

A CASE STUDY OF THE KAMEHAMEHA SCHOOLS ONLINE INSTRUCTOR
TRAINING INSTITUTE: PREPARING TEACHERS TO BECOME
DISTANCE LEARNING INSTRUCTORS SEVEN TO TEN YEARS LATER

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Abstract

With the continued growth of K-12 online learning, there is a need to train online instructors and understand professional development experiences that impact their success in teaching in K-12 blended and online environments. The purpose of this mixed-method case study was to gain insights on the long term impacts of the Kamehameha Schools Online Instructor Training Institute (OITI), seven to ten years later, of four teachers who became online instructors. Qualitative and quantitative methods were applied to take an in-depth look at how these teachers continued to integrate technology into their instruction, implemented distance learning instructional strategies, their perceived impact on students, and their perceived impact of their OITI experience. The findings of the study indicated teachers consistently applied their knowledge gained through integration of technology in their classrooms and implementing distance learning instructional strategies when teaching online. The OITI also impacted teachers' perceptions and attitudes towards online learning positively, including recognition of their impact on students. The insights gained from this study resulted in recommendations for future trainings of K-12 online instructors and ideas for future research such as the need to personalize training for online instructors, learn more about professional learning communities, and conduct additional case studies relevant to training online instructors.

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Chapter I

Introduction

Over the last decade, the concept of distance learning as a viable option for student learning has become an accepted norm. During an online presentation in 2008, Susan Patrick, International Association for K-12 Online Learning (iNACOL's) Chief Executive Officer (CEO) and former Director of the Office of Educational Technology (2000) at the United States (U.S.) Department of Education (D.O.E.) stated that distance learning was predicated by the World Future Society, a society that looks in-depth at various happenings that may shape the future, as one of the top 10 breakthroughs transforming life over the next 20 to 30 years (Patrick, 2008). Clayton Christensen, Harvard Business Professor and author, made a bold predication in his popular book, *Disrupting Class*, 50% of all U.S. high school classes will be delivered online by 2019 (Christensen, Horn, & Johnson, 2009). In addition, annual online Speak Up surveys conducted by Project Tomorrow, an organization that conducts national educational research projects focused on preparing students for tomorrow's society, published a five year review of online learning growth in 2012. The report indicated continual widespread growth in online learning, with 69% of administrators and 50% of middle school students supporting online course requirements and one-third of parents supporting increased investments in online learning (Project Tomorrow, 2012).

Based upon international, national and local trends, distance learning has grown. Internationally, many countries such as Australia, China, Finland, Hong Kong, India, New Zealand, Singapore, Turkey and the United Kingdom have engaged in online and blended learning strategies and initiatives at the national or government level (Barbour, et al., 2011). Nationally, in the K-12 arena, *Keeping Pace with K-12 Online Learning*, an established

referenced source for distance learning, indicated in numerous publications that online learning continues to experience growth. In the most recent *Keeping Pace* publication (Watson, Murin, Vashaw, Gemin & Rapp, 2013), 30 states have fully online schools serving an estimated 310,000 K-12 students (Figure 1). Furthermore, in 2006, Michigan became the first state to require students to complete an online course for high school graduation followed implementation in Alabama, Florida, and Virginia by 2013. Two additional states, North Carolina and Arkansas, are implementing the online course requirement in 2014 (Watson, et al., 2013).

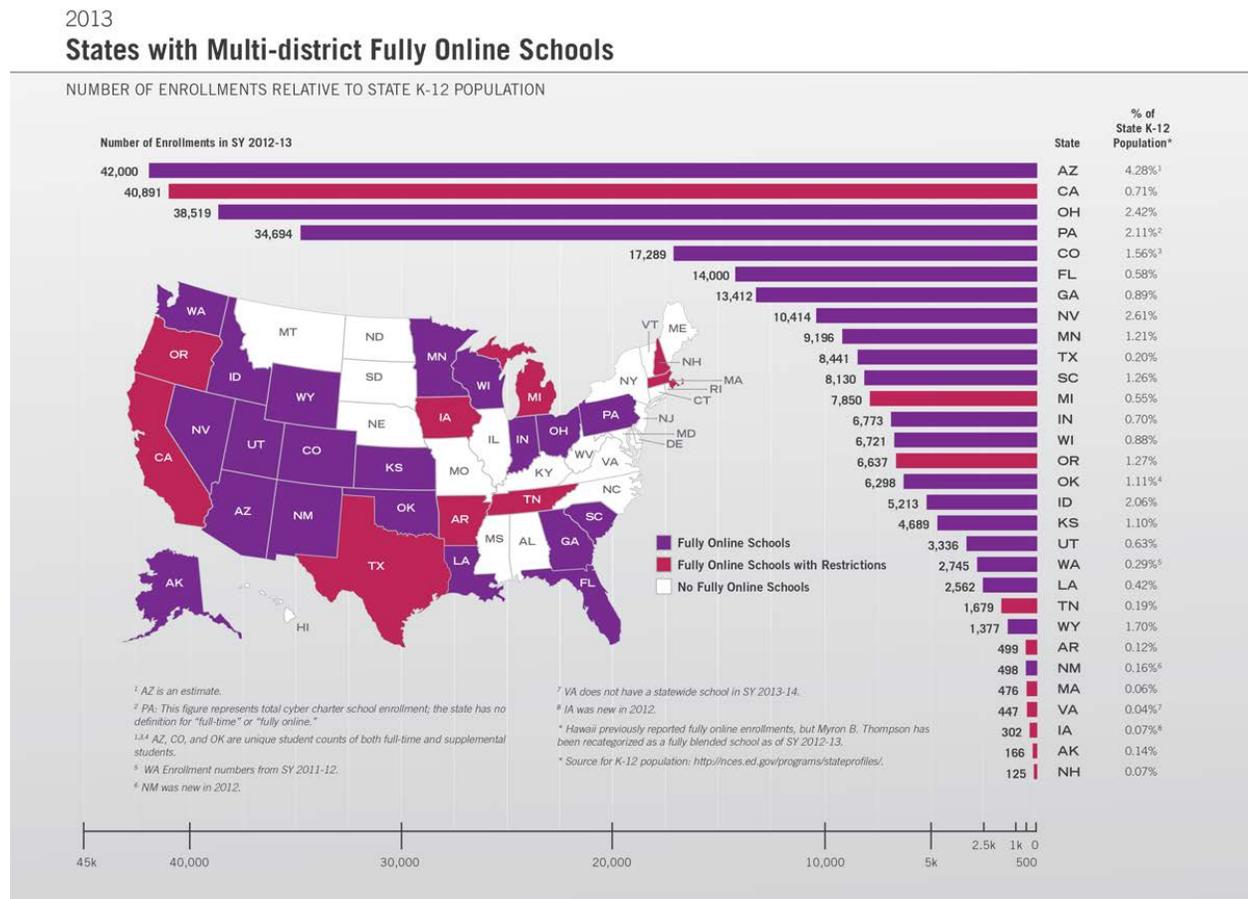


Figure 1. United States with Multi-district Fully Online Schools in 2013. By Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2013). *Keeping Pace with K-12 Online & Blended Learning: An Annual Review of Policy and Practice*. Colorado: EverGreen Consulting Associates for iNACOL.

Locally, within the State of Hawai‘i, the legislature through Act 275 in 2007, established the Hawai‘i Online Task Force, which resulted in the creation of the Hawai‘i Virtual Learning Network (HVLN) to expand online courses offerings to Hawai‘i’s students statewide across all islands. The key partners of HVLN are the D.O.E., E-School, Myron B. Thompson Academy and the University of Hawai‘i Online Learning Academy (Hawai‘i Virtual Learning Network, 2014). In 2007, the Hawai‘i D.O.E.’s strategic plan (Hawai‘i D.O.E., 2007) indicated the desired goal of improving student achievement through standard-based education with one of the measures referencing the increase of students enrolled in online courses from a baseline of 500 students in school year (SY) 06-07 to 10,000 in SY 10-11. In the most recent revised strategic plan update in 2012 (Hawai‘i D.O.E., 2012), the revised overall goal of having 80% students planning to attend college and obtaining the 10th rank in the nation in jobs requiring post-secondary degrees did not specifically mention the increase of enrollment for online courses. However, with D.O.E.’s E-School continual operation in support of the 2007 Act 275, online learning continues to be available for all public school students in Hawai‘i. Alongside D.O.E.’s E-School, other public charter schools operating blended schools (part-time online, part-time on-site) include Myron B. Thompson Academy, an expansion of E-School (Myron B. Thompson Academy, 2014), Hawai‘i Technology Academy (Hawai‘i Technology Academy, 2014), Laupahoehoe Public Charter School (Laupahoehoe Public Charter School, 2014), and Kihei Charter School (Kihei Charter School, 2014). Various independent schools with the State of Hawai‘i have also explored participation in online consortiums such as Online School for Girls consortium for La Pietra Hawai‘i School for Girls, St. Andrew’s Priory School and Sacred Hearts Academy (Online School for Girls, 2014). Punahou School, similar to other schools, embarked in online learning joining the Global Online Academy consortium (Punahou School,

2014). A review of these school Web sites related to the main drivers for the offering of blended and online programs indicate a desire for creating innovative education environments to personalize instruction to meet individual student needs, prepare students for college, increase accessibility to a variety of courses that may not be currently available at their school, and to increase student engagement and academic achievement (Hawai‘i D.O.E. E-School, 2014; La Pietra, 2014; St. Andrews Priory, 2014; Punahou School, 2014).

As K-12 online learning continued to expand in the late 2000s (iNACOL, 2012), the demand for high quality online teachers increased along with the need for quality professional development and training to ensure a solid teaching force for online learning (Davis & Rose, 2007; U.S. D.O.E., 2010). Providing quality distance learning courses for students to access at any time is a challenge. There are few models guiding the development of professional development programs geared towards training teachers transitioning to become effective distance learning instructors and not much literature base to provide solid pedagogical requirements to assist in designing these types of programs (Childs & Crichton, 2004). To date, there continues to be limited numbers of studies focused specifically on teachers who teach online (Dawley, Rice & Hinck, 2010; Kennedy & Archambault, 2012; Kennedy, K., Tysinger, T., Baley, C. & LaFrance, J., 2013). According to Robert Blomeyer (2002), when teachers are “provided with quality professional development opportunities and supervised online clinical experience, good traditional teachers also can become effective facilitators of online learning.” He also recommended that certified, experienced teachers who wish to become online instructors should be required to complete a professional development program ensuring competency as an online instructor. An enormous amount of training, planning and organization time is required of an online instructor to develop and deliver distance learning courses.

Kamehameha Schools Online Instructor Training Institute

Kamehameha Schools (KS) is a private, non-profit institution founded by the legacy of a Hawaiian Princess, great-granddaughter of Kamehameha the Great, Bernice Pauahi Bishop (KS, 2013). The school's mission is to fulfill Princess Pauahi's desire to create educational opportunities in perpetuity to improve the capability and well-being of people of Hawaiian ancestry (KS, 2000). Kamehameha Schools' current (2000 to 2015) and future (2015 to 2040) strategic plan and vision continues to focus on the will left by Pauahi in staying committed to education that will support "good and industrious men and women" (KS, 2000, p. 2; KS Strategic Vision, 2014).

In an effort to expand educational opportunities to reach more learners regardless of physical location, since 2003, Kamehameha Schools Distance Learning (KSDL) transitioned from Cable TV course offerings to providing online opportunities for high school students, parents and educators (KSDL, 2010). Before online programs could be launched, there was a need to build capacity and provide the school with the capability to translate cultural content and curricular expertise of staff into distance learning opportunities for students (Mersberg, 2003). With a limited pool of teachers with the necessary skills to facilitate quality online courses, KSDL collaborated with the University of Hawai'i's (UH) Educational Technology Department within the College of Education to offer professional development courses that would be revised and adapted to encourage integration of culturally-appropriate approaches throughout the training experience. The goals of the program included:

- Increasing the number of teachers who work with Hawaiian learners to be trained in distance learning technologies and strategies.
- Increasing the number of online courses that Kamehameha Schools could offer.

- Improving the quality of instruction by encouraging the use of research-based pedagogical and instructional practices that result in student achievement.
- Supporting the goals of the KS Strategic Plan by providing training to teachers of Hawaiian children and expanding educational outreach.

In 2004, the Online Instructor Training Institute (OITI) was launched, a year-long professional development opportunity that was offered to increase the number of teachers working with Hawaiian learners to be familiarized and trained in distance learning pedagogy and technologies. The target audiences for the OITI were in-service teachers interested in learning more about the integration of technology in the classroom and becoming distance learning instructors. These teachers were also interested in learning about instructional and pedagogical practices relevant to blended and online learning.

Developments of the OITI courses were based upon Dick and Carey's (1996) Instructional Design Model (Figure 2). The main reason for using a systematic instructional development model was to ensure scaffolding of content, concepts and technology skills to obtain the desired goal of trained teachers capable of developing and facilitating distance learning curriculum effectively (Figure 3).

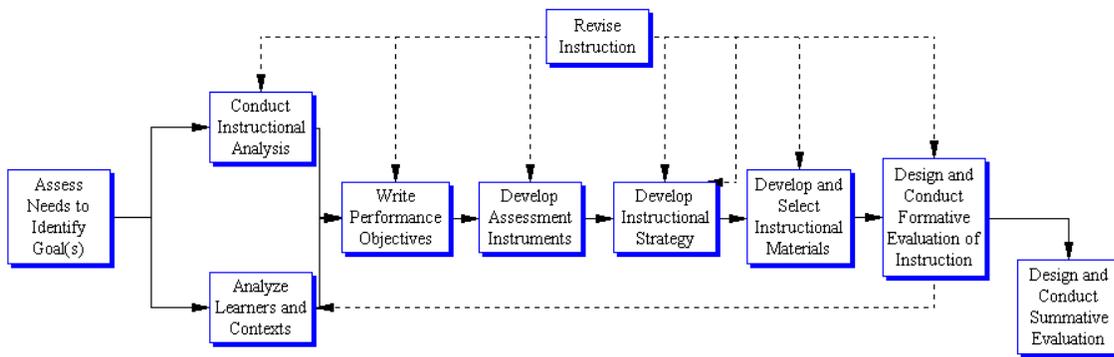
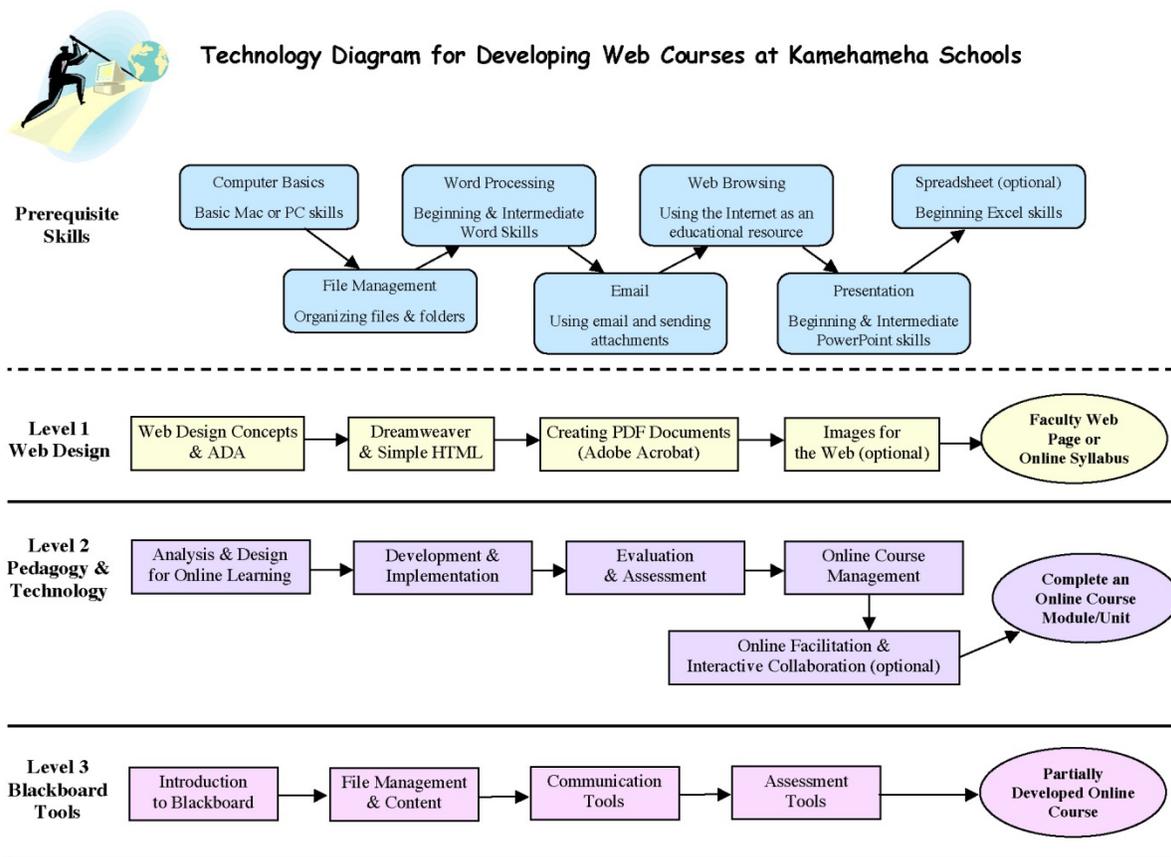


Figure 2. Dick and Carey’s instructional system design model describing phases that begin with needs assessment and ending with conducting summative evaluation. By Dick, W., & Carey, L. (1996). *The Systematic Design of Instruction* (4th ed.). New York: Longman.



This flowchart was modified from Cal State Sacramento’s “Technology Diagram” (http://www.csus.edu/uces/training/diagram/web_diagram_frame.htm) for use within Kamehameha Schools.

Figure 3. A technology flow chart diagram for developing Web courses at Kamehameha Schools, adapted and modified from Cal State Sacramento’s Technology Diagram in 2003.

There were a total of two educational technology college credit and two professional development credit courses offered (Appendix A). All OITI courses integrated the National Educational Technology Standards for Teachers (ISTE, 2000); standards developed by the

International Society for Technology in Education (ISTE) identifying essential performance indicators teachers needed to be successful in the changing nature of education impacted by the emerging technologies (Appendix B). This ensured promotion of effective technology implementation, the initial set of skills essential to becoming a successful distance learning instructor. The second phase of instruction involved distance learning pedagogy and technology skills required for development and facilitation of interactive curriculum for online learning. Throughout the OITI, participant teachers were instructed in a blended distance learning model with the majority of their coursework completed in an asynchronous online learning environment combined with two face-to-face meetings (course beginning and ending) along with five to six synchronous video conference sessions and one to two online synchronous sessions for each credit college course. This provided participating teachers the opportunity to experience content delivery through a variety of distance learning delivery modes to gain additional perspectives as a distance learner while enrolled in the program. The two hands-on trainings provided prior to each college credit course were completed in a face-to-face and synchronous video conference sessions (for participants on the neighbor islands) due to the technical nature and need for immediate technical support of a variety of instructional technologies introduced.

