* [White paper]. Retrieved from https://www.nwea.org/

O'Byrne, W. I. (2015). *Digital badges overview*. Badgechain. Retrieved from https://badgechain.com/digital-badges-overview/

Oliver, P. (2010) *The student's guide to research ethics,* 2nd ed. Berkshire, England: McGraw-Hill.

Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(3), 376–407. https://doi.org/10.3102/0034654311413609

ORAU. (2015). *Quantitative research methods*. Retrieved from https://www.orau.gov/cdcynergy/soc2web/Content/activeinformation/tools/toolscontent/quantiativemethods.htm

Ota, C., DiCarlo, C., Burts, D., Laird, R., & Gioe, C. (2006, December). Training and the needs of adult learners. *Journal of Extension, 44*(6). https://archives.joe.org/joe/2006december/tt5.php

Pappas, C. (2014, January 5). *7 top facts about the adult learning theory* (2018 update). ELearning Industry. https://elearningindustry.com/6-top-facts-about-adult-learning-theory-every-educator-should-know

Pappas, C. (2015, November 13). Pedagogy vs andragogy in elearning: Can you tell the difference? ELearning Industry. https://elearningindustry.com/pedagogy-vs-andragogy-in-elearning-can-you-tell-the-difference

Pappas, C. (2019, October 6). 6 ways to incorporate social learning in the workplace for just in time learning support. ELearning Industry. https://elearningindustry.com/social-learning-workplace-just-in-time-support

Pappas, S. (2020, April 1). What do we really know about kids and screens? *Monitor on Psychology, 51*(3), 2. https://www.apa.org/monitor/2020/04/cover-kids-screens

Pappas, C. (2013, May 9). *The adult learning theory -andragogy- of Malcolm Knowles*. Retrieved from http://elearningindustry.com/the-adult-learning-theory-andragogy-of-malcolm-knowles

Pappas, C. (2014, August 15). *9 tips to apply adult learning theory to elearning*. Retrieved from http://elearningindustry.com/9-tips-apply-adult-learning-theory-to-elearning

Patrick, S., Kennedy, K., & Powell, A. (2013, October). *Mean what you say: Defining and integrating personalized, blended and competency*. International Association for K-12 Online Learning. https://www.inacol.org/

Jarche, H. (2013, October 12). *Personal knowledge management workshop intro 2013*. YouTube. Retrieved from https://www.youtube.com/watch?v=HQbnoLxgx7I&feature=youtube_gdata_player.

Pew, S. (2007). Andragogy and pedagogy as foundational theory for student motivation in higher education. *Insight: A Collection of Faculty Scholarship, 2*, 14-25. https://eric.ed.gov/?id=EJ864274

Pollard, A. & James, M. (2004, June). *Personalised learning: A TLRP Commentary*. Economic and Social Research Council. http://dx.doi.org/10.13140/2.1.3626.5762

Porter, A. (2013, January 28). *The problem with technology in schools* [Blog]. Washington Post. https://www.washingtonpost.com

Quattrocchi, C. (2014, June 3*). A path towards personalized pd.* | EdSurge News. Retrieved from https://www.edsurge.com/n/2014-06-03-a-path-towards-personalized-pd

Rauf, D. (2020, April 23). *How districts are helping teachers get better at tech under coronavirus.* Education Week. https://www.edweek.org/

Reeves, D. B. (2009). *Leading change in your school: How to conquer myths, build commitment, and get results*. Association for Supervision & Curriculum Development.

Reinberg, S. (2019, November 5). *Too much screen time may stunt toddlers' brains*. WebMD. https://www.webmd.com

Reis, R. (2016, December). *A dozen things you need to know about adult learning*. Tomorrow's Professor Postings. Stanford University. Retrieved May 31, 2020, from https://tomprof.stanford.edu/posting/1529

Reisinger, D. (2019, February 19). *Young children average more than 3 hours of screen time each day*. Fortune. https://fortune.com/2019/02/19/babies-screen-time-study/

Richtel, M. (2012, November 1). *Technology changing how students learn, teachers say.* The New York Times. https://www.nytimes.com/2012/11/01/education/technology-is-changing-how-students-learn-teachers-say.html

Ridgway, A., & Ridgway, N. (2019, May 14). *Don't ditch that tech: Personalizing content & promoting metacognition*. Classtime. https://www.classtime.com/blog/dont-ditch-that-tech/

Rodrigues, K. (2012). It does matter how we teach math. *Journal of Adult Education, 4*(1), 29-33. https://eric.ed.gov/?id=EJ991442

Rucker, K. (2018, February 12). *The six flaws of "traditional" professional development.* Getting Smart. https://www.gettingsmart.com/2018/02/the-six-flaws-of-traditional-professional-development/

Sayce, D. (2020, May). *The number of tweets per day in 2020*. https://www.dsayce.com/social-media/tweets-day

Scanlan, A. (2016, February 29). *Five ways to stop wasting teachers' time with ineffective professional development*. The Thomas B. Fordham Institute. https://fordhaminstitute.org/national/commentary/five-ways-stop-wasting-teachers-time-ineffective-professional-development

Schwartz, S. (2019, May 14). *What do teachers really want from professional development? Respect*. Education Week. https://www.edweek.org/ew/articles/2019/05/15/what-do-teachers-really-want-from-professional.html

Senge, P. M., Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J. & Kleiner, A. (2012). *Schools that learn (updated and revised). A fifth discipline fieldbook for educators, parents, and everyone who cares about education* (1st Revised Ed.). New York: Crown Business.