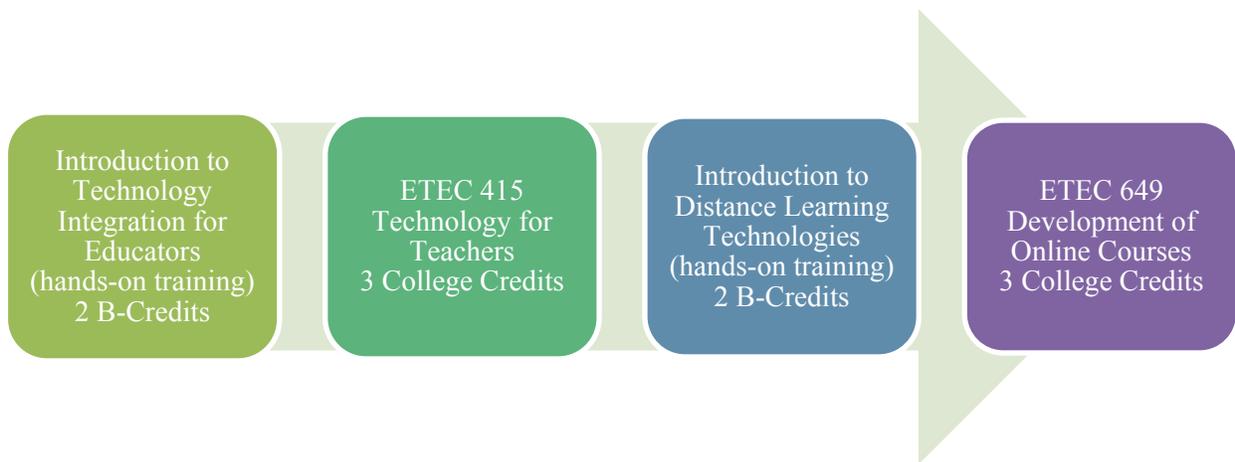


Figure 4. The Online Instructor Training Institute (OITI) blended course offerings. Note that the hands-on training sessions were included after the first cohort offering based upon participant feedback and the instructor wanting to provide sufficient time for technology hands-on training to supplement the college credit courses.

Rationale for Study

After offering three cohorts in the years 2004-2007, 32 teachers were serviced with a 71% completion rate (Hirata, 2007). Preliminary evaluation of the two college credit educational technology courses indicated on average knowledge increase of participants in all topics covered in both courses (Appendix C). Due to unplanned organizational transitions, further comprehensive data analysis of the OITI was not completed after the offering of three cohorts. Upon successful completion of the OITI program, a select group of seven teachers, based upon their interest and online teaching readiness, were invited to continue their involvement in distance learning opportunities through full time or part-time contract work. This required them to regularly implement and build upon skills and concepts learned in the OITI. Informal conversations throughout the years later with various graduates of the OITI program led me, the researcher, to believe they continued to integrate the concepts and skills they had learned in the OITI within their face-to-face classroom and online environment.

Since 2007, the OITI courses have been incorporated and revised into a new program titled A‘o Kumu (translated to mean teachers learning and sharing their knowledge) to expand course offerings to educators interested in professional development opportunities to explore how to seamlessly integrate Hawaiian culture-based education and 21st century skills into their curriculum supported by a dynamic professional learning community (KSDL, 2014). With the revision, there was an increased emphasis on seamless integration of culture-based education with 21st century skills, such as critical thinking, problem solving, communication and collaboration. Although the OITI program itself no longer exists, there is currently a desire to discover and learn more about how graduates of the program are doing, including how they are applying the skills they have learned to impact student learning. The purpose of this study was to provide insight on potential long term impacts of the OITI professional development experience to improve K-12 online professional development training programs for educators.

Research Questions

There were several research questions that guided this study.

1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum in a blended environment?
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies in an online environment?
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?
4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?

Definition of Terms

A variety of distance learning terms are mentioned throughout this study. A list of definitions from the United States Distance Learning Association (USDLA) (Simonson, 2008), Learning Circuits (Kaplan-Leiserson, 2007), and The Glossary of Education Reform (Great Schools Partnership, 2014) Web sites are provided for clarification purposes.

- Asynchronous learning - learning in which interaction between instructors and students occurs intermittently with a time delay. Examples are self-paced courses taken via the Internet or CD-ROM, Q&A mentoring, online discussion groups, and email.
- Blended learning - A class that is conducted both by face-to-face classroom meetings and distance learning activities.
- Blog – An extension of the personal Web site consisting of regular journal-like entries posted on a Web page for public viewing. Blogs usually contain links to other Web sites along with the thoughts, comments, and personality of the blog's creator.
- Digital tools – Emerging tools used for instruction such as research, collaboration, and knowledge sharing
- Discussion postings - forums on the Internet or an intranet where users can post messages for others to read.
- Distance learning - A term for the physical separation of teachers and learners that has become popular in recent years. While used interchangeably with distance education, distance learning puts the emphasis on the learner and is especially appropriate when students take on greater responsibility for their learning as is frequently the case when doing so from a distance. The desired outcome of distance education, i.e., learning at a distance.

- Hybrid – mixed method of face-to-face and online learning; sometimes referenced as blended learning
- Online Learning - Learning delivered by Web-based or Internet-based technologies.
- Learning management system (LMS) – software that automates the administration of training. The LMS registers users, tracks courses in a catalog, records data from learners; and provides reports to management. An LMS is typically designed to handle courses by multiple publishers and providers. It usually doesn't include its own authoring capabilities; instead, it focuses on managing courses created by a variety of other sources.
- Professional learning community (PLC) – a group of educators that meets regularly, shares expertise, and works collaboratively to improve teaching skills and the academic performance of students.
- Synchronous learning - a real-time, instructor-led online learning event in which all participants are logged on at the same time and communicate directly with each other. In this online classroom setting, the instructor maintains control of the class, with the ability to "call on" participants.
- Video conference – using video and audio signals to link participants at different and remote locations.
- Virtual school - a state approved and/or regionally accredited school that offers credit courses through distance learning methods that include Internet-based delivery.

For a comprehensive list of online learning definitions, the International Association for K-12 Online Learning completed a project to provide a resource to those interested in blended and online learning (iNACOL, 2011c).

Chapter Summary

This first chapter began with an introduction to the growth of distance learning, followed by background on the OITI, including rationale for the study and research questions that would guide this study. The next chapter focuses on the literature review as it pertains to this study.

Chapter II

Review of Literature

In this qualitative research study, I conducted case studies of K-12 educators who completed the KS OITI teacher professional development program. Therefore, this literature review focuses specifically on topic areas relevant to existing research and theory as it related to these teacher participants and their educational setting. The broad topic areas covered include: a) definitions of distance learning, b) the history of distance learning, c) the rise of blended learning, d) the growth of K-12 online learning, e) standards and guidelines for K-12 online learning, and d) professional development for K-12 online teachers. Lastly, an in-depth look at the TPACK theoretical framework is discussed as it relates to the methodology of this study.

What is Distance Learning?

Due to the changing nature of technology, the definition of distance learning continued to change in the late 1990s (Phipps & Merisotis, 1999). Various states even have variations in their definition of distance learning. When analyzing the different state definitions, the common description references “an instructional process during which the student and faculty member are separated by space, time, or both for some portion of the course (50-75% or greater)” (Florida Virtual Campus, n.d., p. 1). In 2001, the University of Connecticut faculty (King, Young, Drivere-Richmond, & Schrader, 2001, p. 8), after a lengthy research, created a definition that also included a focus on the effect of distance learning on learners, “...improved capabilities in knowledge and/or behaviors as a result of mediated experiences that are constrained by time and/or distance...” The current definition, as described earlier in the USDLA glossary summarized, is when a learner is “physically separated from their teacher when learning” with the emphasis on the learner (Simonson, 2008, p. 46). This definition is consistent with the

definition stated in Merriam-Webster's Dictionary (2013, p. 1), referencing "education that takes place via electronic media linking instructors and students who are not together in a classroom."

History of Distance Learning

It is hard to imagine that distance learning worldwide began more than a century ago beginning with short hand correspondence courses in 1728 (Anglia Ruskin University, 2013). Universities such as the University of Chicago and University of Wisconsin began creating correspondence courses for mass enrollment in the late 1800s (Simonson, Smaldino, Albright, Zvacek, 2006). In the early 1920s, there were 200 plus radio educational stations nationwide with numerous Pennsylvania radio stations owned by Pennsylvania State (Pennsylvania Historical & Museum Commission, 2002). By 1934, University of Iowa was the first university to utilize television for teaching and learning (Osborne & Coltman, 2012). In 1969, the first distance learning Open University was established primarily using radio and television for content delivery (Anglia Ruskin University, 2013). By 1986, Pennsylvania State University alongside other universities offered computer-based courses with audio conferencing (Osborne & Coltman, 2012).

At the beginning of the 21st century, 2000 to present, online enrollments in higher education continued to grow fairly steadily with 6.7 million plus students, 31% of all higher education students, taking at least 1 online course by 2011 (Allen & Seaman, 2011) resulting in more than 7 in 10 public and for-profit colleges offering full academic programs online (Lederman, 2013). With the steady growth of online learning in higher education, K-12 online learning also grew, evidenced by the founding of Florida Virtual School in 1997, the United States' (U.S.) first state-wide Internet-based public high school (FLVS, 2013). To view a

detailed history of distance learning, reference Appendix D’s infographic (Osborne & Coltman, 2012).

The Rise of Blended Learning

With the continual growth of online learning in higher education and the increase in technology integration, the term blended learning; defined as the blend between face-to-face traditional classroom instruction and online learning, appeared in the University of Central Florida’s research (Dziuban, Hartman & Moskal, 2004). According to iNACOL, the term online learning can encompass both distance learning and blended learning (Watson, 2008, p. 5).

Although the definition of blended meaning varies to an extent, the widely accepted percentages that classify blended learning, also sometimes known as hybrid learning, is between 30-79% (Allen, Seaman, & Garrett, 2007).

Table 1.

Percentages Classifying Blended Learning

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course with no online technology used – content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Note. By Allen, E., Seaman, J. & Garrett, J. (2007). *Blending In: The Extent and Promise of Blended Education in the United States*. CAL Babson Survey Research Group for The Sloan Consortium.

To date, the term blended learning continues to be explored with many researchers attempting to clarify the definition of blended learning (Allen, Seaman, & Garrett, 2007; Staker & Horn, 2012), with a main focus of engaging and increasing interactions among students by shifting the teaching instruction from lecture to student-centered learning while providing flexibility in the physical location during student learning (Dziuban, Hartman & Moskal, 2004; Horn & Darrow, 2012).

In the research of over 80 programs, Staker & Horn (2012), classified four different types of blended models (Appendix E) all in the middle of the spectrum between traditional face-to-face and online learning. When looking closely at the intent of blended and online learning, the skill sets required of a teacher for online learning has shown to have a positive impact on face-to-face instruction (Blackboard, 2009), resulting in blended learning serving as a step for teachers' engagement towards online learning (Watson, Murin, Vashaw, Gemin & Rapp, 2011). This is supported by further exploration of the dimensions of blended learning models shown below in the Keeping Pace with K-12 Online Learning 2011 report (Figure 5). In order for teachers to shift in the spectrum from less blended to more blended instruction, the curriculum needs to also shift online with increased flexibility of student physical location and attendance requirements. The student also has more control of their learning with less reliance on the physical presence of their teacher (Watson, Murin, Vashaw, Gemin, & Rapp, 2011).

THE DEFINING DIMENSIONS OF BLENDED LEARNING MODELS

		LEVEL OF BLENDED LEARNING				
		Less Online Instruction	More Online Instruction	Single Course	Entire Curriculum	
Characteristics Driving the Changing Roles of Educators	Characteristics of Instructional Models	INSTRUCTIONAL MATERIAL LEVEL	Learning Object	Unit/Lesson	Single Course	Entire Curriculum
		INSTRUCTIONAL RESOURCES	Course minimally uses digital content, resources, and tools to supplement instruction	Digital content, resources, and tools expand and enhance the curriculum and content	Use of digital resources and tools are integral to content, curriculum and instruction	
		ASSESSMENT	Whole-class assessments, used primarily in the classroom, during the school day as the primary means of feedback	A combination of traditional and online assessments are used inside and outside the classroom	Greater amount of digital, real-time data and feedback allow for individualized instruction	
		COMMUNICATION (Student / Teacher & Student / Student)	Occurs primarily synchronously and in the physical classroom	Is a mixture of synchronous & asynchronous and may be in the physical classroom or online	Occurs primarily asynchronously and online or from a distance	
	Student-Centered Instruction	ATTENDANCE REQUIREMENTS	Students are required to attend a physical classroom 5 days a week	Students attend a physical classroom less than 5 days a week and work online at other times	Students have flexible physical classroom and/or location attendance requirements.	
		STUDENT LEARNER'S ROLE	Student is primarily the recipient of teacher provided instruction. Teacher sets day-to-day pace.		Student takes active role in learning with reliance on digital content, resources and tools. Student has more control of own pace.	
		INDIVIDUALIZATION OF INSTRUCTION	All students expected to complete same instructional pathway	Students engage with digital content to customize their instructional pathway	Students engage with digital content and have multiple pathways that are competency-based and not tied to a fixed school calendar.	
	School Considerations	INSTRUCTIONAL SUPPORT MODELS	"Direct student learning" through traditional teacher roles and staffing models	"Facilitate student learning" through a team approach with a significant reliance on technology-based tools and content	"Coordinate student learning" through the expanded use of technology-based tools and content, as well as the effective use of outside experts and/or community resources	
		INSTRUCTION SCHEDULE AND LOCATION	Fixed daily schedule, instruction primarily in physical classroom	Mixed schedule of online and physical instruction	Highly flexible schedule, with instruction is possible 24x7. Learning centers support instruction.	
		ACCESS TO ACADEMIC STUDENT SUPPORT	Support is school-based, and provided primarily by the teacher during the class period.		Support structures (e.g. online tutoring, home mentors, and technical support services) in place 24x7, in addition to teacher support.	
		TECHNOLOGICAL INFRASTRUCTURE	School or classroom based with students using shared classroom computer resources. Access to infrastructure ends with class period.	Available across school campus with students checking out computers from a lab or bringing their own. Access to infrastructure is during school hours.	Available on and off campus with students using their own device. Access to infrastructure is 24x7.	

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Table 3: Elements of blended learning, iNACOL National Standards for Quality Online Courses, Version 2

Figure 5. Blended Learning Models. This figure provides an in-depth view of the levels of blended learning ranging from less to mostly online instruction and characteristics driving the changing roles of educators within these ranges. By Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2011). Keeping Pace with K-12 Online Learning: An Annual Review of Policy and Practice. Colorado: EverGreen Consulting Associates for iNACOL.

Growth of K-12 Online Learning

By 2010, public schools in the U. S. reported approximately 1.8 million K-12 enrollments in distance learning courses, of which 74% were from high schools (Queen & Lewis, 2011). These estimates did not include additional students enrolled in full-time online/virtual schools, estimated at approximately 200,000 by school year 2009-2010 (iNACOL, 2012). By 2013, there were approximately, 743,728 course enrollments in 27 virtual schools, resulting in an increase of 17% in comparison to the prior year (Watson, et al., 2013) with Florida Virtual School leading other states with the most course enrollments and highest ratio of students to state population (Appendix F). In addition, four states currently require students to complete minimally one online course in order to graduate: Alabama, Florida, Michigan, and Virginia (Watson, et al., 2013) with the intention of preparing high school students with 21st century skills for college and future careers (Sheehy, K., 2012).

There are many potential benefits impacting the growth of K-12 online learning. According to middle and high school students who responded to the Speak Up survey, the interests of students to enroll in online courses have increased since 2007 as evidenced in Figure 6 (Project Tomorrow, 2012). Their perceived top five benefits included scheduling, control of learning, work at own pace, college credit and review of materials amongst other factors (Project Tomorrow, 2011a).

CHART 3: STUDENT INTEREST IN TAKING AN ONLINE CLASS – 5 YEAR RETROSPECTIVE

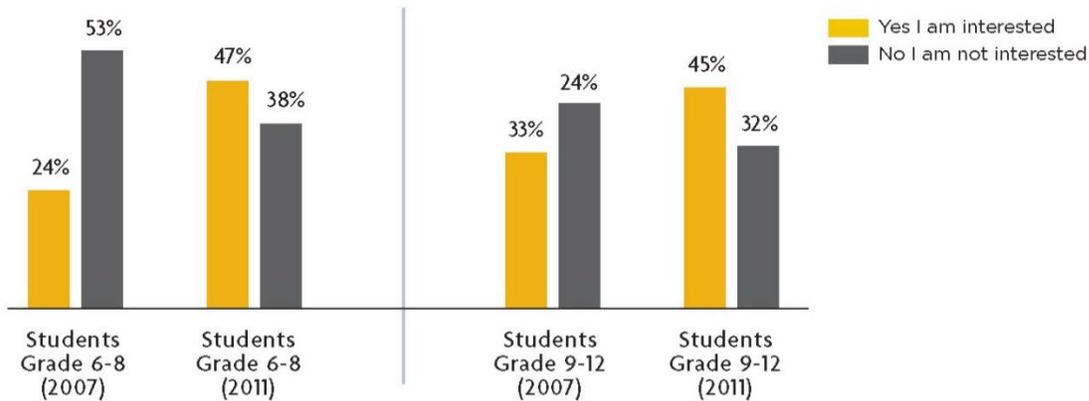


Figure 6. 5 Year Retrospective on Student Interest in Taking an Online Course. This figure provides a comparison of middle and high school students and their increased interest in enrolling in online courses since 2007. By Project Tomorrow and Blackboard. (2012). Learning in the 21st Century: A 5 Year Retrospective on the Growth in Online Learning. Irvine, CA.

According to parents, the top six perceived benefits of online learning for their child included the ability to work at his/her child’s own pace, to review course materials repetitive times as needed, to enroll in courses that were not offered to their child at his/her school, to obtain college credit for advanced courses, to increase their child’s motivation or engagement in the course material, and to receive more individualized attention from their child’s teacher (Project Tomorrow, 2012).

CHART 4: PARENTS’ VIEWS ON THE BENEFITS OF ONLINE LEARNING FOR THEIR CHILD

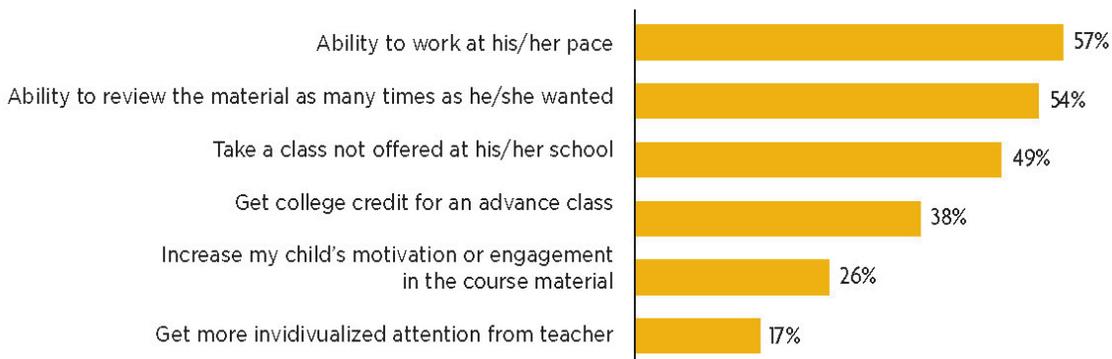


Figure 7. Parent Perspectives on the Benefits of Online Learning for Their Child. This figure provides an overview of the reasons parents enroll their children in online learning. By Project Tomorrow and Blackboard. (2012). Learning in the 21st Century: A 5 Year Retrospective on the Growth in Online Learning. Irvine, CA.

In addition, according to U.S. administrators surveyed in 2011, the top five perceived reasons for offering online learning to address their school challenges included eliminating costs associated with textbooks, keeping students engaged in school, providing classes in areas that were difficult to staff, providing personalized instruction to students and offering academic remediation to students (Project Tomorrow, 2012).

Table 2.

Administrator Perspective on How Online Learning Helps Address District Challenges

Benefits of providing online classes for students	2009	2011
Eliminate costs associated with textbooks	14%	38%
Keep students engaged in school	34%	47%
Provide classes in "hard to staff areas"	18%	26%
Provide personalized instruction to students	17%	27%
Offer academic remediation to students	23%	46%

Note. This table provides a comparison since 2009 of the reasons U.S. high school administrators offer fully online or blended learning programs. By Project Tomorrow and Blackboard. (2012). *Learning in the 21st Century: A 5 Year Retrospective on the Growth in Online Learning.* Irvine, CA.

Along with numerous benefits, there are also online learning issues and challenges. Many of the issues revolve around the existing educational policies and funding that do not fully address online learning needs. Instead of developing specific online learning policies, some states revised traditional educational policies to accommodate online learning needs, which resulted in limitations impacting expansion and growth of online schools, such as limited funding and enrollment caps for online schools (Wicks, 2010). In addition, there are many untrue myths related to online learning such as referencing online learning as high tech courses with no interaction, no teacher involvement, and easy to pass or easy environments to cheat in (Wicks, 2010).

To ensure continual growth of K-12 online learning and address challenges, iNACOL developed several strategic priorities which will include advocating for state and federal policy frameworks to support online learning, partnering with leading online and blended learning providers to develop quality assurance standards, and developing new learning models through research that will support college and career readiness for all students (iNACOL, 2012).

Standards and Guidelines for K-12 Online Learning

With the continual growth of K-12 online learning, the U.S. D.O.E. conducted a meta-analysis review of 50 online learning research studies (43 of which were of research with older learners) to evaluate the effectiveness of online learning in comparison to traditional face-to-face instruction in addition to identifying practices and conditions associated with effective online learning (Means, Toyama, Murphy, Bakia, Jones, 2010). Although results showed that online students performed moderately better than traditional face-to-face students, there were minimal rigorous research studies focused on the effectiveness of online learning for K-12 students. Detailed results included an “average effect size of +0.20 favoring online conditions...and the mean difference between online and face-to-face conditions across the 50 contrasts was statistically significant at the $p < 0.001$ level” (Means, Toyama, Murphy, Bakia, Jones, 2010, p. xiv). Footnotes of the meta-analysis indicated the “effect sizes of 0.20 was considered ‘small’... and the p -value indicated the likelihood that an effect size of this or larger would be found by chance if the two populations being studied and compared did not differ” (Means, Toyama, Murphy, Bakia, Jones, 2010, p. xiv).

To ensure quality online learning, the U.S. D.O.E.’s National Educational Technology Plan encourages engaging and empowering learning experiences. Besides a core set of standards-based concepts and competencies that students should learn, students and educators are

encouraged to utilize various options for engagement in learning, such as “large groups, small groups, and work tailored to the individual goals, needs, interests, and prior experience of each learner” (U.S. D.O.E., 2010, p. x). Various standards-based competencies (Rice, 2012) and educational frameworks that impact online education include:

- State learning standards (e.g. Common Core)
- Partnership for 21st Century Skills (P21) Learning Framework
- International Society for Technology in Education (ISTE) Standards
- National Education Association (NEA) Guides
- Southern Regional Education Board (SREB) Standards
- International Association for K-12 Online Learning (iNACOL) Standards

Cognizant of President Obama’s request to “develop standards and assessments that don’t simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem-solving and critical thinking” (U.S. D.O.E., 2010, p. 26), these standards-based competencies and frameworks were developed to address two major issues related to standards for online learning: 1) meeting state learning standards through alignment of online course content to standards, and 2) addressing specific online course quality standards through iNACOL (Wicks, 2010).

The iNACOL standards were developed in alignment and endorsement of SREB and 21st Century Skills (iNACOL, 2011a). The three sets of standards included:

1. iNACOL Standards for Quality Online Programs
2. iNACOL Standards for Quality Online Courses
3. iNACOL Standards for Quality Online Teaching

Similar to U.S. D.O.E.'s desire to "provide all learners with online access to effective teaching and better learning opportunities..." (U.S. D.O.E., 2010, p. 49), iNACOL developed standards to ensure all students had access to quality education. The standards for quality online programs focuses on providing states, districts and programs with a set of guidelines in categories such as leadership, instruction, content, support services and evaluation. The standards for quality online courses provide a means to evaluate course quality and implementation of best practices. Categories include content, instructional design, student assessment, technology course evaluation and support. The standards for quality online teaching specifically focus on online teaching (iNACOL, 2011b). Eleven standards for online teaching include the teacher:

1. Knowing primary concepts and structures of effective online instruction.
2. Understanding and able to use a range of technologies for effective support of student learning and engagement.
3. Planning, designing, and incorporating strategies to encourage active learning, application, interaction, participation and collaboration.
4. Promoting student success through clear expectations, prompt responses, and regular feedback.
5. Modeling, guiding and encouraging legal, ethical, and safe behavior (academic integrity and appropriate use) related to technology use.
6. Cognizant of diversity of student academic needs and incorporates accommodations.
7. Demonstrates competencies in creating and implementing assessment that ensure validity and reliability of the instruments and procedures.

8. Develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assess learning progress through measuring student achievement of the learning goals.
9. Demonstrates competency in using data from various sources to modify content and to guide student learning.
10. Interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students' success.
11. Arranges media and content to help students and teachers transfer knowledge most effectively in the online environment.

These eleven iNACOL standards for quality online teaching are standards specifically relevant to this case study research. The other iNACOL standards for quality online program and quality online courses, although not as relevant to this study, are considered important to distance learning professionals.

Professional Development for K-12 Online Teachers

There are many key articles and relevant findings that promote the understanding of professional development for online instructors that impact their successes. As early as 1992, researchers Palloff & Pratt (1999) looked into the differences between traditional and online teaching in higher education. The differences such as the need for advanced planning, change of faculty and student roles with a focus on facilitative teaching, and need for ongoing teaching and student support (Palloff & Pratt, 1999) resulted in the development of distance teaching competencies (Cyrs, 1997; Schoenfield-Tacher & Persichitte, 2000; Spector & Teja, 2001; Goodyear, Salmon, Spector & Steeples, 2001; Spector, Klein, Fields, Teja, Grabowski, Sim, & Visser, 2002). When comparing online and classroom teaching activities, Spector & Teja

(2001) highlighted the differences in teaching activities that resulted in the diverse location of teachers and students, use of technology, communication methods and learning that is student centered vs. teacher centered. Spector & Teja (2001) also noted that online teaching competencies were most likely developed due to low quality online teaching and there was a need to address this challenge.

Since the development of distance teaching competencies, between the years 2002-2003, there was a focus on quality professional development for online teachers. Numerous research studies focusing on the skill sets and preparation of online teachers were published (Barker, 2002; Bordelon & Hinson, 2002; MacLachlan, 2002; Yu, 2003). A summary of findings included the need for teachers to have:

- Positive attitude toward distance education.
- Technical skills to teach in an environment.
- Pedagogical skills that focus on student-centered instruction online, including instructional design skills taking into consideration the content, learner, and strategies to successfully teach and assess students.
- Organizational skills to ensure curriculum is organized in a way that allows students to interact in an organized format.
- Support from administrators and technical staff to assist teachers and students throughout the course.

In 2004, most of online teacher professional development research focused on higher education (Kearsley & Blomeyer, 2004). With only a few professional development models to train K-12 online teachers, the emergence of online teacher professional development research occurred (Childs & Crichton, 2004). Most of the professional development research during this

time focused on developing teacher technology skills and their ability to develop electronic resources for traditional classroom use (Childs & Crichton, 2004). This is not surprising since one of the main focuses in the early 2000s was successful integration of technology in a traditional classroom setting based upon developed technology standards by the International Society for Technology in Education (ISTE, 2000). Many researchers in the 2000s explored models and professional development courses for teachers that would impact effective teaching practices in technology integration (Howland & Wedman, 2004; Marra, 2004; Watson, 2006). Best practices include inspiring teachers to understand the importance of using technology to promote student learning, ability to model and provide hands-on training for teachers using researched best-practiced strategies to effectively integrate technology, conduct needs assessment to improve professional development programs, promote digital citizenship such as the appropriate use of technologies, and encourage continual professional growth in a quest to continually seek knowledge to meaningfully impact student achievement through the use of technology as a tool for learning (ISTE, 2008). According to many authors, “professional development for K-12 online teachers is important because compared to face-to-face instruction, effective online teaching requires a different set of skills and strategies” (Veletsianos, Doering & Henrickson, 2012, p. 46). For example, the online instructor needs to be capable in pedagogical and technological tools to communicate, facilitate, and engage students with learning at a distance. The main differences in an online environment that require specific training, as described by Ed Tech Leaders Online Director (Treacy, 2007), include:

1. Online curriculum is different from face to face curriculum – In an online environment, without the physical presence of the teacher, detailed instructions and

expectations need to be easily understood by students. In addition, teachers need to be skilled to observe and provide supplementary resources and support as needed for differentiated learners with diverse learning styles and needs.

2. Social dynamic is different in an online classroom – Communicating and interacting online for learning is very different in comparison to face-to-face interaction.

Teachers need to be skilled in developing strong discussion postings that encourage critical thinking as well as facilitating online interactions amongst students.

3. Assessment strategies are different in an online classroom – Online instructors need to be skilled in using a variety of strategies to assess student learning in an online environment (e.g. reflective online discussions, course management system data for individualized assessments, etc.).

4. Technical challenges may interrupt the online classroom – Heavily relying on the use of technology to learn in an online environment, the teachers needs to be skilled with both using technology efficiently and assisting students with technical troubleshooting as needed. Online teachers also need to keep up to date with technologies and checking online links used in the online courses frequently with constantly changing Web links.

Also, in addition to subject matter licensure, online teachers need to be “skilled in learning theories, technologies, and teaching pedagogies appropriate for the online environment” (NEA, 2012, p. 418). To be successful as a K-12 online instructor, it is suggested that teaching delivery is facilitative versus lecture-based. Teachers need to be comfortable using various online instructional technologies, and is also effective in communicating and interacting with students in online environment (Natale, 2011). From a secondary student perspective, their expectations

of online teachers included the teacher explaining and elaborating on the online course content, provide supplemental resources as needed, incorporate content that is relevant and authentic, encourage interaction amongst the teacher and students, provide timely feedback and responses, and provide individualized attention through differentiated instruction (Oliver, Osborne & Brady, 2009).

With so many required skills of K-12 online teachers, it is surprising there are only a few teacher education programs in the U.S. offering training for online teaching (Patrick & Dawley, 2010). Venues for training new in-service online teachers include K-12 virtual schools, several university programs, or organizations with a focus in online learning. Despite these venues, there are only 2% of teacher education programs preparing online teachers (Kennedy, Tysinger, Bailey & LaFrance, 2013). As a result, there is increased demand for online teachers, but few teachers interested, resulting in staffing challenges (Project Tomorrow, 2011b). In addition, according to Project Tomorrow's report two years later (2013), 25% of administrators surveyed expected aspiring teachers to have skills teaching an online class, but less than 10% aspiring teachers surveyed had actual educational experiences in learning how to teach online courses. As of 2014, no states within the United States had a separate licensing requirement for online teachers, with very few states requiring professional development for online teaching (Watson, Murin, Pape, 2014).

When looking further into in-service teachers who teach online, there were a limited number of studies focused specifically on online teachers. A study focused on virtual schools approved by various states showed that most online teachers were experienced in the traditional classroom and a majority of them taught at the high school level (Archambault & Crippen, 2009). In another study surveying in-service online teachers, demographics were similar, with

80% of the online teachers with more than six years of teaching experience (Dawley, Rice, Hinck, 2010). Data collected in Archambault & Crippen's study (2009) indicated that most of the teachers reported positive experiences teaching online, with a benefit of not having to worry about traditional classroom management such as student physical misbehavior and conduct in a traditional classroom. Some data also indicated the lack of support, lack of student participation, and sometimes a larger amount of student enrollment in a course could result in negative online teaching experiences (Archambault & Crippen, 2009). Data collected in Dawley, et al.'s study (2010) indicated 87% online teachers receiving professional development, mostly provided by their school or organization, were focused on K-12 online instruction with most of the training conducted as ongoing training sessions or workshops. Training was required for 74% of the online instructors and only 8% indicated training was required by the state they were employed with. In 2014, the Keeping Pace online teaching report indicated only a few states (Kansas, Maryland, and Minnesota), required and supported professional development specific to online teaching. The approaches to support professional development required by the states also varied, ranging from requiring the online curriculum vendor, or third party company, to provide training to requiring universities to incorporate online teaching skills as part of teacher licensure programs (Watson, et al., 2014).

Although there were some studies with a focus on surveying in-service online teachers, according to Archambault (2011, p. 74) "Little is known about the population of educators who teach online, especially with relationship to their teacher preparation." Even as recent as 2013, various experts indicated the greatest need that was impacting the growth and depth of knowledge in K-12 online distance learning was the lack of scholars researching this focus (Barbour, Archambault, & DiPietro, 2013).

It can be assumed that a teachers' impact on student learning is essential, especially in K-12 online learning environments (Deubel, 2008). As schools and organizations continue to expand online course offerings, the demand for high quality online teachers also increases along with the need for quality professional development and training (Davis & Rose, 2007). According to the U.S. D.O.E.'s National Educational Technology Plan to "provide all learners with online access to effective teaching and better learning opportunities (U.S. D.O.E., 2010, p. 49), there is a need to "develop a teaching force skilled in online instruction" with a focus on "experiences that are more participatory and personalized that embody best practices for engaging all students" (U.S. D.O.E., 2010, p. 50).

Case Studies Focusing on Professional Development for K-12 Online Teachers

With a limited selection of research on professional development for K-12 online teachers, locating specific case studies focusing on professional development for online teachers was difficult. One PBS Teacherline year-long case study focused on understanding professional development for online instructors was the closest research study highlighting recommendations for professional development that served online teachers. However, the participants in the study were PBS Teacherline online teachers teaching adult learners and not students (Storandt, Dossin, & Lacher, 2012). The closest online teacher study focused on quantitative data exploring differences between returning and new teachers' frequency and self-reported confidence in performing online tasks (Hathaway & Norton, 2012). The closest case study focusing on online teachers' experiences in knowledge of the use of technology for online learning using the TPACK (Technological Pedagogical and Content Knowledge) focused on higher education graduate students (Phillips & Hammett, 2012). With a lack of case studies emphasizing

professional development experiences of in-service online teachers, there is a need to conduct case study research in this area of focus.

Technological Pedagogical Content Knowledge (TPACK) Theory Base

During investigation of the research questions, the paradigm for this study was based upon the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). To address a lack of theoretical grounding in the educational technology field, Mishra and Koehler (2006, p. 1017), proposed a TPACK conceptual framework that “attempts to capture some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge.” The base of this framework was developed as an addition of Shulman’s thoughts related to pedagogical content knowledge (PCK), with a focus on the teachers’ ability to not only understand what makes specific topics easy or difficult, but also competent in teaching to utilize various strategies to increase comprehension (Shulman, 1986). Mishra and Koehler (2006) included an additional technology component acknowledging the impact of emerging technologies on student learning. The resulting TPACK framework (Figure 8) highlighted the importance of the relationships between content, pedagogy, and technology to transform learning through good teaching. In order for teachers to be successful in effective pedagogical uses of technology for teaching, it was essential for teachers to have extensive knowledge of subject matter, pedagogical strategies and technical skills to transfer learning by discovering different methods of representing content to learners to increase student achievement (Mishra & Koehler, 2006).

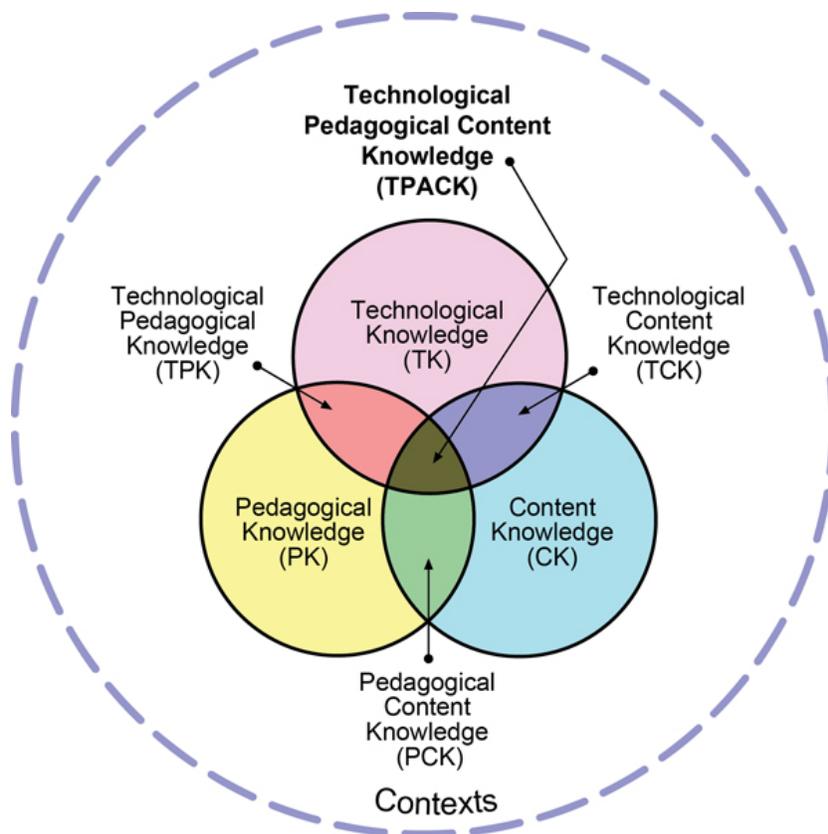


Figure 8. The Technological Pedagogical Content Knowledge (TPACK) Model. Created by Koehler & Mishra, based upon Shulman’s pedagogical content knowledge (PCK) work. Reprinted with permission, <http://www.tpck.org/>.

Content knowledge (CK) is known as a teachers’ competence in the subject matter that is taught. This is critical because the lack of content knowledge of teachers can impact student misconceptions within the content area (Koehler & Mishra, 2009). U.S. D.O.E.’s National Educational Technology Plan even mentions the need and lack of educators with content knowledge in rural areas encouraging online learning alternatives to address this need (U.S. D.O.E., 2010). Pedagogical knowledge (PK) is known as the teachers’ knowledge through education and research of various methods for teaching and learning. Technological knowledge (TK) is known as the understanding of technology at a broader level, enough to apply it directly into work, assist with addressing challenges, as well as the ability to continuously adapt to emerging technologies (Koehler & Mishra, 2009).