Shift eLearning (2018a, September 15). *Is your company embracing just-in-time learning* [Blog]*?* https://www.shiftelearning.com/blog/just-in-time-learning

Sierra, H. & Karge, B. (2020). Data from a California teacher induction mentoring program. *The Chronicle of Mentoring & Coaching, 1*(13), 515-520. https://www.mentor-cmc.com/

Slavin, R., (1989, April). On mastery learning and mastery teaching. *Educational Leadership.* ASCD. Retrieved from https://files.ascd.org/staticfiles/ascd/pdf/journals/ed_lead/el_198904_slavin.pdf

Sparks, S. (2020, March 23). *New warnings on screen time, as students nationwide move to e-learning* [Blog]. Education Week. https://blogs.edweek.org/edweek/inside-school-research/2020/03/new_warnings_on_screen_time_language_delays.html

Stockton Unified School District. (2020, July). *District Profile - Stockton Unified.* Education Data Partnership. http://www.ed-data.org/district/San-Joaquin/Stockton-Unified

Strauss, V. (2014, March 1). *Why most professional development for teachers is useless.* Washington Post. https://www.washingtonpost.com

Strauss, V. (2018, December 12). *Project-based learning is a new rage in education. Never mind that it's a century old*. Washington Post. https://www.washingtonpost.com/

Swanson, K. N., Jarrett, K., Callahan, D., Ferguson, H. J., Sivick, K., Miles, C., … Hertz, M. B. (2014). *The Edcamp model: Powering up professional learning.* Thousand Oaks, California: Corwin.

The Mirage (2015, August 4). TNTP: The new teacher project [Report]. https://tntp.org/assets/documents/TNTP-Mirage_2015.pdf

Techopedia.Com. (2020). What is online? https://www.techopedia.com/definition/658/online

The Glossary of Education Reform. (2013, January 8). *Professional development definition*. https://www.edglossary.org/professional-development

The Glossary of Education Reform (2016, February 18). Student engagement definition. https://www.edglossary.org/student-engagement/

The Glossary of Education Reform (2015, May 14). *Personalized learning definition*. Retrieved from https://www.edglossary.org/personalized-learning/

The Glossary of Education Reform (2014, May 14). *Competency-based learning definition*. https://www.edglossary.org/competency-based-learning/

Tinmaz, H. (2012). Social networking websites as an innovative framework for connectivism. *Contemporary Educational Technology, 3*, 234-245. https://doi.org/10.30935/CEDTECH%2F6080

Tooley, M., & Hood, J. (2020, September 14). *Schools take a lesson from the tech industry to develop and retain strong teachers* [Blog]. New America. https://www.newamerica.org/education-policy/edcentral/tech-microcredentials-develop-and-retain-strong-teachers/

Trach, E. (2017, December 8). *Personal learning network (pln) benefits, tools, and tactics* [Blog]. Schoology Exchange. https://www.schoology.com/blog/personal-learning-network-pln-benefits-tools-and-tactics

Trust, T., Krutka, D. G., & Carpenter, J. P. (2016, November). "Together we are better": Professional learning networks for teachers. *Computers & Education, 102*, 15-34. . https://doi.org/10.1016/j.compedu.2016.06.007

Tucker, C. (2019, March 11). *Flipped classroom 101: Challenges, benefits & design tips*. https://catlintucker.com/2019/03/flipped-classroom101/

Tucker, M. (2018, November 1). *Teachers colleges: The weakest link* [Blog]. Education Week. https://blogs.edweek.org/

Turner, P., & Turner, S. (2009). Triangulation in practice. *Virtual Reality, 13*(3), 171-181. Retrieved from http://dx.doi.org/10.1007/s10055-009-0117-2.

Ujifusa, A. (2018, April 17). *Here's how the public views teachers, their salaries, and their impact* [Blog]. Education Week. https://www.edweek.org

University of Hong Kong. (2018, March 14). *Designing in-class activities for flipped classroom: A step-by-step guide* [Blog]. HKU Teaching and Learning. https://tl.hku.hk/2018/03/designing-in-class-activities-for-flipped-classroom-a-step-by-step-guide/

University of Queensland, (n.d.). Adult learning theory. Retrieved from https://www.qotfc.edu.au/resource/?page=65375

U.S. Department of Education (2010, March 5). Transforming American education: Learning powered by technology. National Technology Plan 2010. Office of Educational Technology. Retrieved from https://www.ed.gov/sites/default/files/NETP-2010-final-report.pdf

Vargo, J. (2017, November 1). *Six examples of what personalized learning looks like* [Blog]. Elements Education. https://www.edelements.com/blog/six-examples-of-what-personalized-learning-looks-like

Vitala, A. (2016. October 13). *From #edcamp to #edchat: A case study exploring innovative, self-directed educator professional learning* [Doctoral dissertation, Kennesaw State University. Kennesaw, Georgia].

Vogt, K. (2014, August 26). *A personalized learning approach to professional development at education achievement authority* [Blog]. Nextgenlearning. Retrieved from https://nextgenlearning.org/

Wait, P. (2018, September 7). *K-12 Teachers are not confident in their ability to teach technology.* EdScoop. https://edscoop.com/k-12-teachers-are-not-confident-in-their-ability-to-teach-technology/

Ward, K. (2020, June 23). *How teachers can use social media to improve learning this fall*. MSU Today | Michigan State University. https://msutoday.msu.edu/news/2020/how-teachers-can-use-social-media-to-improve-learning-this-fall/

Warnke, W. (2014, July 20). *Adult learning theory - CAL model*. Learning and ID Information Media Project. https://im404504.wikidot.com/adult-learning-theory-cal-model

Weber, C. (2018, January 12). *Overview of the student engagement platform (SEP) opportunity.* ETEC 522-Ventures in learning technologies. University of British Columbia. https://virtual.educ.ubc.ca/wp/etec522/2018/01/12/student-engagement-platform-sep/

Weinstein, A. (2016). *Analyzing ethnographic data* [PowerPoint slides]. Retrieved from http://www.sjsu.edu/faculty/weinstein.agrawal/urbp298_PPT_English-Lueck

West, D. M., & Bleiberg , J. (2013, May 7). *Five ways teachers can use technology to help students*. Brookings. https://www.brookings.edu/opinions/five-ways-teachers-can-use-technology-to-help-students/

West, R. E., Randall, D. L. (2016). The case for rigor in open badges. In L. Muilenburg & Z. Berge, (Eds.), *Digital badges in education: Trends, issues, and cases* (pp. 21-29). New York, NY: Routledge.