Pedagogical content knowledge (PCK), the overlapping sector between CK and PK, according to Shulman (1986), refers to the understanding of both content and pedagogical knowledge to transform the teachers' approach to teaching. This includes the ability of the teacher to transform "from being able to comprehend subject matter for themselves, to becoming able to elucidate subject matter in new ways, reorganize and partition it, clothe it in activities and emotions, in metaphors and exercise, and in examples and demonstrations, so that it can be grasped by students" (Shulman, 1987, p.13). Technological content knowledge (TCK), the overlapping sector between CK and TK, indicates the relationship between content knowledge and technological knowledge and the needs for teacher to not only be competent in the subject they teach, but also know which technologies would best display the content in multiple representations. Technological pedagogical knowledge (TPK), the overlapping sector between TK and PK, occurs when teachers are able to explore and comprehend how various technologies can be integrated to enhance teaching and student learning (Koehler & Mishra, 2009).

The resulting convergence of PCK, TCK & TPK, known as Technological Pedagogical Content Knowledge (TPACK), honors the need for all separate components to form a solid foundation for teachers in addition to the collective impact all three components have when interrelated to each other (Koehler & Mishra, 2009). It is important to understand all of these components and their interrelationship between each other. Mishra & Koehler (2006, p. 1019) believed that understanding the TPACK framework could "transform the conceptualization and the practice of teacher education, teacher training, and teachers' professional development." Furthermore, as indicated in the U.S. D.O.E.'s National Educational Technology Plan, it is important to increase student achievement through the integration of emerging technologies into curriculum and instruction (U.S. D.O.E., 2010).

Since 2006, there has been a plethora of worldwide published research related to the TPACK framework (Koehler, 2013). The majority of these research studies related to professional development for technology integration into the traditional classroom curriculum for pre-service teachers in higher education in addition to a wide range of topics using TPACK in art, mathematics, social studies and P.E. in education (Mendeley, 2013).

A segment of the research related specifically to TPACK and distance learning (Archambault, 2008; Archambault & Crippen, 2009; Archambault & Oh-Young, 2009; Klieger & Oster-Levinz, 2010; Ward & Benson, 2010). A summary of findings include:

- Using the TPACK framework to explore issues specific to online learning will allow researchers to focus on important aspects for quality online teaching (e.g. quality online teaching best practices also focus on the relationships between content knowledge, technological knowledge and pedagogical knowledge).
- Research in 2009 applying the TPACK framework indicated that in-service online teachers felt most comfortable in the domains of pedagogy, content, and pedagogical content. They were least comfortable in technology as it related to their technical skills.
- The need for pre-service teacher preparation programs to integrate technology into content course as well as provide field experiences for students to experience successful integration of technology for student learning.
- Recommendation to integrate the understanding of the TPACK framework to prepare teachers when transitioning from a face-to-face to online teaching and learning.
- Experience and support in the development of online tasks (learning activity that can be completed online) can help teachers improve in pedagogical knowledge (PK), pedagogical content knowledge (PCK) and technological knowledge (TK).

I selected the TPACK as the theory base for my study due to several reasons. The main reason was because the TPACK framework provided a solid foundation and theoretical grounding in the educational technology field. By adding onto Shulman's (1986) PCK with an additional technology component, I felt that Mishra & Koehler (2006), in developing the TPACK framework, addressed the complexities and best practices of what teachers needed to take into consideration for successful technology integration when attempting to improve student learning. In addition, as mentioned in the research related specifically to TPACK and distance learning, it is helpful for teachers to understand the TPACK framework when transitioning from traditional face-to-face to online teaching. Lastly, many other researchers in the educational technology field have and will continue to explore and apply the TPACK framework into their research.

Although TPACK literature was introduced in 2006, after the Kamehameha Schools Online Instructor Training Institute (OITI) was developed and implemented, I believed the theory base fit well for my case study of researching teachers who were training to become online teachers. I modified and adapted the quantitative TPACK survey by removing pre-service teacher related questions when I attempted to answer my first research question, "How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum?"

Thomas Guskey's Model for Evaluating Professional Development Theory Base

In addition to the TPACK framework, Thomas Guskey's model for evaluating professional development (Guskey, 2000) served as a theory base for this case study when addressing qualitative research questions. Through Guskey's research of teacher change through professional development (Guskey, 1989; Guskey, 2002a), he proposed that teachers would

change their attitudes and perceptions only after they have witnessed and experienced changes in student learning outcomes. Even for the most veteran teachers, they grow and develop through their own experiences of instructional practices that have been successful (Guskey, 1989). With the main focus of ensuring the end goal of teachers engaging in professional development resulted in improved student outcomes, Guskey identified a model for evaluating professional development through five stages (Guskey, 2000; Guskey, 2002b).

Level 1: Participants' reactions to their professional development experience

Level 2: Participants' learning from their professional development experience

Level 3: Organization support and change needed for teacher success after their professional development experience

Level 4: Participants' use of new knowledge and skills in their job

Level 5: Student learning outcomes were impacted through teacher professional development

I selected this model as a theory base for developing my qualitative research instruments because the guiding questions along with suggestions on how to gather and assess evidence provided by Guskey ties directly in my attempt to discover the impact of the OITI on teachers who completed this professional development experience successfully. Based upon the research questions for this study, the main focus was on Guskey's level 4 or teachers' use of the new knowledge and skills gained from the OITI in their current job (Appendix G). Although the other levels mentioned above were not as relevant to this research study, the overall intent of the next steps after the OITI was for teachers to ultimately become distance learning instructors and impact their own instructional practices to improve student learning outcomes.

Chapter Summary

This second chapter focused on the literature review related to this professional development study on K-12 teachers interested in teaching online. The literature review covered topics such as the history of distance learning to current trends of online learning, online teacher professional development, and the lack of case study references further enhanced the rationale for the need for conducting these types of case studies to build on current knowledge on training online teachers. Theory based frameworks such as TPACK and Thomas Guskey's model for evaluating professional development were also covered. The next chapter provides in-depth details related to the methodology for this study.

Chapter III

Methodology

To address the research questions posed in this study, a mixed-methods case study approach was implemented. According to researchers, a mixed-methods approach integrates the strength of both quantitative and qualitative data to provide an “in-depth look at context, processes, and interactions and precise measurement of attitudes and outcomes” (Lodico, Spaulding, & Voegtle, 2006, p. 282). One main benefit of conducting a mixed-methods study is methods triangulation, using more than one method to increase the credibility of the research findings (Hesse-Bibler, 2010). Another reason is complementarity, the ability to analyze both quantitative and qualitative data to understand human social behavior, allowing for a more holistic understanding of the participants in the case study (Hesse-Bibler, 2010). Furthermore, research has verified that combining qualitative open-ended interview questions with items from standardized quantitative research instruments increases the rigor of research studies, allowing for the “best of both worldviews” (Frels & Onwuegbuzie, 2013, p. 192). This study involved both qualitative and quantitative methods, but considering the research questions and intent to focus on the teachers’ behaviors and perceptions after the OITI, qualitative methods took a precedence over quantitative. According to Fraenkel & Wallen (2006, p. 430), qualitative research is defined as “research studies that investigate the quality of relationships, activities, situations or materials.” Furthermore, Creswell (2007, p. 37) indicated that qualitative research “begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning of individuals or groups ascribe to a social or human problem.” Characteristics of qualitative research such as a focus on the participants’

perspectives and their subjective views in addition to the research playing a role in data collection (Creswell, 2007) was also taken into consideration.

Teachers who have participated in the OITI professional development experience had unique educational backgrounds and experiences (e.g. new to veteran teaching experiences, prior work experiences included the D.O.E. and other private schools, attained bachelors to masters degrees, some teachers are national board certified, etc.), specific subject matter expertise (e.g. math, science, and literacy), and diverse teaching styles (e.g. lecture-based, facilitative, project-based, discussion-based, etc.). Their interest for enrolling in the program and motivation for completing the professional development training also varied ranging from a desire to improve technology skills for their traditional classroom to becoming an online instructor. In order to achieve a complex and detailed understanding of participant experiences and perceptions of themselves years later, it was determined the best choice for this research was a mixed-methods study with a focus on qualitative interviews with the integration of educational technology framework and standards-based research instruments.

The Case Study

According to Yin (2003), case studies are the study of choice when the researcher has little control over events focused on a modern event. Case studies require a systemized method of gathering data, in which the analysis will result in a product (Patton, 2002). It is also used when researching “how” or “why” questions in a natural setting (Yin, 2003, p. 7). Although qualitative case research began in the late 1800s by anthropologists writing ethnographies, it evolved to become a form of educational research by the early 1980s (Hatch, 2002). Many teachers, graduate students, and researchers in education have observed or experienced case studies (Merriam, 1998). The different types of case studies include intrinsic (focus on the case

itself), instrumental (focus on an issue or concern), collective (multiple case study), ethnographic (focus on culture of individuals or groups), historical (focus on history), psychological (focus on the individual), sociological (focus on society), exploratory (pilot to other studies), descriptive (providing narrative accounts), and explanatory (testing theories) (Merriam, 1998; Yin, 2003, Creswell, 2007; Fraenkal & Wallen, 2006). There are also various case study designs ranging from single to multiple and holistic to embedded designs (Yin, 2003). Single case designs would be used when there is a single topic, important or a typical case to test a theory, when a researcher has unique access to observe and analyze, or long term studies (Yin, 2008). Multiple case designs may contain more than one case or topic of study and are sometimes considered more favorable when looking at the overall study compiled of multiple cases (Yin, 2003). One aspect to keep in mind for multiple case studies is the need to ensure each study is replicated. Holistic cases analyzes the data of the entire case while embedded cases analyze a specific aspect of the case or cases (Yin, 2003).

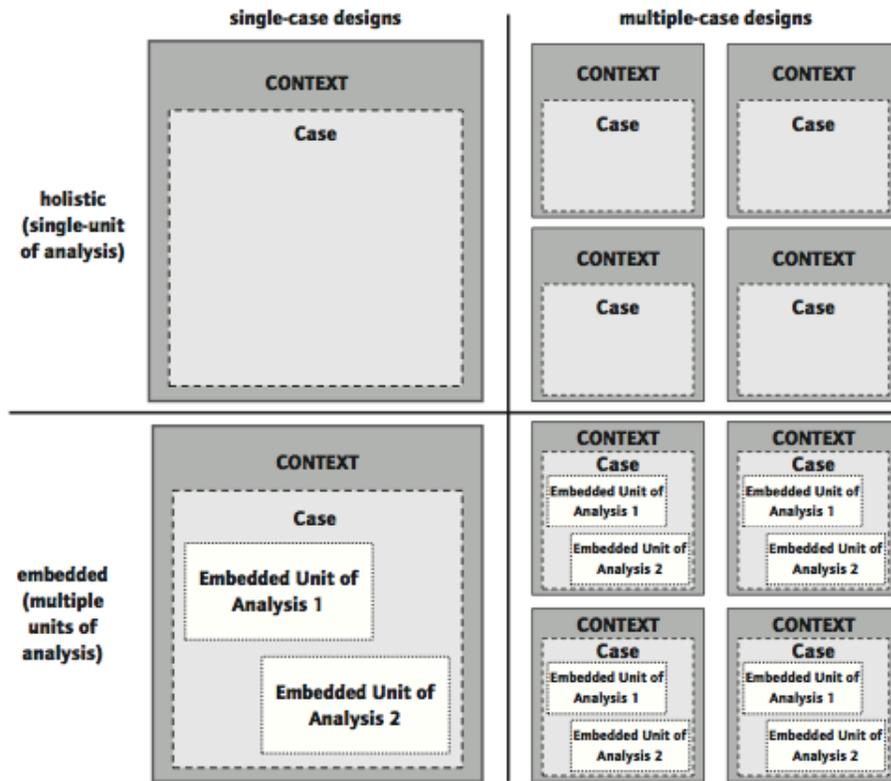


Figure 2.4 Basic Types of Designs for Case Studies
SOURCE: COSMOS Corporation.

Figure 9. Basic Types of Designs for Case Studies. By Yin, R. K. (2003). *Case Study Research: Design and Methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Engaging in case study research is a challenging journey and requires a solid research plan (Yin, 2003). However, there are many benefits and strengths associated with case study research. They include (Merriam, 1998; Yin, 2003; Reis, 2009; Colorado State University, 2013):

1. An effective method of researching “how” and “why” research questions.
2. Providing a practical research method for fields such as education, social work, administration, health, etc. to highlight findings that can potentially improve different fields of study. Proven to be effective in studying educational innovations, evaluating programs, and informing policy.
3. Providing a way to research complex groups or individuals in their natural environment.

4. Allowing a flexible research method that emphasizes the process instead of the hypothesized result.
5. Providing a narrative description for readers (e.g. education sample for teachers) encouraging them to apply appropriate findings into their own context.
6. Resulting in rich, detailed and holistic view of a phenomenon (occurrence).
7. Resulting in detailed information in comparison to statistical research.
8. If done correctly, case studies can be a rigorous method of research.

Challenges, or weaknesses, of case study research are (Merriam, 1998; Yin, 2003; Creswell, 2007; Colorado State University, 2013):

1. Case study research requires a large effort and researchers may not have the time or money to do so.
2. An unethical researcher can select specific self-serving data to highlight that may misrepresent findings.
3. If reliability, validity, and generalizability are not taken into consideration, the study would not be rigorous, resulting in representing biased information.
4. The researcher is heavily involved in the case study and would need to be clear in identifying the case, boundaries, data collection, data analysis, etc. to ensure a meaningful research study.
5. Case study research has been stereotyped as a weak research method due to the perspective of subjectivity and lack of rigor in comparison to statistical studies.

To ensure the weaknesses of case study research were addressed, I paid particular attention to processes and procedures: from identifying the case and determining boundaries, to ensuring

reliability, validity, generalizability, ethic, and analyzing data using appropriate strategies to result in solid and unbiased findings.

There were numerous reasons why I decided to conduct a descriptive, single case study research. First and foremost, I was interested in studying teachers who had participated in the OITI, in particular their current perspectives regarding their professional development experience seven to ten years ago, in a natural setting. Due to participants having unique background, specific subject matter expertise, and diverse teaching styles, I was interested in studying a complex situation to achieve detailed and in-depth understanding of their experiences years later. In my attempt to answer the “how and why” questions posed in this study and its tie in to the TPACK and Guskey’s evaluating professional development theoretical frameworks, a case study approach provided me with the opportunity to obtain insight on the long term impact of the OITI and how it has potentially impacted their integration of technology into their curriculum, distance learning strategies and perceptions of how they perceived themselves impacting their students a result of the OITI professional development program. Another reason why I chose case study research was because I was interested in capturing multiple sources of data such as quantitative online surveys and assessments along with qualitative interviews to gain a holistic understanding of the OITI experience from a participant perspective.

The Role of the Researcher

As the researcher for this study, I employed quantitative and qualitative methods to collect data and ensure perspectives of all participants in the study were included. According to Merriam (1998), the researcher could assume roles ranging from participant to spectator. In this study, I encompassed the role of a “researcher participant” (Merriam, 1998, p. 102), interacting with participants at a personal level while functioning as a researcher. Individuals involved in

this case study research were aware of my role as a researcher, but also understood I had experienced the OITI from an instructor perspective. This role provided me, as a researcher, with the flexibility of having established trust with teacher participants, while maintaining an objective perspective when collecting and analyzing data.

To ensure I kept updated with the most current educational technology and distance learning trends, I reviewed relevant educational articles, attended webinars and stayed connected in various educational professional learning communities such as Technological Pedagogical Content Knowledge (TPACK), E-Learning Guild, International Association for K-12 Online Learning (iNACOL) and International Society for Technology in Education (ISTE).

In alignment with Yin's (2003, p.59) recommended skills of a case study researcher, I kept in mind the following when conducting this research: 1) ask good questions and interpret answers, 2) be a good listener, 3) be adaptive and flexible, 4) have a firm grasp of issues being studied, and 5) be unbiased by preconceived notions. Throughout the study, I also adhered by all UH Institutional Review Board (IRB) regulations and guidelines (UH, 2013).

Background and Beliefs of the Researcher

As a former instructional designer and manager of the KS distance learning programs, I was fully aware of my potential biases to this study. When I began working at KS in 2003 as one of two instructional designers, I was tasked to work on all aspects of the OITI professional development program, including curriculum development, recruitment, implementation and initial evaluations. During the implementation phase, I was also assigned as the instructor for all courses offered throughout the program. As a result, I was very involved with this program between the years of 2003 to 2006. The OITI program currently does not exist. Over the years,

the KSDL department revised the program with an additional focus of dissemination of culture-based curriculum and 21st century skills with revised courses, now titled A' o Kumu.

In my role now as the Distance Learning Director, the current state of KS distance learning programs that serviced the community through the division I work in contained revised programs that did not relate as closely to the OITI. Due to organizational reorganizations over the years, I have only been involved with the current distance learning programs at the strategic level versus day to day operational program management. Although being close to the OITI program in 2003 to 2006 may come with biases, I felt involvement in the OITI program as an instructor brought an increased understanding of the issues surrounding this study and should be viewed as an enhancement to the study. I firmly believed each participant was unique, containing their own perspectives and beliefs as a result of the OITI program. I was cognizant of my potential biases and incorporated strategies to ensure trustworthiness of this study. Strategies that were utilized to address potential biases included the following:

- Voluntary participation by participants and provided them with the ability to withdraw from the study at any time.
- Signed agreement to participate consent form by participants before proceeding with the study
- Confidentiality procedures allowed participants to decide the type of personal information they were willing to share with myself as the researcher.
- Privacy was taken seriously throughout the study:
 - Data collected was kept in a secure location
 - Data collection processes were transparent to participants.

- A password was required to access the separate spreadsheet containing participant identifiers.
- Data identifiers, audio archived recordings, and any other collected data will be destroyed upon completion of the study.

The Role of the Participants

Identification of potential participants in this study was critical. Patton (2002) noted the importance of purposeful sampling for qualitative research to gain an in-depth understanding for information-rich cases. Patton also provided various strategies for purposeful sampling with different logics. For this case study, I opted to focus on criterion sampling as suggested by Patton. In criterion sampling (Patton, 2002), a pre-determined criteria was set prior to selection of all cases that meet the criteria is studied. This type of sampling ensured quality assurance. Although there were many teachers from three cohorts who had successfully completed the OITI professional development program, this case study focused on describing detailed experience of individuals who not only completed the OITI professional development experience, but also utilized the skills they have learned for their online development or facilitation experience. The OITI teacher participants had a range of experiences, ranging from those who had previously taught online courses and had transitioned into other faculty position to teachers who have completed the program and self-selected to apply integration of technology into classroom strategies without pursuing online development or facilitation opportunities.

The criteria that was used to select the five potential participants was based upon the following: 1) successful completion of the OITI professional development program, 2) currently involved with development or facilitation of online curriculum, and 3) willingness to participate in the study to completion. The study began with five teachers who met the criteria listed above.

However, one teacher removed herself from the study due to her busy schedule, resulting in a total of four teachers who participated in this case study. Due to limited online development and facilitation opportunities within the state of Hawai‘i, all of the participants taught part-time with the KS A‘o Makua and A‘o Kumu distance learning programs. Detailed information regarding these distance learning programs is provided in Appendix H.

Teacher 1. Lani is currently a middle school math teacher at Kamehameha Schools. Her highest education degree is a Master’s degree in Education with a focus in curriculum, instruction and assessment. She has accumulated 17 years of teaching experience teaching a range of student grade levels from elementary to high school, and a wide variety of courses including middle school earth science, pre-Algebra, and Algebra I study skills. Lani obtained her national board certification in 2012 while teaching middle school math courses. She enrolled in the OITI during the second cohort in 2005-2006. Her main reason for enrolling in the OITI was because she enjoyed learning emerging technologies and how to integrate them into the learning process to enhance her teaching and students’ learning. Prior to enrolling in the OITI, a textbook was her primary source that drove her instruction and content with some integration of technology through referencing different Web sites resources and the creation of a class Web site. She continues to teach middle school students full time while working as a part time distance learning instructor for KSDL’s A‘o Makua online enrichment program since 2007.

Teacher 2. Kaila is currently a part-time distance learning instructor for KSDL’s A‘o Kumu online professional development and A‘o Makua online enrichment programs. She has taught for A‘o Makua since 2007 and A‘o Kumu since 2009. Her highest education degree is a Master’s degree in Education with a focus on secondary science and cross-cultural language and academic development. She has taught for the last 12 years, 9 of which have been at

Kamehameha Schools as a high school science teacher and 4 as a part-time distance learning instructor after successfully completing the second OITI cohort offered in 2005-2006. Kaila's main reason for enrolling in the OITI was to learn about how to enrich her teaching with the use of technology. Prior to enrolling in the OITI, she believed that teachers should serve as a guide for their students, helping to foster a life-long love of learning and promoting the skills students need in order to pursue whatever dreams they might have present and in their future.

Teacher 3. Jasmine is currently a high school math teacher and department chair at Kamehameha Schools. Her highest degree is a Master's in Education with a specialization in math and educational technology. She has 22 years of experience teaching high school math students and was enrolled in the third OITI cohort offered in 2006-2007. Teacher 3's main reason for enrolling in the OITI was to learn about possible integration of online instruction in math courses with hopes of becoming better at certain applications and learning new ones during development of math curriculum. Prior to enrolling in the OITI, her teaching philosophy was and still remains that learning can be enhanced by a developed relationship between the student and teacher. She feels that the strength of that relationship is an important facet in successful classroom environments. In addition to teaching full time, Jasmine worked part time as a distance learning instructor for KSDL's A'o Makua online enrichment program for 5 years prior to taking a recent leave of absence.

Teacher 4. Tara is currently an Academic Support Specialist/Lead Teacher at Kamehameha Schools working with high school students to achieve academic success. Prior to her current position, she was a high school English teacher for four years. Her highest education degree is a Master's degree in Education with a specialization in literacy. She has 11 years of teaching experience working with students ranging from elementary to high school. She enrolled

in the OITI during the first cohort in 2004-2005. Tara’s main reason for enrolling in the OITI was because of her interest in the inclusion of technology in the curriculum and the overall goal to prepare teachers not only to integrate technology into a face-to-face classroom, but also to develop online curriculum for a diverse student audience. Prior to enrolling in the OITI, she believed that all students have the capacity to learn. However, some students who have been exposed to a language rich environment as well as a wide range of technologies such as computers and laptops seemed to adapt easier in a high school setting. Working with students who were identified as struggling at the time, she believed that if she improved her own skill sets with regards to technology, she would be able to design and deploy learning experience that would reach more of these learners. In addition to her full time academic support specialist role, she is also a part time distance learning instructor for KSDL’s A‘o Makua online enrichment program since 2007.

Table 3.

Teacher Participant Demographics

Participant	Gen-der	Age	Highest Education Degree	Student Grade Level	Subject Speciali-zation	Teaching Experience (Years)	National Board Certifica-tion
Lani	F	40-49	Master’s	Middle	Math	17	Yes
Kaila	F	30-39	Master’s	High	Science	12	No
Jasmine	F	40-49	Master’s	High	Math	22	No
Tara	F	30-39	Master’s	High	Literacy	11	No

Site

The case study research was conducted at various locations. Initial quantitative online self-assessments were emailed to participants sequentially to complete at their convenience

within three to four week time frame for each individual self-assessment. For informal qualitative interviews, the face-to-face location was suggested by the participant. Teachers usually had very busy schedules. Therefore, the intention of this strategy ensured the participant was being interviewed in a convenient, comfortable and familiar setting. Teachers located on O‘ahu chose to interview at their work location, at Kamehameha Schools Kapālama. For teachers who were located on neighbor islands other than O‘ahu, to minimize travel costs, interviews were conducted online synchronously, using Google Hangout, a free video conference tool.

Ensuring Quality and Credibility

Merriam (1998) proposed three components that should be addressed in a research study to ensure quality and credibility. They are internal and external validity, ethics, and reliability. To address the first component of enhancing internal validity for this study, I incorporated the use of multiple sources of evidences known as triangulation (Mills, Durepos & Wiebe, 2009), such as a combination of online self-assessments and interviews to confirm the findings. In addition, member checks to confirm the accuracy of data by participants was completed (Cohen, 2006). Finally, colleagues and professionals in the educational technology and distance learning field were consulted for feedback to improve validity. To enhance external validity, rich, thick descriptions (Merriam, 1998) was obtained through in-depth interviews of participants.

The second component, ethics, was addressed through compliance of University of Hawai‘i research guidelines. I obtained human subjects approval by the University of Hawai‘i's Committee on Human Studies (2012) before I proceeded with any type of data collection (Appendix I). Permission was also obtained by the participants prior to conducting this research

study (Appendix J). Finally, identity of participants remained confidential and protected. Pseudo names were used throughout this study.

The third component, reliability, refers to the extent to which the research study can be replicated (Merriam, 1998, p.205). The boundaries and criteria selection incorporated within this study, along with instructions, checklists, and set survey and interview questions will allow another researcher to replicate this study. To ensure quality and credibility, I conducted data collection and analysis in a transparent manner and validated my findings and results with participants.

Research Instruments

Several qualitative and quantitative research instruments were administered in this study to address the proposed research questions. The instruments included an online demographics survey (Appendix K), an online self-assessment TPACK survey (Appendix L), an online ISTE teacher standards self-assessment (Appendix N), an iNACOL standards for quality online teaching self-assessment (Appendix O), and a set of open-ended interview questions (Appendix M).

Data Collection

To answer the research questions proposed in this study, various qualitative and quantitative data collection methods were incorporated, such as online surveys and self-assessments, individual face-to-face or online interviews, and member checks were incorporated into this study. According to Merriam (1998), “understanding the case in its totality, as well as the intensive, holistic description and analysis characteristic of a case study, mandates both breadth and depth of data collection” (p. 134). The information collected from a variety of

methods allowed me to triangulate the data and bind the case study together in a detailed and meaningful way.

Table 4.

Data Collection Time Table

Activity	Date
1. UH Human Subjects Research Form completion (Appendix I)	April 2013
2. UH Human Subjects Research Form approved (Appendix I)	May-June 2013
3. Obtain Kamehameha Schools (KS) approval to conduct research with KS employees	Oct. – Dec. 2013
4. Distribute and collect: a. Participant consent form (Appendix J)	Oct. 2013
5. Consult with educational technology and distance learning professionals to enhance internal validity of research instruments	Oct. 2013
6. Send participants initial surveys: a. Demographics survey (Appendix K) b. Customized TPACK survey (Appendix L) c. ISTE teacher technology standards self-assessment (Appendix N) d. iNACOL online teaching standards self-assessment (Appendix O)	Dec. 2013 – March 2014
7. Complete face-to-face or online synchronous interviews with participants (Appendix M)	March 2014
8. Participant member checks to confirm the accuracy of data prior to analysis	April 2014

Prior to data collection, all required forms for the research study were completed to ensure an ethically sound case study. Forms that were completed included 1) UH Human Research Subjects approved form and 2) Participant Consent form. The approved Human Subject Research form provided me, the researcher, with the ability to complete individual case studies and the Participant Consent form provided acknowledgement by the participant to

volunteer their time to participate in the case study. In addition, three educational technology professionals served as reviewers to validate alignment of research instruments with proposed research questions prior to dissemination. All three reviewers attained either masters or doctorate degrees in educational technology. In addition, all three reviewers' current job responsibilities required application of online learning expertise. Two reviewers were practitioners in higher education while one reviewer worked in a K-12 educational setting. Of the three reviewers, two were satisfied with the research instruments with no additional feedback. The last reviewer, although satisfied with the research instruments, provided feedback of comparing national study results to this case study's result to further strengthen the research findings. This feedback was integrated into the discussion of the results section.

The first type of data collection for this study was conducting quantitative online surveys with participants. The benefits of conducting online surveys included ensuring flexibility and convenience for participants, ease of data entry and analysis, controlled sampling, required completion of answer, and low administration cost to name a few (Evans & Mathur, 2005). Some potential drawbacks relevant to this study included perception as junk mail, unclear answering instructions, technological variations, and privacy issues (Evans & Mathur, 2005). To ensure potential weaknesses of conducting online surveys did not impact my data collection, I customized participant emails providing them with detailed instructions related to the online survey link as well as provide them with detailed timelines regarding the sequence of research instruments they would be presented with. To address confidentiality of online responses, Qualtrics, a technology solution geared towards implementation of online surveys and conducting initial data analysis was utilized. A total of four online surveys were administered sequentially. The first online survey administered was the demographics survey, asking

participants to provide information related to their individual background and experiences. The second online survey, administered one month later, was the TPACK self-assessment. This assessment was utilized to gain insight on how teachers viewed themselves integrating technology into their curriculum in relation to pedagogy, technology and content knowledge. Another one to two months later, the third and fourth ISTE standards for teachers and iNACOL standards for quality online teaching self-assessments were implemented to comprehend how teachers viewed themselves addressing various technology integration and online learning standards. According to researchers Ross & Bruce (2007), self-assessment, in particular for teachers, can be an impactful technique for professional growth and continual improvement. As participant teachers self-reflected and provided their perceptions of alignment to teaching standards, they provided data for the study while they continued their growth in blended and online learning.

The second type of qualitative data collection method was conducting qualitative in-depth informal face-to-face or online synchronous individual interviews with case study participants. Patton (2002) mentioned that “we cannot observe feelings, thoughts, and intentions” and continued to say that “we interview to find out what is in and on someone else’s mind, to gather their stories” (p. 341). Due to teacher participants’ extremely busy schedules, geographical separation across the Hawaiian Islands, and their familiarity with communicating online, synchronous interviews was an acceptable means of data collection for this study. Noted by Salmons (2011), online interview research is an emerging method. To assist researchers with online interviewing, Salmons (2011) developed The E-Interview Research Framework (Appendix P) that provided eight related categories of research questions to brainstorm prior to collecting data via online interviews. I referenced this framework when conducting online

synchronous interviews. The interviews focused on capturing the participants' perspectives on their thoughts about integrating technology, distance learning strategies, their perceived impact to their students as a result of the OITI training, and their perceived impact of their OITI experience. The same questions were asked of all participants in the same sequential order. When conducting interviews, I kept in mind the need to capture rich, detailed, and "thick" description (Merriam, 1998, p. 29) allowing others to easily understand the situation being studied. In addition, the open-ended interview questions also included follow-up explanation questions relevant to the TPACK, ISTE and iNACOL quantitative online self-assessments. This provided an additional layer of data that could be analyzed to gain additional details related to teacher perspectives. The interview questions were drafted ahead of time and reviewed by distance learning professionals to ensure interview questions were in direct alignment with the proposed research questions. During the interview sessions, Voice Record Pro, an iPad app that functioned as a professional voice recorder, was used to capture audio recordings. An iPhone utilizing the Voice Record app, served as a back-up audio recorder.

Lastly, member checks were conducted to ensure data collected were accurate and credible (Creswell, 2007). According to Lincoln & Guba (1985), this technique is "the most critical technique for establishing credibility" (p. 314). In this case study, all participants were informally asked via email to examine interview transcripts as well as review initial analysis of themes. This provided participants with the opportunity to correct errors or volunteer additional information in addition to assessing preliminary results for the study (Cohen, 2006). The combination of surveying and interviewing, followed by member checks allowed me to understand the "big picture" as well as compare and analyze details for each participant being

studied. Detailed plans including instructions, checklists (Appendix Q) and survey instruments (Appendix K, L, M, N & O) were documented to ensure this case study could be replicated.

Data Analysis

To begin the data analysis phase, I first downloaded the qualitative interview audio files from the Voice Record app and uploaded it to an online professional audio transcription service for processing of transcripts. Upon receipt of the transcription files, I verified accuracy of the files. Then I imported the data into MaxQDA, a qualitative data analysis software, to digitally code and categorize data. Following the guidance of Creswell's strategies to data analysis for qualitative research (2007), I prepared and organized the data for analysis, followed by coding to assist with condensing the data into themes. I developed a system of coding and categorizing, keeping a short list with no more than 25 to 30 codes (Creswell, 2007) to ensure I was able to condense data effectively. Pseudo names for participants will be used when coding to ensure confidentiality. To ensure the codes were reliable, I asked two of the three educational technology professionals who had reviewed my research instruments (one from higher education, one from K-12) to assist me with coding a segment of the transcripts to verify my initial set of codes. I first showed them my coding themes for one to two participants and asked them to code a separate participant independently. Results of their coding indicated their codes were similar to my codes. Once the initial set of codes were verified, I proceeded to complete the coding for the remaining set of transcripts.

To analyze the coded qualitative data, I utilized various features integrated in the MaxQDA qualitative data analysis software. Main themes and patterns for each participant, in alignment to research questions, were extracted and analyzed. After analyzing the qualitative data, I proceeded to analyze the quantitative data by extracting data specific to each participant

onto an Excel spreadsheet. Due to the small number of participants, quantitative data analysis software was not required.

To strengthen the case study, multiple triangulations were applied. Of the various triangulation methods shared by Mills, Durepos & Wiebe (2009), data triangulation (multiple data sources from different individuals) and methodological triangulation (multiple methods used to gather data) were applied. Combining multiple data sources, methods and techniques provided me with the opportunity to achieve a greater insight during data analysis.

Table 5.

Research Questions Aligned with Theories, Concepts, and Instruments

Research Questions	Theories & Concepts	Instruments	Data Collection	Data Analysis
1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum?	Mishra, P. & Koehler, M. (2006), TPACK International Society for Technology in Education (ISTE) Standards	TPACK revised online survey ISTE teacher technology standards self-assessment Qualitative interview questions	Quantitative Quantitative & qualitative Qualitative face-to-face or online interview	Qualtrics Qualtrics MaxQDA
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies?	International Association for K-12 Online Learning (iNACOL) standards	iNACOL online teaching standards self-assessment Qualitative interview questions	Quantitative & qualitative Qualitative face-to-face or online interview	Qualtrics MaxQDA

Table 5. (Continued) Research Questions Aligned with Theories, Concepts, and Instruments

Research Questions	Theories & Concepts	Instruments	Data Collection	Data Analysis
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?	Thomas Guskey's Model for Evaluating Professional Development (2000)	Qualitative interview questions	Qualitative Face-to-face or online interview	MaxQDA
		ISTE teacher technology standards self-assessment	Qualitative responses (if applicable)	MaxQDA
		iNACOL online teaching standards self-assessment	Qualitative responses (if applicable)	
4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?	Thomas Guskey's Model for Evaluating Professional Development (2000)	Qualitative interview questions	Qualitative face-to-face or online interview	MaxQDA

Finally, the written case study report contained qualitative and quantitative analysis of each individual, followed by a separate chapter covering the cross-case analysis. During data analysis of each individual, data relevant to each research question were sequentially analyzed. Qualitative interview data was analyzed first, followed by quantitative data analysis of the TPACK, ISTE teacher standards, and iNACOL quality for online teaching self-assessments accordingly. The cross-case analysis was completed after each individual participant data was analyzed, identifying common and diversified themes according to the proposed research questions.

Table 6.

Data Analysis Time Table

Activity	Date
1. Transcribe interviews through transcription service	March 2014
2. Verify transcriptions	April 2014
3. Import data into MaxQDA and begin coding	April 2014
4. Verify coding sample with 2 educational technology professionals	May 2014
5. Finish coding and begin identifying qualitative themes	May 2014
6. Quantitative data analysis prep and begin data analysis	May 2014
7. Mixed methods data analysis of individual participants	June 2014
8. Cross-case analysis	July 2014
9. Conduct member check of individual data analysis with participants	August 2014

Chapter Summary

This third chapter covered the mixed methods approach of this case study, with an emphasis on qualitative research. This chapter also focused on explaining the role of the researcher, backgrounds and beliefs of the researcher, the role of the participants, the site of the research, ensuring quality and credibility, as well as details of the data collection and data analysis. The next chapter covers the case study reports of each individual participant.

Chapter IV

Case Study Report

In this chapter, I present individual perspectives of the four teachers who participated in this research study. Data for each case study participant was analyzed specifically according to the proposed research questions. The research questions are restated here.

1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum in a blended environment?
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies in an online environment?
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?
4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?

To address the first research question, triangulation of data was applied to the TPACK quantitative self-assessment, ISTE teacher technology standards quantitative and qualitative self-assessment, and face-to-face or online synchronous qualitative interview. The TPACK quantitative data highlighted components that teachers self-perceived as strengths and weaknesses as it related to pedagogy, content, and technology, including the overlapping sectors. The ISTE teacher technology standards quantitative data provided a snapshot of how teachers perceived themselves addressing standards focused on teaching 21st century learners in a digital world, followed by qualitative open-ended responses describing in detail how the standards were addressed. The qualitative interview questions (Appendix M) provided comprehensive details related to how the participants perceived themselves continuing to integrate technology as a

result of their OITI experience. In addition, the qualitative interview questions also provided participants with the opportunity to expand upon their quantitative TPACK and ISTE scores as it related to their perceived strengths and weaknesses.

To address the second research question, triangulation of data was applied to the iNACOL quantitative and qualitative online teaching standards self-assessment, and face-to-face or online synchronous qualitative interview. The iNACOL online teaching standards quantitative data provided a snapshot of how teachers perceived themselves addressing a wide range of standards specifically focused on online teaching. Then qualitative open-ended responses described in detail how the standards were addressed. The qualitative interview questions (Appendix M) provided in-depth explanations of how the participants perceived themselves continuing to implement distance learning instructional strategies as a result of their OITI experience. Furthermore, one of the qualitative interview questions allowed participants to explain their iNACOL quantitative scores associated with their perceived strengths and weaknesses.

To address the third and fourth research questions, data from qualitative interview questions were analyzed (Appendix M). To address the third research question, one interview question was focused on asking participants how they perceived themselves impacting their students as a result of the OITI. To address the fourth research question, five qualitative interview questions focused on self-perception of the impact, changes in attitudes or beliefs, changes in instructional practice, and other professional development engagement as a result of the OITI experience.

Throughout the entire data analysis phase of this study, the TPACK (Mishra & Koehler, 2006) and Thomas Guskey's model for evaluation professional development (Guskey, 2000)

frameworks were referenced to ensure the results were in direct alignment to the proposed research questions. Demographics of the four teacher participants are restated in Table 3.

Table 3.

Teacher Participant Demographics

Participant	Gen-der	Age	Highest Education Degree	Student Grade Level	Subject Speciali-zation	Teaching Experience (Years)	National Board Certifica-tion
Lani	F	40-49	Master’s	Middle	Math	17	Yes
Kaila	F	30-39	Master’s	High	Science	12	No
Jasmine	F	40-49	Master’s	High	Math	22	No
Tara	F	30-39	Master’s	High	Literacy	11	No

Teacher 1: Lani

Lani is a national board certified middle school math teacher with 17 years of teaching experience. She also currently works part-time as an online instructor for KSDL’s A‘o Makua online enrichment program.