Will, M. (2019, May 14). *What are the blind spots in teacher PD?* Education Week. https://www.edweek.org/

Willis, E., & Raine, P. (2001). Technology and the changing face of teacher preparation. *CITE Journal, 1*(3), 8. Retrieved from https://citejournal.org/volume-1/issue-3-01/current-practice/article1-htm-28//

Wolf, M. (2010, November). *Innovate to educate: System [re]design for personalized learning* [Report]. Software & Information Industry Association, Symposium. In collaboration with ASCD and the Council of Chief State School Officers. Washington, DC. Retrieved from https://library.educause.edu/-/media/files/library/2010/1/csd6181-pdf.pdf

Wolf, M. A. (2016, January 26). *What you need to know when developing micro-credentials*. Getting Smart. https://www.gettingsmart.com/2016/01/26/what-you-need-to-know-when-developing-micro-credentials/

Yowell, C. (2018, March 27). *Building on the power of digital badges to create future-ready learning and job experiences for students*. https://www.gettingsmart.com/

Zalon, M. L. (1991). A second look at evaluation for adult learners. Retrieved from https://eric.ed.gov/?id=ED353471

Zdonek, P. (2016, January 15). *Why don't we differentiate professional development* [Blog]*?* Edutopia. https://www.edutopia.org/

Ziegenfuss, D. (2014, July 7). 5B Creating a flipped learning activity plan: Teaching flipped. University of Utah. https://learn.canvas.net/

APPENDICES

Appendix A: Pre-survey and Consent

Consent and Pre Survey

My name is Wayne Stagnaro. I am an Administrator of Instructional Technology as well as a Doctoral Candidate at Concordia University, Irvine in California. I would like to ask you to complete the following survey for my doctoral research. No question is required, but please complete as many questions as you feel comfortable answering.

The study in which you are being asked to participate is approved by The Institutional Review Board (IRB) at Concordia University, Irvine, in Irvine, CA and Stockton Unified School District.

PURPOSE: The effectiveness of teachers and the quality of professional development for teachers has long been a criticism of the US Education System and Teacher Credentialing Programs long before our current COVID-19 pandemic. Our current health crisis has only added to the debate and concern. Do we prepare and instruct teachers in the manner that we want them to lead their classrooms? Does traditional professional development in the single shot, one time session affect change of pedagogy and practice. Does traditional PD lead to sustained change in practice? The purpose of the study is to gather teacher opinions about traditional professional development, technology in learning and in their classrooms and introduce participants to a new form of professional development involving online modules to determine how the new format is received and if the new format leads to change in teacher instruction and technology integration.

PARTICIPATION: Participation in this study is voluntary, refusal to participate or discontinue participation will involve no penalty or loss of benefits to which the participants are otherwise entitled.

CONFIDENTIALITY: The adult participants for this study are given confidentiality.

DURATION: Survey will be open for 2 weeks and data will be kept for 3 years and then discarded. Data is located on a personal laptop computer and secured with a password. The computer does travel with the researcher to and from work each day. The laptop is secured in the trunk of vehicle in transit and is either in the possession of the researcher or secured behind 1-2 locked doors when not in use.

RISKS: The researcher will provide participants with anonymous surveys that will ensure anonymity. Surveys will not collect any identifying information such as names, school sites, or email addresses from the survey participants.

BENEFITS: By participating in this research, participants will help expand the body of research on this topic. In addition, participants will receive a summary of the dissertation findings.

CONTACT: This study has been reviewed and, approved by the Instructional Review Board at Concordia University, Irvine. If you would like to contact the researcher please feel free

to contact me at wayne.stagnaro@eagles.cui.edu

You may also direct questions about research participants' rights and research-related concerns and issues to Belinda Dunnick Karge, Ph.D. Professor, Doctoral Programs and Coordinator of Curriculum and Instruction for the Ed.D. program. Dr. Karge may be reached via email at belinda.karge@cui.edu

CONSENT: Although I would like to ask you to complete the following survey, participation in this survey is voluntary. If you decide to complete the survey, but change your mind, you may stop at any time. Your responses, answers, and comments will be kept anonymous and confidential. I will be using the results of this survey in writing my doctoral dissertation without including any information that will make it possible to identify you. The information gathered in this study will be useful to other educators, administrators, districts, and teacher prep programs.

1. Today's Date

_____

Example: January 7, 2019

2. I agree with the information presented above and understand the risks and benefits of participating in this study. *

Mark only one oval.

- Yes
- No

Teacher opinion and feedback on traditional professional development

Thank you for taking the time to complete the survey. Your feedback and responses are greatly appreciated. The results will be presented in general terms and researchers will do their very best to keep individual respondents and responses confidential.

For the purposes below, let Traditional PD mean professional development that is one shot and not sustained over time, more sit and get with you as a passive participant and not actively involved, where you are shown how to do something, but arent required to demonstrate competency or mastery.

3. Traditional Professional Development activities available are worthwhile.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

4. Traditional Professional Development activities available impact my teaching.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

5. Please select the optimal length of time for professional development sessions.

Mark only one oval.

- ◯ 1 hour sessions
- ◯ 2 hour sessions
- ◯ Half day sessions
- ◯ Full Day Sessions
- ◯ Multi Day
- ◯ Other: _____

6. Please select the optimal or preferred time of day for professional development sessions.

Mark only one oval.