Research Question 1.

When analyzing the OITI professional development experience and how it continued to impact Lani in her integration of technology into her curriculum, several themes emerged during the online synchronous interview using Google Hangout (Appendix M). Technology integration for Lani after the OITI became more seamless and advanced, in which she felt comfortable “using technology in more than one way, more than one type of platform” to pull together content for her curriculum units. Prior to the OITI, Lani integrated technology “here and there” with an example of using linking to Internet resources for her instruction. Lani shared that she currently integrates technology consistently with her middle school 21st century students, who

thrive and are excited when she integrates technology weekly. She also indicated that technology access in her classroom environment has improved since her completion of the OITI, shifting from a limited amount of computers in the classroom to a 2:1 ratio last year with plans for 1:1 ratio next year.

When the TPACK self-assessment instrument was administered to Lani to measure teacher comfort levels with technology integration (Appendix L), her mean scores ranged between 4.00 and 5.00 (Figure 10), indicating that Lani was confident in her ability to integrate technology into her instruction in a blended environment. The assigned scores for the iNACOL research instrument were 1 (strongly disagree) to 5 (strongly agree). The data show that Lani felt most confident about her pedagogical knowledge ($M = 5.00$), content knowledge ($M = 5.00$), and technological content knowledge ($M = 5.00$). Her confidences in both pedagogical and content knowledge were in alignment with her 17 years of math teaching experience and achievement of national board certification. Her confidence in technological content knowledge indicated that she knew about appropriate technologies that could be integrated for understanding and doing mathematics. This was supported by her qualitative interview response related to her increased comfort level of technology integration after completing the OITI. During comparison of all the TPACK categories, the data show that Lani felt less confident when surveyed about her pedagogical content knowledge ($M = 4.00$) and technological pedagogical content knowledge (TPACK) with mean scores of ($M = 4.00$).

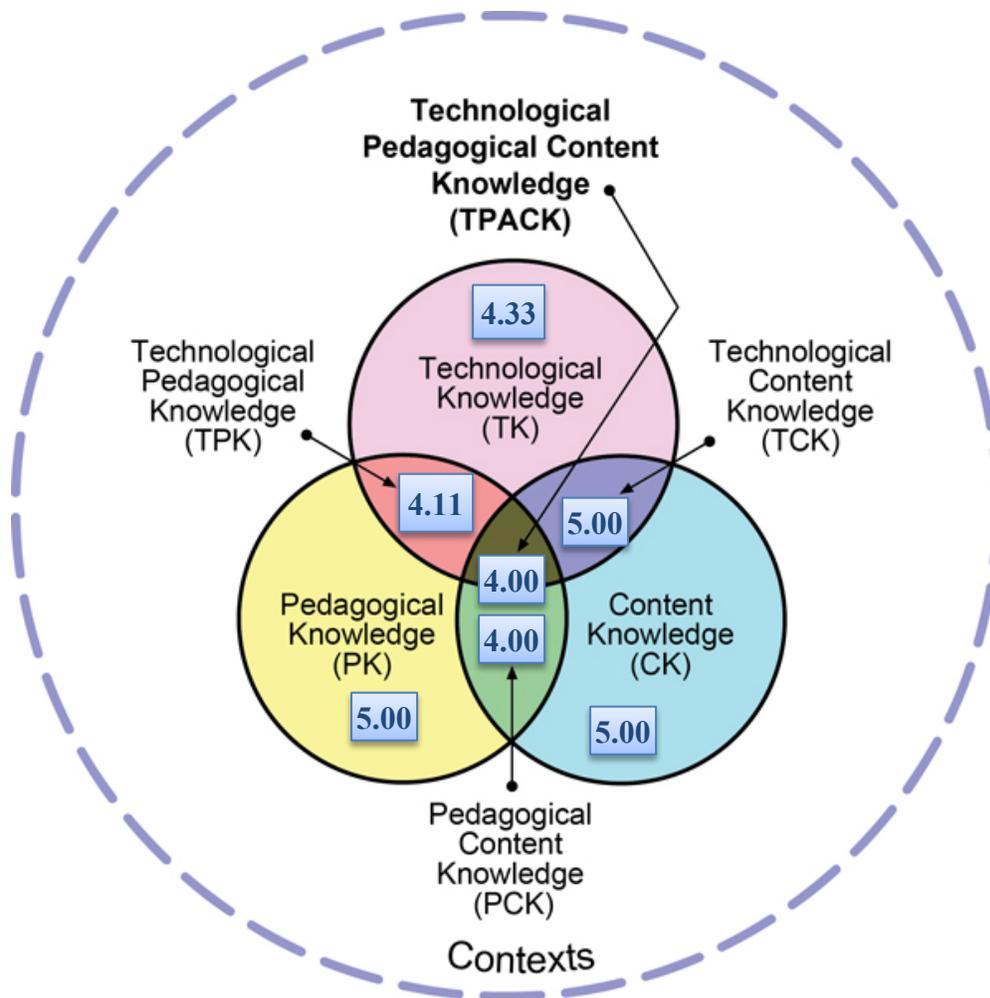


Figure 10. Lani's mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

During a follow-up with Lani via a synchronous online interview, she shared that she felt more confident with pedagogical knowledge (PK) and content knowledge (CK) when addressed separately because technology was not required to be implemented in both of those areas in teaching. She felt comfortable with using Web-based technology applications as it applied to her math content, especially with technologies she was familiar with if she had prior exposure and opportunities to practice. However, she felt less confident with her technological knowledge (TK), mainly because technology changes really quickly and she is not in a technology focused

position. Therefore, her duties did not require her to keep up with the most current educational technology trends. As a result, when all the TPACK categories overlapped, she felt less confident. Through the OITI and her current online facilitation experiences, Lani indicated that she had “gotten a lot better” in her TK, including exploring emerging technologies with math content to see how it worked and adjusting when she encountered technological challenges during instruction. Through the strengthening of her technological knowledge in the OITI, Lani believed that it also impacted her strengths in the other TPACK categories. When Lani was asked about whether or not the curriculum covered in the OITI impacted her TPACK strengths, she stated:

It was nice how OITI was developed because you got all this tech information and skills and content but we had to reach out and dig into our own content area and our own expertise and our own practice. So that was nice because it didn't matter what you taught, you could all benefit the same from it.

When asked if the lack of curriculum covered in the OITI impacted any of her self-assessed TPACK lower scores, Lani thought the OITI curriculum was “good.” She further explained:

The way OITI was, it wasn't supposed to be a content thing. It was more to the technology side so I think that if I didn't do OITI, the pink bubble (TK) would be way lower [laughter] and even the blend between because I probably wouldn't have incorporated more into the pedagogy or to the content.

When the ISTE Standards for Teachers (ISTE Standards•T) online self-assessment rubrics instrument (Appendix N) was administered to Lani, her mean scores ranged 1.75 to 3.00 (Table 7). Scores were assigned as 1 (beginning), 2 (developing), 3 (proficient), and 4 (transformative). Lani's highest score was in ISTE Teacher Standard 3, modeling digital-age work and learning ($M = 3.00$). Standard 3 focused on a teachers' ability to teach innovatively in a globally digital society being comfortable with incorporating emerging technologies into teaching to support student learning and communicating effectively using digital tools with

students, parents, teachers and peers (ISTE, 2008). Lani’s lowest score was in ISTE Teacher Standard 5, engaging in professional growth and leadership ($M = 1.75$). Standard 5 focused on a teachers’ ability to continuously engage in professional development while exhibiting leadership in the use of digital tools and resources in a school or professional community setting (ISTE, 2008).

Table 7.

Lani’s Mean Scores for ISTE Teacher Technology Standards Self-Assessment

ISTE Standard 1	ISTE Standard 2	ISTE Standard 3	ISTE Standard 4	ISTE Standard 5
2.75	2.75	3.00 (highest mean)	2.00	1.75 (lowest mean)

Note. Research instrument (Appendix N) included rubric scores that ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative).

During the follow-up interview, Lani explained that she rated herself lower in professional growth (ISTE Teacher Standard 5) because she had participated in some technology workshops and trainings her school provided, such as Technology Slam days. However, she had not been able to attend the ISTE conference nor had she participated in the 1:1 laptop roll out trainings or school visits. In addition, Lani mentioned that she rated herself lower because she had not been involved in leadership roles with technology related initiatives. Regarding Lani’s strength, modeling digital-age work and learning (ISTE Teacher Standard 3), she explained that she included a variety of media and different forms of innovate technology with her students in comparison to a traditional math classroom with teacher lecture, textbook and worksheets. Lani included examples such as participation in Mathletics, which required students to demonstrate their learning using technology while competing globally, and Global Pi Day, when students completed a hexaflexagon activity collaboratively with other students globally online.

Through the open ended questions added to the ISTE Standards•T online self-assessment rubric (Appendix N), Lani provided examples of addressing each teacher technology standard through qualitative open-ended responses. Written responses relevant to Lani's integration of technology into her curriculum included:

Students recently had to do a Compound shape photo project in my math class where they needed to utilize tech tools such as their phone, camera and computer to take a picture in the world that was made up of different shapes. They then had to find what shapes and measurements or dimensions made up that shape and eventually find the total area of the compound shape. The picture was also to be loaded in PowerPoint or Word, draw tools used and work shown.

I utilize my blog to post various things such as videos, pictures, surveys, extra information, and links for students to use as needed. I also recently did a project on measurement and conversions where they got to choose from the project picker how they would demonstrate their learning. Some forms to choose from were: make a video, write a song, make a comic strip, design a Glogster, and more. Many of these options used various forms of technology or online sites and resources.

I use many tools to effectively communicate with students, parents, peers and others in the community such as: blog, email, Blackboard, Edmodo, texting, Web based programs like KS Connect, We Video, EZ Grade Pro, QR codes, and digitally created items such as newsletters, brochures, handouts, iPad apps, Pic Collage, Smilebox, etc. I also embed videos, surveys, important info, etc. into my blog for their use or to get information.

Triangulation of the TPACK quantitative data, ISTE quantitative and qualitative data, combined with online synchronous interview qualitative data resulted in a comprehensive perspective of how the OITI professional development experience continued to successfully impact Lani and her integration of technology into her instruction.

Research Question 2.

During the online synchronous interview, additional themes emerged during analysis of the OITI professional development experience and how it continued to impact Lani implementing distance learning instructional strategies in an online environment. First and foremost, the OITI provided awareness of distance learning instructional strategies. Prior to the

OITI, Lani had not previously experienced online learning. Secondly, Lani had never used Blackboard Learn or any other learning management system prior to the OITI. During the OITI, Lani learned how to “put in images, post announcements, use discussion board, everything...” Thirdly, Lani indicated that she developed an online course module during the OITI and was able to publish her curriculum online. That was when she first began to learn about online instructional strategies. When asked how consistently she applied her knowledge gained from the OITI for online learning, Lani shared that she currently consistently integrates her OITI skills every time she teaches an online course, which usually occurs two to three times a year.

When the iNACOL national standards for quality online teaching self-assessment rubrics instrument was administered to Lani (Appendix O), her mean scores ranged between 3.00 (satisfactory) to 4.00 (very satisfactory) (Table 8). The data indicated that Lani was confident in her ability to address all standards related to quality online teaching. The assigned scores for the iNACOL research instrument ranged from 0 (absent), 1 (unsatisfactory), 2 (somewhat satisfactory), 3 (satisfactory), to 4 (very satisfactory). Lani was the most confident with iNACOL Standard K ($M = 4.00$), a standard related to instructional design to assist with knowledge transfer in an online environment (iNACOL, 2011b). She was the least confident with iNACOL Standard E ($M = 3.00$). Standard E focused on the online teacher’s ability to model and encourage ethical and safe behavior in an online environment, including academic integrity and appropriate use of digital tools (iNACOL, 2011b).

Table 8.

Lani's Mean Scores for iNACOL Standards for Quality Online Teaching Self-Assessment

iNACOL Standards:										
A	B	C	D	E	F	G	H	I	J	K
3.50	3.80	3.89	3.70	3.00 (lowest mean)	3.43	3.33	3.33	3.69	3.50	4.00 (highest mean)

Note. Research instrument (Appendix O) included rating scores that ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

During Lani's online qualitative interview, her follow-up explanation of her iNACOL self-assessment scores revealed that she rated herself highest ($M = 4.00$) in her ability to understand and utilize appropriate online technologies to enhance learning (iNACOL Standard K) because she felt her students were able to transfer knowledge effectively in an online environment. She stated, "I think the comments we get over time and how much they love the classes and appreciate it...If they're collaborating with people from across the world, different faces...I didn't create the courses, but the content there and the facilitation and the environment of the course made it where they have a really good experience and they felt it was effective and they learn." Lani also explained that she tries to provide a range of technologies for her online students and support them to participate actively in an online environment. This was in alignment to her self-assessed scores for iNACOL Standards B ($M = 3.80$) and C ($M = 3.89$), second and third highest mean scores (Table 8). Regarding Lani's lowest score for iNACOL Standard E ($M = 3.00$), she referenced this weakness was in alignment with her ISTE Teacher Standard 5 response ($M = 2.00$), with explanation that she appreciated learning about digital citizenship (e.g. ethical and appropriate use of technologies) and tried to monitor the best that she

could, coupled with the statement “I do model these behaviors but need to promote, teach, and engage students in them more.”

During administration of the iNACOL standards for quality online teaching instrument (Appendix O), Lani provided qualitative open-ended responses that addressed each standard.

Responses relevant to Lani’s continual implementation of distance learning strategies included the following:

I truly do feel that OITI did prepare me to use a variety of mediums in different contexts, gave me the know-how and courage to try and explore new tools and test their applicability to my content area as well as with my students. It also exposed me to many different online tools so I have a bank to pull from to use depending on the activity, goals, desired outcomes, content area and student needs. I know that my students reap the benefits from my education with OITI and enjoy the tech integrated activities, lessons, assessments and more.

OITI helped me better understand what it meant to be an online instructor and this standard (iNACOL Standard C) is really the meat of developing a student centered online environment. I did learn to account for different types of learners with different backgrounds, styles, abilities and interests. I also learned how to reach them via different communication tools, synchronous and asynchronous. Being able to facilitate discussion, pose questions and encourage participation and collaboration are also things that I learned and continue to develop in my online courses. My most recent effort was posting short video announcements and teacher intro about me to develop a warm and open online environment.

I learned and use many of strategies to manage my students online such as have clear expectations in my classes and prompt responses. I maintain a 24 hr turn around time for my online students whether it be by email or posts in discussion board. I also try to encourage and inform students of upcoming events, assignments, deadlines, or related content that they may be interested in. I also monitor their progress in grade book so they can also monitor what's been submitted and how they did. Creating a climate of peer to peer collaboration is also developed and encouraged.

In OITI we developed a course and I did/still do use some of the content of the course I developed. I have adapted it based on feedback from my students and my own self assessment and reflection. Students are also required to assess their progress over the course of a unit based on the data they collect on their own progress meeting the standards and benchmarks. They also self evaluate and reflect on their learning process as well as their progress over the year.

Triangulation of the iNACOL online teacher standards quantitative and qualitative data, combined with online synchronous interview qualitative data provided an in-depth perspective of how the OITI professional development experience continued to successfully impact Lani and her implementation of distance learning instructional strategies.

Research Question 3.

When analyzing how Lani perceived herself impacting her students as a result of the OITI professional development training, various themes emerged. The most dominant theme that arose was the impact of Lani's application of her OITI skills with her students, which resulted in their increased motivation to learn, engagement with the content, and transfer of knowledge in both her blended and online environments. Lani stated in her online synchronous interview, "The impact that I can make on them [students] is a direct result from OITI because that's where I learned the skills and the basics of how to use it so yeah, it's a direct impact." Another theme that transpired was Lani's ability to apply her OITI skills to build relationships with her students, especially in an online environment. Prior to the OITI, Lani did not have any experience teaching online courses. Since the OITI, she has successfully taught numerous adult online enrichment cultural courses utilizing various technology tools and applying instructional pedagogy strategies she has learned to impact her students. Lani indicated in a recent online class she taught, her students sent her personal emails stating, "You were the best instructor I had. You really cared about us and you really guided us through it." The last theme relevant to student impact that emerged was creation of student work products utilizing technologies. Lani not only modeled and integrated various instructional technologies in her teaching, but also created assignments that would require students to integrate technology to create and demonstrate their learning. Examples included Lani's students using Google Docs, Power Point, Padlet and VoiceThread to

create, share and demonstrate their learning. Lani shared that her students really enjoyed activities and assessments that integrated technology, thought it was “cool,” and found it more fun and engaging. She also felt that it has made an impact on how her students were able to share their learning because “they can demonstrate it in a way that’s exciting to them.”

Research Question 4.

Analysis of the impact of the OITI professional development experience as perceived by Lani, now an online instructor, resulted in several themes during the online synchronous interview session. These themes were increased comfort level in technology resulting in attitude change, online resource development, and ongoing professional development. Although Lani felt the OITI was intense, with learning difficult technical skills such as HTML coding and Web development, she indicated that these skills made it easier for her to understand other things such “different layers of components within Blackboard” for her online class and how to embed YouTube video into her blog for her students. Lani shared as a result of the OITI, “definitely my attitude changed because like I said things that seem so difficult or high-tech and I’m just a regular teacher, we were able to learn and do so after that, you can move forward and know you have that under your belt.” After the OITI, Lani was willing to step out of her comfort zone to try technology and check it out to see if it worked for her students or not. If not, she proceeded to adjust accordingly. In addition, Lani shared that learning the basics of visual design and incorporating images to enhance visual appeal when creating Web sites, documents, and worksheets also helped her. When Lani was asked to reflect on where she was before and after the OITI as it related to the traditional classroom to online spectrum (Table 1), she indicated that she integrated technology (without integration of an LMS) prior to the OITI, with progression to a blended environment integrating the Blackboard Learn LMS discussion boards and some

portions of completely online activities with her middle school math students while also being comfortable teaching completely online adult enrichment culture courses.

Since the completion of the OITI, Lani engaged in blended and online learning related professional developments on occasion such as the one to two days Kamehameha Schools (KS) Distance Learning bi-annual instructor gatherings (one day online instructor focused training and sharing of lessons learned within a professional learning community) as well as annual KS Technology Slams (one day technology integration conference). When asked if there was anything else Lani wanted to share about regarding her OITI experience, she stated, “I didn’t realize at that time that it would be, but it’s definitely taken me to paths that I never thought I would be doing, so it was really nice. It was a nice springboard to doing this because I really enjoyed the online teaching.” Lani also enjoyed participating in a professional learning community (PLC) with other KS teachers in the OITI cohort and appreciated that the OITI was a professional development experience directly relevant to her teaching. “I actually really used things that I created in OITI for a while in my Math classes and I still have it linked to my blog now like my fractions resource.”

Teacher 2: Kaila

Kaila currently works part-time as an online instructor for KSDL’s A‘o Makua online enrichment and A‘o Kumu online professional development programs. She was formerly a high school science teacher with 12 years of teaching experience, 9 as a high school teacher and 4 as a part-time online instructor.

Research Question 1.

During analysis of Kaila’s online Google Hangout synchronous interview, several themes emerged when looking at how the OITI professional development experience continued to

impact her integration of technology into her curriculum (Appendix M). The main theme that surfaced was Kaila's increased awareness of the technology that was available to her as a teacher and how to use it more effectively. For example, she indicated the ability to utilize the Blackboard Learn learning management system for all her high school science classes and embed lessons instead of making photocopies all the time. In addition, she was able to integrate the use of discussion boards with her students to encourage online collaboration. Prior to the OITI, Kaila shared that she had an existing Blackboard Learn account. However she did not have a grasp of what she could be doing with it and was not comfortable using with her students. She felt her classroom was much more traditional with the use of mainly paper and pencil. On occasion, she would integrate laptops for research, but did not dive into ethical research. After the OITI, Kaila thought, "Oh. I really should teach this skill and help them learn how to check their validity of references and websites and all of that stuff." When asked how consistently she applied her knowledge gained from the OITI in her blended environment, Kaila stated, "pretty much across the board consistently." She affirmed in each of her curriculum units, there was some component she integrated as a result of the OITI. An example was the creation of an entire module on how to write a lab report, developed during the OITI, that she continued to integrate into her classes so her students could "perpetually use it as a tutorial." Kaila also indicated since her completion of the OITI, technology tools have also improved such as the ability for students to turn in online assignments via Dropbox or integration of the LockDown Browser to prevent students from opening other window browsers on their computers when taking an online test.

When the TPACK self-assessment instrument to measure teacher comfort levels with technology integration was administered to Kaila (Appendix L), her mean scores ranged between 3.83 and 5.00 (Figure 11). Scores were assigned as 1 (strongly disagree), 2 (disagree), 3

(neutral), 4 (agree), and 5 (strongly agree). With five areas resulting in the highest scores possible ($M = 5.00$), the data showed that Kaila was very confident in her ability to integrate technology into her curriculum in a blended environment. Kaila felt most confident in pedagogical knowledge (PK), content knowledge (CK), pedagogical content knowledge (PCK), technological content knowledge (TCK), and technological pedagogical content knowledge (TPACK). Her confidence in PK, CK and PCK were in alignment with her 12 years of teaching experience, 9 of which were teaching high school science. Her confidence in TCK indicated her understanding of how the integration of technology impacts the content she teaches. Finally, Kaila's confidence in TPACK indicated that she understood the relationships between technology, content and pedagogy, and was able to use her gained knowledge to integrate technology effectively for the students she taught. During comparison of all the TPACK categories, Kaila felt least confident in her technological knowledge ($M = 3.83$).

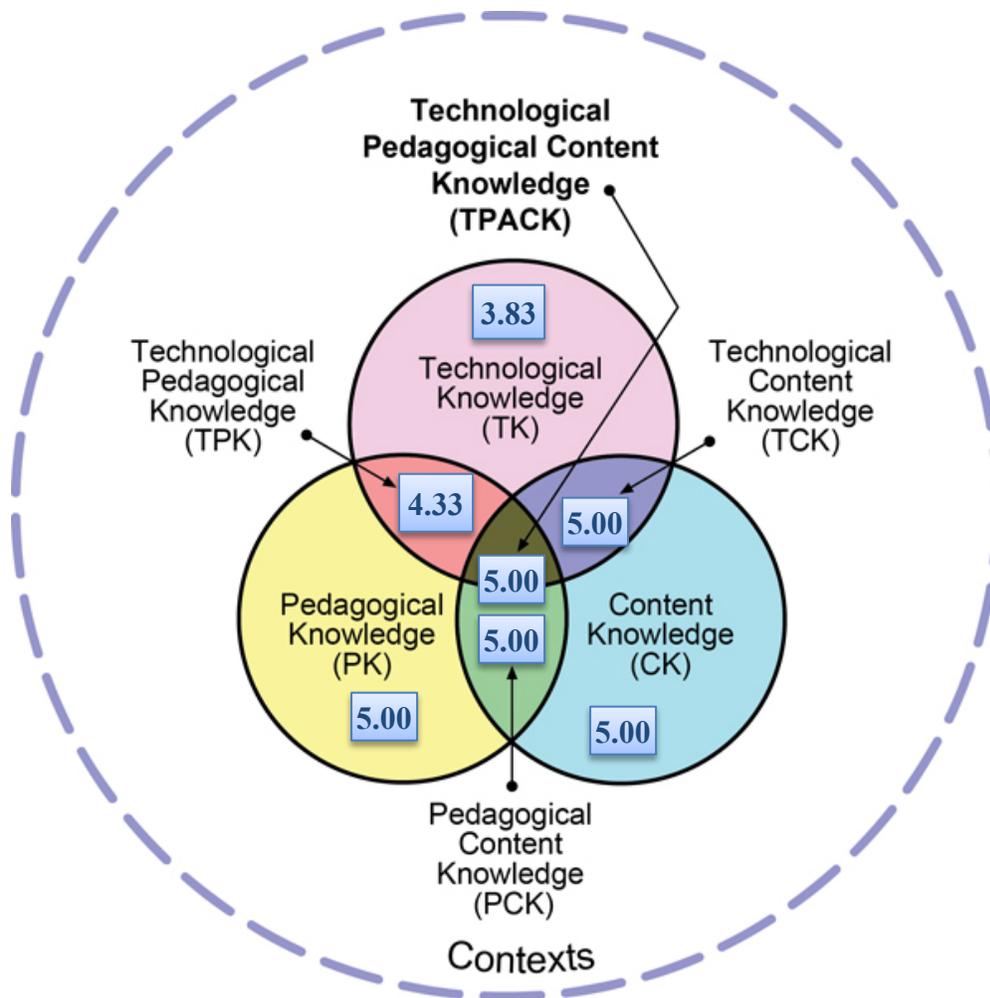


Figure 11. Kaila's mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

During the follow-up interview, Kaila explained that content and pedagogy were her most comfortable areas as a teacher because she had worked on those skills for a longer period of time as a traditional teacher. She also stated that although content and pedagogy change (CK and PK), it did not change as drastically as technology. Therefore, this decreased her comfort level and perception of her technological knowledge (TK). Following up on her TK explanation, Kaila also shared because she is no longer a full time science teacher, she felt that being out of the traditional classroom environment for the last five years impacted her perception of not being

able to keep up with day to day trending educational technologies. In addition, for the online courses she taught to adults and educators, the course curriculum was already designed.

Therefore, she did not explore emerging technologies as often. Although Kaila rated herself lower in TK, she explained her higher ratings in TCK and TPACK were mainly due to the application of those skills in her online teaching environment. When Kaila was asked whether or not the curriculum covered in the OITI impacted her TPACK strengths, she stated:

I think it helped a lot with blending how to incorporate technology with my content and pedagogically it helped with how to tie it all together and bring it so that it was more seamlessly integrated. It wasn't like...okay, we're going to do this technology just for the sake of technology but how to actually use it as a meaningful tool and not just one piece on its own in an isolated way. So I think that was helpful.

When asked if the lack of curriculum covered in the OITI impacted any of her self-perceived weaknesses in her TPACK scores, she stated:

I think OITI did a really good job of covering everything, but like I said so much changes over time and then, there was just so much information in a short period of time too to assimilate through OITI but I'm sure there were things that were covered but maybe they weren't the pieces that stuck as deeply with me or I didn't use it right away....Like we covered evaluation and assessment in distance learning but I don't know...I just wasn't at a place where I could implement it in the same way yet.

When the ISTE Standards•T online self-assessment rubrics instrument was administered to Kaila (Appendix N), her mean scores ranged from 1.50 (between beginning and developing) to 3.00 (proficient) (Table 9). Scores were assigned as 1 (beginning), 2 (developing), 3 (proficient), and 4 (transformative). Kaila self-assessed the highest in ISTE Teacher Standard 2 ($M = 2.50$), designing and developing digital-age learning experiences and assessments. Standard 2 focused on a teachers' ability to provide authentic learning experiences, including assessments, for their students incorporating appropriate tools and resources to maximize learning while addressing diverse learning styles (ISTE, 2008). Kaila self-assessed the lowest in ISTE Teacher Standard 5 ($M = 1.50$), engaging in professional growth and leadership, indicating beginning to

developing skills in this area. Standard 5 focused on a teachers’ ability to exhibit engagement in leadership and professional development as it related to the appropriate integration of digital tools to impact student learning (ISTE, 2008).

Table 9.

Kaila’s Mean Scores for ISTE Teacher Technology Standards Self-Assessment

ISTE Standard 1	ISTE Standard 2	ISTE Standard 3	ISTE Standard 4	ISTE Standard 5
2.00	2.50 (highest mean)	2.25	2.25	1.50 (lowest mean)

Note. Research instrument (Appendix N) included rubric scores that ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative).

During the follow-up interview, Kaila shared that she rated herself lower in professional growth (ISTE Teacher Standard 5) because it was something she felt she had the most room for improvement. Due to her part-time vs. full time work status, she had not recently developed a formalized professional development plan. She further explained she felt her main source of exhibiting leadership currently was working part-time as an online instructor providing professional development to other teachers through the KS A‘o Kumu professional development program serving educators. Regarding Kaila’s highest score for ISTE Teacher Standard 2 ($M = 2.50$), she explained as she reflected on her blended courses, she felt she was able to “incorporate more and more authentic learning experiences for the students...provide different means of presenting and different means of reaching various types of learners and then continuing that into the fully online environment.” Kaila also mentioned her involvement with the redevelopment of A‘o Kumu courses and A‘o Makua curriculum on a small scale provided her with the opportunity to “stay on top of a lot of the tools that are out there” to continually integrate emerging technologies in both her own and student learning. Furthermore, Kaila acknowledged she tended to be “pretty self-critical” and was not the type of individual to rate

herself high because she felt there was always room to grow. She stated, “I’ve always thought education, it’s kind of like parenting. It’s very easy to just do it at a basic level and exist but if you really want to do it at an exemplary level, it’s a continual life long process.” Lastly, Kaila indicated with everything constantly changing, it is difficult to reference one has mastered everything. These reflections were in alignment with Kaila’s self-rated ISTE scores ($M \leq 2.50$), indicating she felt her teaching skills were beginning to developing versus proficient to transformative.

During administration of the ISTE Standards•T online self-assessment rubric (Appendix N), Kaila provided examples of addressing technology standards through qualitative open-ended responses. Written responses relevant to Kaila’s integration of technology into her curriculum included:

I had students use technology to research America’s health care system and develop and present an action plan/recommendation that could improve it.

I work with students using layered curriculum learning options rooted in multiple intelligences to design their individualized learning plans for each unit.

I try to emphasize ethical use of technology, especially issues related to cyber bullying in my classes.

It appears the OITI had continued to meaningfully impact Kaila’s integration of technology into her curriculum for her students through triangulation of her TPACK quantitative data, ISTE quantitative and qualitative data, combined with online synchronous interview qualitative data.

Research Question 2.

One main theme emerged during analysis of Kaila’s implementation of distance learning instructional strategies in an online environment during the online synchronous interview on Google Hangout. The theme revolved around aesthetics and design of content for online learners.

Kaila identified she has always been more content focused and did not pay as much attention to layout and design of content until she participated in the OITI. She realized in an online environment, the users' experience and ability to access content is directly impacted by the visual appeal and layout, implying "just little changes in how it looks can make it less intimidating" for students. Kaila also shared "I think that [experience in the OITI] really enhanced my awareness and it's something I've continued to be able to develop working with the different course." For example, since the OITI, she focused on her announcement posts to make them more user friendly, along with implementation of other distance learning instructional strategies. When asked how consistently she applied her knowledge gained from the OITI for online learning, Kaila indicated ever since she began teaching online courses, she had consistently applied her skills "all the time." Kaila also shared the OITI "opened my eyes to online teaching. I have not taught online or even taken online courses before that."

During administration of the iNACOL national standards for quality online teaching self-assessment rubrics instrument (Appendix O), Kaila's mean scores ranged between 2.57 (between somewhat satisfactory to satisfactory) to 3.33 (between satisfactory and very satisfactory) (Table 10). This indicated that Kaila was fairly confident in her ability to address all standards related to quality online teaching. The assigned scores for the iNACOL research instrument were 0 (absent), 1 (unsatisfactory), 2 (somewhat satisfactory), 3 (satisfactory), and 4 (very satisfactory). Kaila was the most confident with iNACOL Standard A ($M = 3.33$), a standard related to the online teacher understanding basic concepts of effective online instruction to ensure student success (iNACOL, 2011b). She was the least confident with iNACOL Standard F ($M = 2.57$), Standard F focused on the online teacher's ability to address diverse student needs, including online accessibility and special needs accommodations (iNACOL, 2011b). In alignment with

Kaila’s ISTE Standards•T qualitative reflection of not rating herself high because she felt there was always room to grow, her overall scores for iNACOL teacher standards (between $M = 2.57$ to $M = 3.33$) indicated she felt her teaching skills were somewhat satisfactory to satisfactory versus very satisfactory.

Table 10.

Kaila’s Mean Scores for iNACOL Standards for Quality Online Teaching Self-Assessment

iNACOL Standards:										
A	B	C	D	E	F	G	H	I	J	K
3.33	3.00	2.89	3.20	2.80	2.57	3.00	3.00	3.00	3.00	3.00
(highest mean)					(lowest mean)					

Note. Research instrument (Appendix O) included rating scores that ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

During the follow-up interview, Kaila indicated that she rated herself highest ($M = 3.33$) in her ability to conduct effective online instruction to impact student success (iNACOL Standard A) because when she obtained feedback from her A’o Kumu professional development online course students through phone or course evaluation surveys, they shared how the courses she taught have impacted them in their teaching practices. In addition, Kaila’s comfort level with online teaching had increased since she began teaching four years ago, now with the ability to “build and change, and add to, and tweak things...seeing how we’ve been able to increase the number of students completing the courses helps feel like we’re being effective and able to impact them.” The iNACOL Standard A strength was also in alignment to Kaila’s ISTE Teacher Standard 2 strength, in which both standards were focused on the teachers’ ability to utilize various instructional strategies to personalize instruction to meet individual student needs, resulting in the impact of student learning. Regarding Kaila’s lowest score for iNACOL standard

F ($M = 2.57$), she referenced this weakness to limitations in the amount of accommodations she was capable of providing to her online students. She stated, “There are some accommodations to various learning styles and academic needs, but there’s not necessarily a lot...especially for those who have zero technology skills [enrolled in an online course].” Kaila also mentioned she found it challenging to reach learners who do not even attempt to log into her online courses.

During administration of the iNACOL standards for quality online teaching instrument (Appendix O), Kaila provided qualitative open-ended responses that addressed each standard.

Responses relevant to Kaila’s continual implementation of distance learning strategies included:

It [the OITI] made me much more aware of the potentials of online education and confident in my ability to implement and continue learning.

It [the OITI] modeled techniques related to Standard D [the online teacher promotes student success through clear expectations, prompt responses, and regular feedback] so that I could experience them through the lens of a student and apply them as an instructor.

By helping us develop DL curriculum, we were able to question our work to determine how accessible it would be to all learners and ways in which we could improve it in that respect.

Triangulation of the iNACOL online teacher standards quantitative and qualitative data, combined with online synchronous interview qualitative data resulted in a holistic and detailed perspective of how the OITI professional development experience continued to successfully impact Kaila and her implementation of distance learning instructional strategies.

Research Question 3.

Several themes materialized during analysis of Kaila’s perceived impact of her students as a result of her OITI professional development experience. The dominant theme that emerged during Kaila’s synchronous online interview was her belief that she addressed 21st century skills with her students “helping them to think beyond and see the larger picture and gain those skills.”

According to the Partnership for 21st Century Skills framework (P21, 2011), students need to learn essential skills such as collaboration, creativity, critical thinking and problem solving, knowledge producing and sharing, life and career skills, and digital and global citizenship, to prepare and succeed in work and life. Examples of 21st century skills mentioned by Kaila included, 1) global citizenship, 2) technology skills & media literacy, 3) digital citizenship, and 4) knowledge producing and sharing. Kaila indicated as the OITI enabled her to view from a global perspective, she also helped her students “expand so that the world isn’t just limited to the classroom. They’re able to access things and resources and people that expand beyond just through the use of technology.” In addition, Kaila shared that as she applied her OITI skills to increase accessibility of online curriculum for her students, “it also helped the students to get used to some of that technology too so in that way in the future they’re probably going to take an online course and so if they had that experience during high school classes, even if it wasn’t totally online, at least they’ve gotten used to navigating within the system.” Furthermore, Kaila believed it was important for her students to not only how to use the technology, but also be aware of how to use it ethically. Lastly, Kaila felt her OITI experience provided her with skills to further differentiate her instruction with her students, allowing them opportunities to create products of their interest based upon multiple intelligences using a variety of technologies. She stated, “I think it [OITI experience] opened up some tools for my students to do some assessments and to show they’d met the learning objectives in a variety of ways versus... otherwise before it might be just compose an essay. So maybe writing an essay wasn’t their strength. I had one person compose a song and she recorded it.”

Research Question 4.

When Kaila was asked to reflect on what aspect of the OITI has been most impactful when viewing back from her current role as an online instructor during the synchronous online qualitative interview, several themes arose. The prevailing theme that transpired was her increase in technological skills and ability to implement more technologies meaningfully with her students. She stated, “Seeing the difference between what my student could do once I actually knew how to use the technology better more effectively and more deeply and meaningfully really helped me to see how much of a service it was to the learners to provide those opportunities for them.” Kaila also shared her thoughts related to her ability to keep up with changing technologies due to skills she obtained through the OITI, “I think some is just learning how to find the technologies, the research in our technologies and how to stay abreast and aware because it’s changing so fast...gaining those skills that you can stay on top of it is probably the most helpful.” Another theme that emerged was her introduction to digital citizenship, “I think some of the biggest change came in how I viewed issues related to copyright and students’ use of technology and things. I’ve never really given that much thought before OITI.” In addition to copyright, Kaila mentioned she is also now more attentive to instructional design components of her instruction. During self-reflection of where she was on the traditional classroom to online spectrum (Table 1) prior to and after the OITI, Kaila indicated that she was on the lower percentage of the Web-facilitated realm prior to the OITI. After the OITI, she progressed to a blended environment with her high school science students, and transitioned completely online when she taught online enrichment culture and professional development courses.

Since the completion of the OITI, Kaila engaged in online learning related professional developments on occasion such as the one day Kamehameha Schools Distance Learning bi-

annual instructor gatherings where she is introduced to emerging technologies, discusses online learning challenges, and networks professional with other online instructors. While she taught the A‘o Kumu online professional development courses, Kaila also engaged in self-paced professional development learning to ensure she kept herself up to date on educational technology tools. Kaila ended her qualitative interview by sharing the following regarding her OITI experience, “I think on the whole, it was something that when I first signed up for it, I didn’t realize the impact it would have on my teaching and professional work beyond it. It’s like oh yes, I’m at Kamehameha now. It will be beneficial for me to learn more technologies since we have so much but I didn’t really give it much thought about how it really could create what I’m actually doing now, only online instruction.”

Teacher 3: Jasmine

Jasmine is a high school math teacher and department chair with 22 years of teaching experience. She worked part-time as an online instructor for KSDL’s A‘o Makua online enrichment program prior to taking a recent leave of absence.

Research Question 1.