- Early Mornings
- Mornings
- Afternoon
- Late Afternooon
- Evenings
- Other: _____

7. How often do you participate in technology-related professional development (PD)? *
(e.g., workshops, conferences, webinars, graduate degrees, etc.)

Mark only one oval.

- Never
- Once or twice a semester
- Once or twice a month
- Once or twice a week
- More than twice a week
- Other: _____

8. What forms of professional development do you consider useful and successful?

Choose all that apply

Check all that apply.

- [ ] Book studies
- [ ] Collaborative (working with colleagues)
- [ ] Collaborative (working with admin)
- [ ] EdCamps
- [ ] Grade Level Colleagues/Collaboration
- [ ] Instructional Rounds
- [ ] Learning Walks
- [ ] Observations
- [ ] Online modules and courses
- [ ] Professional diary (self observation, reflection, reading)
- [ ] Professional Learning Network(PLN) or Community(PLC)
- [ ] Social Media (Facebook groups, Twitter(people or chats), Instagram, Pinterest?
- [ ] Web based Tutorials
- [ ] Webinars
- [ ] Workshops/seminars in district
- [ ] Workshops/seminars out of district

9. The ideal PD would be or include _____?

Attitudes and Beliefs on Technology In Classroom, Teaching and Learning

Please respond to these prompts and answer these questions about your opinions and attitudes about technology use in schools. Please consider the prompts regarding technology for use in your teaching assignments. Technology includes instructional and teaching tools as well as student devices and software.

10. Technology enables the teacher to reinforce and expand on content being taught.

(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

11. Technology increases student motivation and engagement to learn.

(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

12. Technology is more a distraction than an asset.

(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

13. Technology allows the teacher to demonstrate concepts they otherwise could not demonstrate.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

14. Technology allows for differentiation and addressing a variety of learning needs.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

15. Social Media (Facebook groups, Twitter feeds, and Pinterest are great resources for finding and sharing instructional resources and student activities.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

16. Would you like more technology in your classroom?

Mark only one oval.

- No *Skip to question 19*
- Maybe under the right conditions *Skip to question 17*
- Yes *Skip to question 18*

Right Conditions Follow Up

17. What would the right conditions be?

Desired Technology Follow Up

18. What technology would you like to have in your classroom?

Technology Use in Your Classroom and Teaching

Please respond to these prompts and answer these questions about your current usage, frequency of use, and importance of technology in your classroom. Technology includes instructional and teaching tools as well as student devices and software.

19. Using technology as a teaching tool is essential to my success and my teaching.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

20. Using technology as a learning tool is essential to my students' success.
(1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree)

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

21. How often do you integrate student centered technology into your classroom instruction?

Mark only one oval.

- ◯ Daily
- ◯ 1-2 times per week
- ◯ 3-4 times per week
- ◯ 1-2 times per month
- ◯ 1-2 times per semester
- ◯ Never
- ◯ Other: _____

22. How would YOU rate your overall skill in using educational technology?

Mark only one oval.

- Challenged
- Basic
- Proficient
- Advanced
- Other: _____

Demographics

23. Gender

Mark only one oval.

- Male
- Female

24. What is your age?

Mark only one oval.

- 20-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70 or greater

25. What education level have you attained?

Mark only one oval.

- Bachelor of Arts or Science
- Master of Arts or Science
- Ed.D. or Ph.D.

26. What is your role in education?

Mark only one oval.

- Teacher
- Coach or Specialist
- Administrator
- Counselor
- Speech and Language Therapist
- Other: _____

27. What type of school/district do you work at currently?

Mark only one oval.

- Public
- Private
- Charter
- Other: _____

28. Student population that you work with primarily

Mark only one oval.

- Gen Ed
- Special Ed
- Resource
- Other: _____

29. How long (in years) have you been teaching?

_____

30. What type of school or district do you teach in?

Mark only one oval.

- Urban
- Rural
- Suburban
- Charter
- Other: _____

31. Grade level(s) that you teach

Please check all that apply

Check all that apply.

- [ ] Kindergarten
- [ ] Grade 1
- [ ] Grade 2
- [ ] Grade 3
- [ ] Grade 4
- [ ] Grade 5
- [ ] Grade 6
- [ ] Grade 7
- [ ] Grade 8
- [ ] Grade 9
- [ ] Grade 10
- [ ] Grade 11
- [ ] Grade 12

Other: [ ] _____

32. What subject(s) do you teach?

Please check all that apply

Check all that apply.

- [ ] Foreign Language
- [ ] History/ Social Science
- [ ] Language Arts
- [ ] Mathematics
- [ ] Music
- [ ] Physical Education
- [ ] Science
- [ ] Self Contained Multiple Subjects
- [ ] Technology
- [ ] Visual or Performing Arts

Other: [ ] _____

Appendix B: Post Survey

MobileMind - Post Survey: Thoughts and Follow up after Completion of the Online Modules

The study in which you are being asked to participate is approved by The Institutional Review Board (IRB) at Concordia University, Irvine, in Irvine, CA and Stockton Unified School District.

PARTICIPATION: I ask you to complete the following survey, participation in this survey is voluntary. If you decide to complete the survey, but change your mind, you may stop at any time. Your responses, answers, and comments will be kept anonymous and confidential.

CONFIDENTIALITY: The adult participants for this study are given confidentiality.

DURATION: Survey will be open for 2 weeks and data will be kept for 3 years and then discarded. Data is located on a computer and secured with a password.

You may also direct questions about research participants' rights and research-related concerns and issues to Belinda Dunnick Karge, Ph.D. Professor, Doctoral Programs and Coordinator of Curriculum and Instruction for the Ed.D. program. Dr. Karge may be reached via email at belinda.karge@cui.edu

Thank YOU!
Wayne

1. Participation in the online modules led to a deeper understanding of the technology content as compared to traditional face to face PD that you have attended.

Mark only one oval.

	1	2	3	4	
Strongly Disagree	◯	◯	◯	◯	Strongly Agree

2. As compared to traditional face to face PD, participation in the online modules led to a greater or lesser understanding of the technology content?

Mark only one oval.

- Much less understanding
- Less understanding
- Greater understanding
- Much greater understanding

3. Participation in the online modules was more engaging as compared to traditional face to face professional development that you have attended.

Mark only one oval.

	1	2	3	4	
Strongly Disagree					Strongly Agree

4. As compared to traditional face to face PD, participation in the online modules was more or less engaging.

Mark only one oval.

- Much less engaging
- Less engaging
- More engaging
- Much more engaging

5. What did you enjoy most about this asynchronous style of learning through online modules and activities? What did you least enjoy with this format?

6. Did you enjoy this asynchronous style of learning through online modules and activities more or less than traditional face to face professional development?

7. Were you engaged with the content delivery and format of the online modules? Please describe your experience and reasons for your responses.

Potential Future Usage

8. If opportunity is provided, would you be willing to participate in more training of this nature? Please include the reasons for your response. What conditions would improve or change your response?

9. Would you support the decision by your district to purchase the online platform that you piloted or something similar?

Mark only one oval.

- Yes *Skip to question 11*
- No
- Maybe

Improved Conditions

10. What conditions would impact or change your decision?

Positives/Negatives and Impact on Work

11. How did your experience with the online asynchronous modules compare to traditional face to face professional development you have attended?

12. Please share any positives/benefits to this asynchronous style of learning through online modules. Any negatives or barriers?

13. How has the participation in the research and online modules impacted your work with students or teachers you support?

14. Have you noticed any changes to your instruction or work with teachers that you support? Have you integrated more or less technology into your work? Please include examples.

15. Please discuss the importance or influence of the badging and online certification on your completing the activities.

16. Describe the importance of choice and your ability to self select the modules you completed in your overall experience.

17. What would improve your experience with this asynchronous style of learning through online modules? What would you change about the online modules to make the experience better?

18. What did you do while you were waiting for activities to be approved? How did this waiting impact your experience?

19. Did you take and pass any Google certification exams during the data collection phase? If so, which one(s)?

20. Could you see the asynchronous learning style of the online modules working for students or yourself as teacher using this style of learning with students?

21. Any other thoughts or information that you would like to share or you wish you had been asked?

Appendix C: Additional Comments Relayed About the Importance of Badging

Participant 1	I can see the external reward system being beneficial for a particular audience.
Participant 2	I think it's great to demonstrate to administration how devoted one is to professional development and to myself
Participant 3	I just don't feel like everyone needs to know where I am or where I am not. This is not a competition.
Participant 4	It really didn't affect me since I wasn't really sure what the point was beyond completion of a certain amount of parts
Participant 5	It gave me a sense what I had done and what I could do.
Participant 6	Depending on what high school class you teach, the badging and online certification might be important or influence the learner or may not be as effective for some learners/classes. I see it working more at the Elementary level.
Participant 7	The badging provides recognition. It actually feels good to reach a milestone. It is very encouraging.
Participant 8	I really enjoyed that aspect. It made you feel like you were working towards a goal.
Participant 9	Gamifying helps to a certain extent
Participant 10	I was happy when I got my first badge :)
Participant 11	Can be motivating, feedback from manager is fun to receive.
Participant 12	Badging was great. Incentives and sense of completion.
Participant 13	Even though I didn't get to finish as many modules as I wanted to, It was positive to see my accomplishments.
Participant 14	It didn't really matter to me. I did it for the love of knowledge.
Participant 15	I have no idea what that means. I learn something, or I don't.
Participant 16	At first I was really motivated by the badges, points and ranks. I found my myself looking at how many points a module was when I was selecting which one to do next. As time became more of an issue, the amount of learning I was getting became more of a concern and my participation dropped off.
Participant 17	It allows for motivation. The more badges I receive, the more accomplished I feel

Participant 18	I don't know that it was a motivator for me but I am sure that others look forward to those things. Online certification is nice to show what skills you do know.
Participant 19	You are able to see your progress and you are getting rewarded for your completion.
Participant 20	But not motivating
Participant 21	It gave you a way to compare your progress with others.
Participant 22	I did not like that the modules were so long that it was near impossible to earn a badge. I earned special badges from the programs/apps but did not earn any additional badges from Alludo and I spent many hours on the platform.
Participant 23	It gives me the motivation to do more than I could.
Participant 24	More confidence in technology and the competition really made me want to keep on going and learning more.
Participant 25	Nothing better than an email badge. Better than paper certificates.
Participant 26	it's like earning achievements on a PS4/5, XBox, or cpu videogame. I am one of those gamers who enjoys earning all of the achievements in a given game. Many of our students are like that too. They want all of the achievements. The badge system works similar to the standard videogame achievement system, so I think that it is valuable to students.
Participant 27	It was fun to make the leaderboard and that added a little to the motivation
Participant 28	Having a certification would be more of an incentive to complete the modules.
Participant 29	One of my goals is to be certified that is a big motivating factor for me to complete the activities.
Participant 30	This was frustrating.
Participant 31	because people like to achieve or work towardss something and it gives you recognition that you are learning and moving in the right direction.
Participant 32	I want the impressive badge to be a part of my resume skills, and I want it on my emails
Participant 33	We are just like our students.
Participant 34	I had tried previously to being part of the study to take the online Google Educator Level One exam over the summer, but due to technical difficulties, after several hours of trying to get help from the company who was administering the test, I timed out. Looking forward to taking the test again.

Participant 35	The badging was fun, however, I really appreciated the certification upon completion of the test. I found this more motivating!
Participant 36	The badge was a sense of pride that I was able to complete those modules. It also helped my work harder to earn more.
Participant 37	It was motivating. But the true motivation was to pass the google educator test
Participant 38	I want to be able to learn all google has to offer so I can become more comfortable using different tools.
Participant 39	I would like to have that badge by my name when I send emails etc.
Participant 40	It was not just the fee but the ease and convenience of getting certified. I have finished Level 1 certification and would like to get level 2 done during spring break.
Participant 41	I really liked to be able to see what I was accomplishing and what more I had to do to earn a badge or certificate. This kept me engaged and motivated. I would really like to do more.
Participant 42	I like the idea of online certification because with this approach (Mobile Mind) I am able to practice tasks and review information as often as needed to be successful
Participant 43	The badges are a nice recognition of progress.
Participant 44	Badging let me see what I had learned and it motivated me to get more badges.
Participant 45	It would be fun to know what others had though. I can be competitive.
Participant 46	The badging and online certification has acknowledged my time, effort, and aptitude in what I have learned in the modules.
Participant 47	However, it is nice to know that the option is still available.
Participant 48	I like the motivation of "winning" something (badge) and preparation for Google 1 educator .
Participant 49	Keeps you engaged and competitive, plus it feels rewarding. I received or 75 badges and felt good about it.
Participant 50	Badging/ certification is good to put on your resume and possibly your signature line on emails
Participant 51	even for small achievements will help others continue learning.
Participant 52	However, full confession: I started searching through the modules to see where I could get the completions more quickly (i.e. in some cases I might have jumped some learning modules to complete others where some of the stages were cross-module completed).
Participant 53	I also think it doesn't really matter to the district if I am certified or not/no benefits or recognition from the district.

Appendix D: Describe the Importance of Choice and Your Ability to Self-Select the Modules that You Completed in Your Overall Experience.

Participant 1	This was the number one reason that I felt this type of learning was perfect for me.
Participant 2	I was able to explore and learn what I wanted to learn
Participant 3	I did not get very far but I did like to be able to choose a module I was not as comfortable with.
Participant 4	Which is so nice cause I don't have my time wasted.
Participant 5	They were selected to prepare me to pass the test and it worked
Participant 6	The element of choice to self-select material also added to the motivation to complete the module.
Participant 7	Somewhere along the way, I realized that some of the "micro" lessons applied to other modules and I strategized how to complete as many as possible by looking at how long the different modules were - completing the shorter ones first.
Participant 8	Having to start below my ability level would have made this process less engaging. I also appreciated the ability to choose paths that may be helpful in the long run.
Participant 9	I get to select what I need. Which is so nice cause I don't have my time wasted.
Participant 10	I like the ability to choose the modules which would be most useful and relevant to my teaching practice and goals.
Participant 11	This ability allowed me to complete more modules since I was able to work on what I was in the mood for.
Participant 12	It wasn't that important to me. I went straight through without skipping around.
Participant 13	That was like being able to drive my own pathway.
Participant 14	It gives you the option to not waste time learning something you already know.
Participant 15	because I have completed or been trained in many of the modules so to be able to find and complete something that I haven't yet done or learned made the experience better for me as I had a higher level of interest in what I chose.
Participant 16	I was able to pace myself and completed what I needed to move in a positive direction with the technology.
Participant 17	I like that I was able to pick what was important for me to learn and not what I was told was important.

Participant 18	Awesome, my favorite part of the experience
Participant 19	The opportunity to pick one's own PD MUST increase the level of engagement, right!? Plus a huge menu to choose from was fantastic.
Participant 20	I don't know how valuable that would be for our students. Many times, our units are laid out the way they are because ideas build off of one another. However, being able to complete all of the grammar units for extra credit could be valuable to our students.
Participant 21	That was very important to me because I started with what I was already using and learned how to be more efficient with them.
Participant 22	I also went to topics that interested me such as SEL.
Participant 23	It was very important because I can choose what I want to learn.
Participant 24	Choice is very important because I only chose the modules that would greatly benefit me, my students and my teaching team.
Participant 25	to decide what you wanted to learn in order of importance to you. The programs you use most, you learn first.
Participant 26	"It give me the sense of satisfaction of being able to finish one module at a time and challenge myself to do more."
Participant 27	You are able to select the ones that are of more importance to you and have more relevance in your daily instruction.
Participant 28	There were so many to choose from.
Participant 29	I liked the flexibility because being that I do not have classes with students it allowed me to move from one module to another.
Participant 30	It would be nice to pick what interests you most.
Participant 31	I want to learn about things I know I will use. Having the ability to switch from things people think I need to know to what I want to learn about was very nice. I could see districts making something like this where certain modules are required but then the rest is up to what the person wants to excel in. Nice touch!
Participant 32	We almost always get some choice, but often there are scheduling conflicts which prevent us from taking every course we desire.
Participant 33	because that seemed to be how we are living today. We are living in an on demand world.
Participant 34	I don't have time to sit around and wait for the basics to be covered. I need what I need now. Choosing also allowed me to change course when my needs changed.
Participant 35	I was not interested in several of the modules, but very interested in the SEL.
Participant 36	I was able to choose what I wanted to learn and when. It definitely increased my engagement.

Participant 37	It was very important to me because I was able to pick topics that are relevant to me and my classroom.
Participant 38	I didn't do anything for most of the open window thinking it was all for teachers until I saw the teacher burnout activities near the end.
Participant 39	Many times we are told what to sign up for, and it usually doesn't fit with what I feel is my current need.
Participant 40	but there was almost too much to choose from
Participant 41	Key to success.
Participant 42	Self-paced and selected was what made it meaningful.
Participant 43	That's the biggest part of this PD which I enjoyed the most. I didn't have to listen to something I already know. Although, there was a must piece I had to do in the Seesaw content that I already knew.
Participant 44	because if I get stuck on an activity or not that engaged in a certain one, I'd get frustrated easily. I wouldn't be able to proceed to the next activity or I might stop participating all together
Participant 45	It can be overwhelming. A video demonstrating how various teachers use the app or technology would help the decision process. I spent too much time on screencastify.
Participant 46	Super important since I didn't need to learn everything that was there and I wasn't forced to.
Participant 47	Choice was great because I could choose things that I did not know unlike some "required" trainings that are like a review.
Participant 48	For example, I'm a high school teacher so I didn't need to learn how to seesaw so I didn't have to.
Participant 49	It's kind of like what we sometimes do for students - let them choose within certain parameters. It could even be incorporated into project based learning.
Participant 50	I'm not motivated unless the topic is something that I feel I need to be a better teacher.
Participant 51	It made the experience less pressured and more self-guided. I liked it.
Participant 52	I felt that was grade but to learn about "younger" activities like See Saw was interesting
Participant 53	almost too much. Got lost a time or two.
Participant 54	that I am interested in and feel like I have enough prerequisite information to move forward with a selected module. Choice is important as it can foster motivation to complete the task
Participant 55	I think it was important so I could learn the formats that I have not yet mastered.

Participant 56	especially when I became frustrated with one or didn't feel like dealing with sheets that day because I had already been annoyed with it throughout the day. The last thing I would want to do is have to deal with something that I was already angry with.
Participant 57	and makes learning more tailored to what an individual wants to learn.
Participant 58	instead of a one size fits all.
Participant 59	because it is personalized and useful.
Participant 60	but I didn't find thing I was passionate about that I didn't already know, or things that would benefit me or my teaching immediately.
Participant 61	You are more willing to finish what you start if it is by your own choice.
Participant 62	I really appreciated being able to just check off and complete challenges for programs I knew well and then plan my time for some I wanted to take more time learning.
Participant 63	This was one of the most beneficial parts to this experience. The ability to choose was what motivated me.
Participant 64	versus being told I have to take one particular session. Choice for us is much like choice for students.
Participant 65	Not have someone else decide what I needed to do, or what would be available to me.

Appendix E: Could You See the Asynchronous Learning Style of the Online Modules Working for Students or Yourself as a Teacher Using This Style of Learning with Your Students?

Participant 1	It would help students not feel embarrassed to complete work at their own pace but the downfall is that what would be a reasonable time
Participant 2	This is the path to go and the sooner the better!
Participant 3	My students need human contact and encouragement, so maybe not so much.
Participant 4	they are in elementary school and most need that personal touch.
Participant 5	But I do see it being A great way to engage students and teaching them google basics.
Participant 6	I think for teachers It would be fantastic to do in their off hours. I could see students becoming frustrated if they did not learn how to do it the first time
Participant 7	I could see this learning style being implemented with students but I feel that a check in with the teacher would need to happen regularly.
Participant 8	I think accountability is important for both groups and maybe earning certificates is the key.
Participant 9	It can work for some students who have basic learning skills and are motivated enough to take responsibility - other not so much.
Participant 10	We use iReady which is asynchronous learing. For motivated students it works well but not every day and in small increments. But most students procrastinate and do not turn in the asynchronous learning on time and that becomes more work for me.
Participant 11	This may be more engaging for some of those students who don't participate during Distant Learning.
Participant 12	This type of learning style will eventually put teachers out of a job.
Participant 13	See all of the reasons mentioned previously.
Participant 14	As a teacher, I would implore more check-ins to assure they are making progress and answer any questions they may have but I think kids appreciate getting to chose their own style of learning and tools that they would like to learn more about.
Participant 15	Students would really enjoy learning at their own pace.

Participant 16	It takes a lot of self motivation though and a sense of competition. The learning payoff needs to be big, not just marching through the modules.
Participant 17	it would be very important to have the program backed up by live teachers for answering questions or issues.
Participant 18	It was easy to use and an engaging way to interact with the content.
Participant 19	Absolutely, I really enjoyed being able to pick areas that were relevant to me and my current situation.
Participant 20	There are many learning styles so we as teachers need to know what learning style maximizes successful learning of each student & teacher. Asynchronous learning style can be used to benefit the motivated & independent learner, as well as SOME students with disabilities.
Participant 21	It might work for older students with good executive functions.
Participant 22	I think it is too isolating to learn something completely new and students would need to have a structured support system built in.

Appendix F: Participant Responses to the Prompt on Online Certification and Badging

Participant 1	I think it is important, but I also think it doesn't really matter to the district if I am certified or not/no benefits or recognition from the district.
Participant 2	It is motivational, and it lets me see how far I've come and how far there is to go.
Participant 3	They are great idea. However, for me they were not a motivator.
Participant 4	It didn't really influence or motivate me.
Participant 5	:D I never knew I was so competitive. The badging made me really want to complete certain modules and get the checkmark. However, full confession: I started searching through the modules to see where I could get the completions more quickly (i.e. in some cases I might have jumped some learning modules to complete others where some of the stages were cross-module completed).
Participant 6	I think being able to be rewarded, even for small achievements will help others continue learning.
Participant 7	It is not important to me.
Participant 8	Badging/ certification is good to put on your resume and possibly your signature line on emails
Participant 9	Keeps you engaged and competitive, plus it feels rewarding. I received or 75 badges and felt good about it.
Participant 10	I like the motivation of "winning" something (badge) and preparation for Google 1 educator .
Participant 11	I was not really concerned with badging or online certification. However, it is nice to know that the option is still available.
Participant 12	The badging and online certification has acknowledged my time, effort, and aptitude in what I have learned in the modules.
Participant 13	Badging let me see what I had learned and it motivate d me to get more badges.
Participant 14	It gives you some type of gratification on the tasks you have completed. It would be fun to know what others had though. I can be competitive.
Participant 15	Badging let me see what I had learned and it motivated me to get more badges.
Participant 16	Highly motivating.
Participant 17	The badges are a nice recognition of progress. I like the idea of online certification because with this approach (Mobile Mind) I am able to practice tasks and review information as often as needed to be successful
Participant 18	I did not think I was going to like the badging process, but I was wrong. I really liked to be able to see what I was accomplishing and what more I had to do to earn a badge or certificate. This kept me engaged and motivated. I would really like to do more.

Participant 19	I was able to take advantage of this learning platform and earning badges was pretty exciting but the best part was Google Certification. It was not just the fee but the ease and convenience of getting certified. I have finished Level 1 certification and would like to get level 2 done during spring break.
Participant 20	It would be a sense of accomplishment for me. I want to be able to learn all google has to offer so I can become more comfortable using different tools. I would like to have that badge by my name when I send emails etc.
Participant 21	Certification makes you feel accomplished.
Participant 22	Those did not influence me.
Participant 23	It was motivating. But the true motivation was to pass the google educator test
Participant 24	These aspects were motivating.
Participant 25	The badge was a sense of pride that I was able to complete those modules. It also helped my work harder to earn more.
Participant 26	The badging was fun, however, I really appreciated the certification upon completion of the test. I found this more motivating!
Participant 27	Certification makes you feel accomplished .
Participant 28	I really like the badging after completion of each segment of the module. I had tried previously to being part of the study to take the online Google Educator Level One exam over the summer, but due to technical difficulties, after several hours of trying to get help from the company who was administering the test, I timed out. Looking forward to taking the test again.
Participant 29	We are just like our students. I enjoyed that I was able to collect badges and have a visual of the work I completed.
Participant 30	I want the impressive badge to be a part of my resume skills, and I want it on my emails.
Participant 31	The badge and online certification had little to no impact on completing the activities
Participant 32	This is interesting for those who collect?
Participant 33	It is important because people like to achieve or work towards something and it gives you recognition that you are learning and moving in the right direction.
Participant 34	I wanted some badges that I could not locate the pathways to get them. This was frustrating.
Participant 35	One of my goals is to be certified that is a big motivating factor for me to complete the activities.
Participant 36	Having a certification would be more of an incentive to complete the modules.
Participant 37	Many people respond positively to badges/competition. It was fun to make the leaderboard and that added a little to the motivation.

Participant 38	I think that the badging system would speak to our students because it's like earning achievements on a PS4/5, XBox, or cpu videogame. I am one of those gamers who enjoys earning all of the achievements in a given game. Many of our students are like that too. They want all of the achievements. The badge system works similar to the standard videogame achievement system, so I think that it is valuable to students.
Participant 39	I did not like that the modules were so long that it was near impossible to earn a badge. I earned special badges from the programs/apps but did not earn any additional badges from Alludo and I spent many hours on the platform.
Participant 40	I love the badges! Nothing better than an email badge. Better than paper certificates.
Participant 41	More confidence in technology and the competition really made me want to keep on going and learning more.
Participant 42	It gives me the motivation to do more than I could.
Participant 43	It gave you a way to compare your progress with others.
Participant 44	Positive reinforcement is key. But not motivating
Participant 45	You are able to see your progress and you are getting rewarded for your completion.
Participant 46	It helps with the process of learning
Participant 47	I like the badging. I don't know that it was a motivator for me but I am sure that others look forward to those things. Online certification is nice to show what skills you do know.
Participant 48	The badges were motivating.
Participant 49	no idea
Participant 50	I am sure it is motivating.
Participant 51	The badges were not a major motivator for me but might be for students.
Participant 52	It allows for motivation. The more badges I receive, the more accomplished I feel.
Participant 53	At first I was really motivated by the badges, points and ranks. I found my myself looking at how many points a module was when I was selecting which one to do next. As time became more of an issue, the amount of learning I was getting became more of a concern and my participation dropped off.
Participant 54	I have no idea what that means. I learn something, or I don't.
Participant 55	It didn't really matter to me. I did it for the love of knowledge.

Participant 56	I don't have a competitive bone in my body and didn't care about that. Did activities based on perceived relevance to me and my students.
Participant 57	Even though I didn't get to finish as many modules as I wanted to, It was positive to see my accomplishments.
Participant 58	I like the motivation.
Participant 59	It didn't influence me.
Participant 60	Badging was great. Incentives and sense of completion.
Participant 61	Can be motivating, feedback from manager is fun to receive.
Participant 62	None
Participant 63	I was happy when I got my first badge :)
Participant 64	Gamifying helps to a certain extent
Participant 65	The badging is definitely an incentive to complete the modules.
Participant 66	I really enjoyed that aspect. It made you feel like you were working towards a goal.
Participant 67	Depending on what high school class you teach, the badging and online certification might be important or influence the learner or may not be as effective for some learners/classes. I see it working more at the Elementary level.
Participant 68	The badging provides recognition. It actually feels good to reach a milestone. It is very encouraging.
Participant 69	It really didn't affect me since I wasn't really sure what the point was beyond completion of a certain amount of parts
Participant 70	It gave me a sense what I had done and what I could do.
Participant 71	Not really a factor for me. What drove me was my own desire to learn certain things.
Participant 72	I do not like the scoreboard type of recognition. It brings about the competitive game-like feel that I don't like. I like the badges, I just don't feel like everyone needs to know where I am or where I am not. This is not a competition.
Participant 73	I think it's great to demonstrate to administration how devoted one is to professional development and to myself
Participant 74	It didn't have an influence on me. I can see the external reward system being beneficial for a particular audience.