During analysis of the OITI professional development experience and how it continued to impact Jasmine’s integration of technology into her curriculum, several themes arose during her qualitative face-to-face interview (Appendix M). Since the OITI, Jasmine had used the Blackboard Learn LMS “basically as an everyday thing” with her math face-to-face instruction and continued to look for additional ways to implement blended instructional strategies. Prior to the OITI, Jasmine had no prior experience with the Blackboard Learn LMS. In her role as the math department chair, she also piloted a few technology integration strategies to implement within the math department. Jasmine noted, “I think I always was interested in learning new

technologies and things like that but I guess since then [OITI], it's been less apprehension about diving into those and any kind of professional development opportunity.” When asked how consistently she applied her knowledge gained from the OITI as it related to technology integration, Jasmine stated she consistently applied her knowledge gained. She further explained, “It's probably been more matched to the situation and so when there is a situation that presents itself, I may pull in that, but it's not something that I'm moving to say a 100%.” Jasmine also shared technology access has increased since the OITI, with implementation of the 1:1 laptop. With technology access more convenient, Jasmine indicated, “I'm getting more teachers who feel like they only want to go in that direction [blended environment].”

During administration of the TPACK self-assessment instrument to measure teacher comfort levels with technology integration (Appendix L), Jasmine's mean scores ranged between 3.33 to 4.43 (Figure 12), indicating she was somewhat confident in her ability to integrate technology into her curriculum in a blended environment. Scores were assigned as 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). Jasmine felt most confident in pedagogical knowledge ($M = 4.43$). She also felt confident with her content knowledge ($M = 4.00$) and pedagogical content knowledge ($M = 4.00$). This was in alignment with her 22 years of teaching math teaching experience. Jasmine felt least confident in her technical knowledge ($M = 3.33$). Although her self-rated score was lower in technological knowledge (TK), Jasmine's overall TPACK and technological content knowledge (TCK) scores were higher ($M = 4.00$). This implied that although Jasmine was not as confident in her technological skills, she was confident in her ability to integrate technology effectively with her students, including an understanding of how it impacted the content she taught.

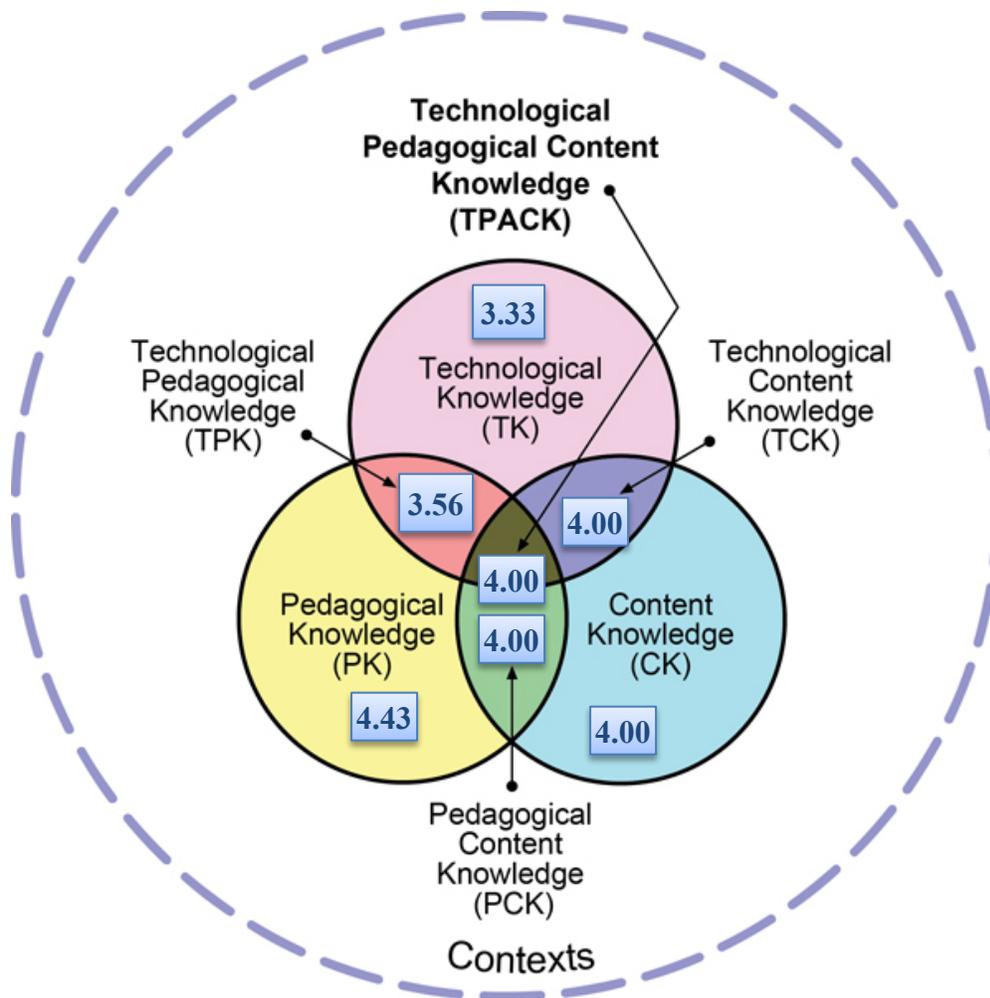


Figure 12. Jasmine’s mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

During the follow-up interview, Jasmine referenced her confidence in pedagogical knowledge (PK) was because of her increased comfort level when focused on instructional strategies and approaches due to the number of years she has been teaching. Jasmine acknowledged she was least confident with her rating for TK ($M = 3.33$), based upon her perspective of whether or not she could teach others the technologies. She further explained, “I think I’m certainly able to teach myself and pick up something that I want to learn and dive into it, but as far as rolling it out, say, for my department and being able to get them up to speed, I

probably was a little apprehensive about that.” In addition, Jasmine indicated while teaching online adult enrichment courses, there were technical questions from participants she was not capable of answering and relied on additional support. Regarding Jasmine’s scores for TPACK ($M = 4.00$) and TCK ($M = 4.00$) despite a lower rating in TK, she stated “I think this is probably from OITI, having a model in my head about what it should look like probably gives me a better base knowledge of how to critique different programs or different resources we want to implement. Plus matched with my content knowledge (CK) and what I want to see teachers doing, I can see where pieces fit and what programs won’t be great. I think if anything, participating in OITI just added that extra piece for me to make those judgments.” When Jasmine was asked about whether or not the curriculum covered in the OITI impacted her strengths, she stated:

I think if anything it just brought those things to the forefront [technology integration]. I don’t know that I was doing those things, but I probably didn’t know what they were as far as standards and about citizenship as they are talked about. It made sense to me...it wasn’t anything I wasn’t familiar with, so it just brought it to the surface.

When asked if the lack of curriculum covered in the OITI impacted any of her self-perceived weaknesses, she stated:

We had such a widespread of things that I do feel like we touched the surface of things that we got a broad spectrum, but I didn’t expect that program to dive deep into it for me. I think, for me, It was after that I dove into it myself on which things were interesting and that’s probably why I incorporated more some of those Adobe sessions because those were things that were going to be useful for me, Blackboard [LMS].

Analysis of Jasmine’s ISTE Standards•T self-assessment rubrics instrument (Appendix N) revealed her mean scores ranged 1.50 to 2.50 (Table 11). Scores were assigned as 1 (beginning), 2 (developing), 3 (proficient), and 4 (transformative). Jasmine self-assessed the highest in ISTE Teacher Standards 3 ($M = 2.50$) and 4 ($M = 2.50$), modeling digital-age work and learning and promoting and modeling digital citizenship and responsibility. Standards 3 and

4 focused on a teacher’s ability to communicate effectively with students utilizing appropriate digital technologies, including promoting proper and responsible use of technologies (ISTE, 2008). Jasmine self-assessed the lowest in ISTE Teacher Standard 2 ($M = 1.50$), designing and developing digital-age learning experiences and assessments. Standard 2 focused on a teacher’s ability to design engaging curriculum for students integrating appropriate digital technologies (ISTE, 2008).

Table 11.

Jasmine’s Mean Scores for ISTE Teacher Technology Standards Self-Assessment

ISTE Standard 1	ISTE Standard 2	ISTE Standard 3	ISTE Standard 4	ISTE Standard 5
2.00	1.50 (lowest mean)	2.50 (highest mean)	2.50 (highest mean)	2.00

Note. Research instrument (Appendix N) included rubric scores that ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative).

During the follow-up interview, Jasmine indicated rating herself lower because although she knew what the standards were, she was not implementing them daily. She stated, “I think I know and could develop and design some kind of experience and I have in the past [referencing ISTE Teacher Standard 2]. I don’t know that I’m doing it now. So that’s not a consistent thing.” Jasmine added, “It’s hard to judge...I go to these conferences and I hear about what people are doing and I’m certainly not in the realm [laughter]...but I’m capable in it.”

During administration of the ISTE Standards•T self-assessment rubrics instrument (Appendix N), Jasmine provided examples of addressing teacher technology standards through qualitative open-ended responses. Written responses relevant to Jasmine’s integration of technology into her curriculum included:

Implemented learning management systems (Blackboard Learn) for discussion in a virtual environment. I have also implemented online meeting rooms such as Elluminate and Adobe Connect to conduct virtual meetings and study sessions.

Have used Blackboard, ALEKS, Math, CL and other web based resources to provide formative and summative assessments to inform learning and teaching. I have incorporated digital tools such as student laptops, graphing calculators, and web resources to support student learning.

Triangulation of the TPACK quantitative data, ISTE quantitative and qualitative data, combined with face-to-face interview qualitative data provided insight on Jasmine's continued implementation of technology integration in her math instruction.

Research Question 2.

Two main themes emerged from the face-to-face qualitative interview during analysis of Jasmine's implementation of distance learning instructional strategies as a result of her OITI experience. The main theme that surfaced was Jasmine's attempt to expand the math program to include online learning through a pilot that has been ongoing for three years. The online summer math course, developed entirely by Jasmine, began as an enrichment course to prepare students in the summer entering high school pre-algebra. This year, Jasmine will be working with another math instructor on piloting a course with additional requirements that will make it credit worthy. She explained, "This summer, we're moving a little bit more into what we think those requirements should be although it's not going to be fully implemented and then we're going to include some things like portfolio, assessments maybe, some interviews just to get a better feel for the students we're not seeing." The second theme that arose was Jasmine's increased awareness of distance learning strategies through her OITI experience. She described working with adults online was outside of her comfort zone, but was something she enjoyed. "You just get a lot more interesting conversations, so I think it's that part I've pulled into my regular face-to-face. Those interactions we would try to have through the discussion board. I've tried to model something like that with my face-to-face students and it doesn't always work. You don't

get quite the responses, but for them, it's different from the 20 problem test they take in class."

When asked how consistently she applied her knowledge gained from the OITI for online learning, Jasmine indicated she consistently integrated her skills. "I feel like I start off the year really strong and at this time of the year [laughter], it's just on the back burner. Less and less things get uploaded in Blackboard." Although Jasmine was not as consistent in her face-to-face course, she indicated applying her skills consistently with the summer online math course. "For the summer one, I'm wanting to model exactly how everything's all set up already so we've been meeting the instructor that's going to facilitate. We've been building that slowly now so that it's going to just be in place. In fact, I'm modeling everything from those A'o Makua classes as far as the pre-set emails."

During administration the iNACOL national standards for quality online teaching self-assessment rubrics instrument (Appendix O), Jasmine's mean scores ranged between 2.33 (between somewhat satisfactory and satisfactory) to 3.80 (between satisfactory and very satisfactory) (Table 12). This indicated Jasmine was fairly confident in her ability to address all standards related to quality online teaching. Scores were assigned as 0 (absent), 1 (unsatisfactory), 2 (somewhat satisfactory), 3 (satisfactory), and 4 (every satisfactory). Jasmine self-assessed highest in iNACOL Standard D ($M = 3.80$). Standard D focused on the online teacher's ability to provide clear expectations and consistent feedback to students (iNACOL, 2011b). Kaila's self-assessed lowest in iNACOL Standard G ($M = 2.33$). Standard G focused on the online teacher's ability to utilize quality online assessment instruments (iNACOL, 2011b).

Table 12.

Jasmine’s Mean Scores for iNACOL Standards for Quality Online Teaching Self-Assessment

iNACOL Standards:										
A	B	C	D	E	F	G	H	I	J	K
3.00	2.80	2.67	3.80	3.20	2.43	2.33	3.00	2.69	3.50	3.00
			(highest mean)			(lowest mean)				

Note. Research instrument (Appendix O) included rating scores that ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

During the follow-up interview, Jasmine indicated that she agreed with the highest score in iNACOL Standard D ($M = 3.80$). She further explained “It does have to be well-organized and thought out of about what you want to see from students and that certainly has been something I’ve increased in the last three to five years.” Regarding her lowest score in iNACOL Standard G ($M = 2.33$), Jasmine attributed it to inconsistency, similar to her explanation when ISTE standards were discussed. She stated, “I think I’ve done some assessments in those kinds of environments, but I don’t see myself using a variety where I’ve been waiting to find some resources that allow me to do it for Math...some of the things we did in OITI like the electronic portfolios and things like that, I haven’t managed to incorporate that in my Math classes.” The iNACOL Standard G weakness was also in alignment to Jasmine’s ISTE Standard 2 weakness, in which both standards were focused on the teacher’s ability to develop digitally relevant assessments for students.

During administration of the iNACOL standards for quality online teaching instrument (Appendix O), Jasmine provided qualitative open-ended responses that addressed each standard. Responses relevant to Jasmine’s continual implementation of distance learning strategies included:

Currently developing a tech based learning plan for using digital tools (ALEKS & Adaptive Learning) for an online summer course.

As part of the A‘o Makua program, as course facilitator, have had to involve students in opportunities to develop cultural understanding through communication with other students from other communities and countries.

Triangulation of Jasmine’s iNACOL online teacher standards quantitative and qualitative data, combined with her face-to-face qualitative data provided an in-depth perspective of how the OITI professional development experience continued to successfully impact her implementation of distance learning instructional strategies.

Research Question 3.

During analysis of how Jasmine perceived herself impacting her students as a result of completing the OITI, one dominant theme that arose was Jasmine’s ability to build better relationships with her students through differentiated instruction. For example, she provided opportunities for students to participate in synchronous online help sessions for study help or individual mentoring. She shared, “It’s almost as if they don’t just see me the 40 minutes or 80 minutes and they stop thinking about me [laughter]...it feels like even the time spent within class is better.” In addition, Jasmine mentioned the synchronous sessions required her students to apply their listening and communication skills to explain their thought process. Throughout this process, she was also able to assess her students’ learning, in particular their understanding of various math terms.

Research Question 4.

Several themes arose during analysis of the face-to-face interview focused on the impact of the OITI professional development experience as perceived by Jasmine, predominantly. The main themes that arose were Jasmine’s realization of how the OITI experience had enhanced her instruction in curriculum organization, assessments, and technology integration. Jasmine stated:

The aspect of OITI that has been most impactful is the inclusion of the many applications and tools that were covered in the program. Being exposed to the many applications and different modes for assessment opened up my repertoire and my confidence in teaching in an online environment. It also impacted the way I communicate with my face to face students and the way I seek out and evaluate the use of new technologies or applications. Overall it made me more creative as a teacher.

Jasmine also indicated, “the thing from the program I really learned is the whole organization piece. In online, it’s not fly by the seat of your pants...having it organized and well thought out ahead of time makes it more exact...there’s no guessing on what I’m assessing.” When asked whether or not her instructional practice changed directly as a result of her OITI experience, Jasmine affirmed, “I haven’t really thought about if it was a direct result of OITI, but certainly all the technologies I’ve been incorporating, I probably wouldn’t have dived into if I wasn’t comfortable with it...also we’ve had so many resources in high school and it’s pretty much an expectation now.” She also acknowledged that she incorporated more student to student interactions rather than her to the whole class. “It’s a little bit from old OITI but a little bit of some other things I’ve been interested in.” Upon reflection of where she was before and after the OITI as it related to the traditional classroom to online spectrum (Table 1), Jasmine identified that she was probably in the traditional classroom setting prior to the OITI, with progression to Web facilitated and blended environments in her high school math courses. For the summer math and adult enrichment courses, she was comfortable teaching online.

Since the completion of the OITI, Jasmine participated in various blended and online professional development opportunities such as the International Society for Technology in Education (ISTE) and Schools of the Future conferences. She was also involved with blended learning initiative discussions involving the high school math department. When asked if there was anything else she wanted to share about regarding her OITI experience, Jasmine asked, “When’s the next phase? [laughter]. Yeah, that was a great experience. I think the group we had

was really great. I learned a lot in a short period of time and I guess I never really thought about it, but, yeah, I did carry on a lot of things out of that.” Jasmine concluded her qualitative interview by sharing, “I really liked working with the cohort [Kamehameha Schools teachers] and that we were all from different areas. The professional learning community and conversations really helped...to lend some ideas.”

Teacher 4: Tara

Tara is currently an Academic Support Specialist and Lead Teacher supporting high school students to achieve academic success, with 11 years of teaching experience. She also works part-time as an online instructor for KSDL’s A‘o Makua online enrichment program. Prior to becoming an Academic Support Specialist, Tara taught high school students English for four years.

Research Question 1.

During analysis of the OITI professional development experience and how it continued to impact Tara in her integration of technology into her curriculum, several themes emerged during the qualitative face-to-face interview (Appendix M). Tara immediately shared, “I think the OITI planted the seed that as teachers, we’re constantly having to evolve and that was back in 2003...we still had computer work stations.” Tara’s focus on student engagement as a result of the OITI was also suggested in her response. During development of an online learning module focused on Hawaiian Pacific Literature, Tara worked collaboratively with another instructor on how to “maintain engagement with the content, but also make it relevant to their [students] experience and how do you get that.” In addition, Tara indicated she consistently looks at how to increase engagement for programs she currently oversees in her current role as an Academic Support Specialist. For example, she asked herself, “How can I increase engagement or why

didn't the circle of knowledge that parents and caregivers have of what their students are doing because there's that distance factor." After the OITI, Tara also indicated she applied her visual design skills, "I think I'm always looking at what I communicate to the students either with the worksheet or online looking that it's clear, it's concise, and it's visually appealing. So I know that was one aspect that OITI reinforced." When asked how consistently she applied her knowledge gained from her OITI experience in her face-to-face classes, Tara identified it was difficult to separate because she constantly looks at instructional delivery and curriculum through the "OITI lens" since the completion of the OITI. Examples of technologies she has explored and integrated since the OITI included Blackboard, Shutterfly, Edmodo, Google Sites, Weebly, and WebQuest. Tara also specified she has consistently integrated use of the Blackboard Learn LMS since the OITI, "I think Blackboard has been a constant...I was exposed to, educated on, kind of guided within OITI."

When the TPACK self-assessment instrument to measure teacher comfort levels with technology integration was administered to Tara (Appendix L), her mean scores ranged between 4.00 to 5.00 (Figure 13), indicating that Tara was confident in her ability to integrate technology into her instruction in a blended environment. Scores were assigned as 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). Tara felt most confident in technological content knowledge ($M = 5.00$) and technological pedagogical content knowledge ($M = 5.00$). Her confidence in both TCK and TPACK indicated she was comfortable interrelating content, pedagogy and technology when instructing her students. During comparison of all the TPACK categories, Tara felt least confident in her technological knowledge ($M = 4.00$) and pedagogical content knowledge ($M = 4.00$).

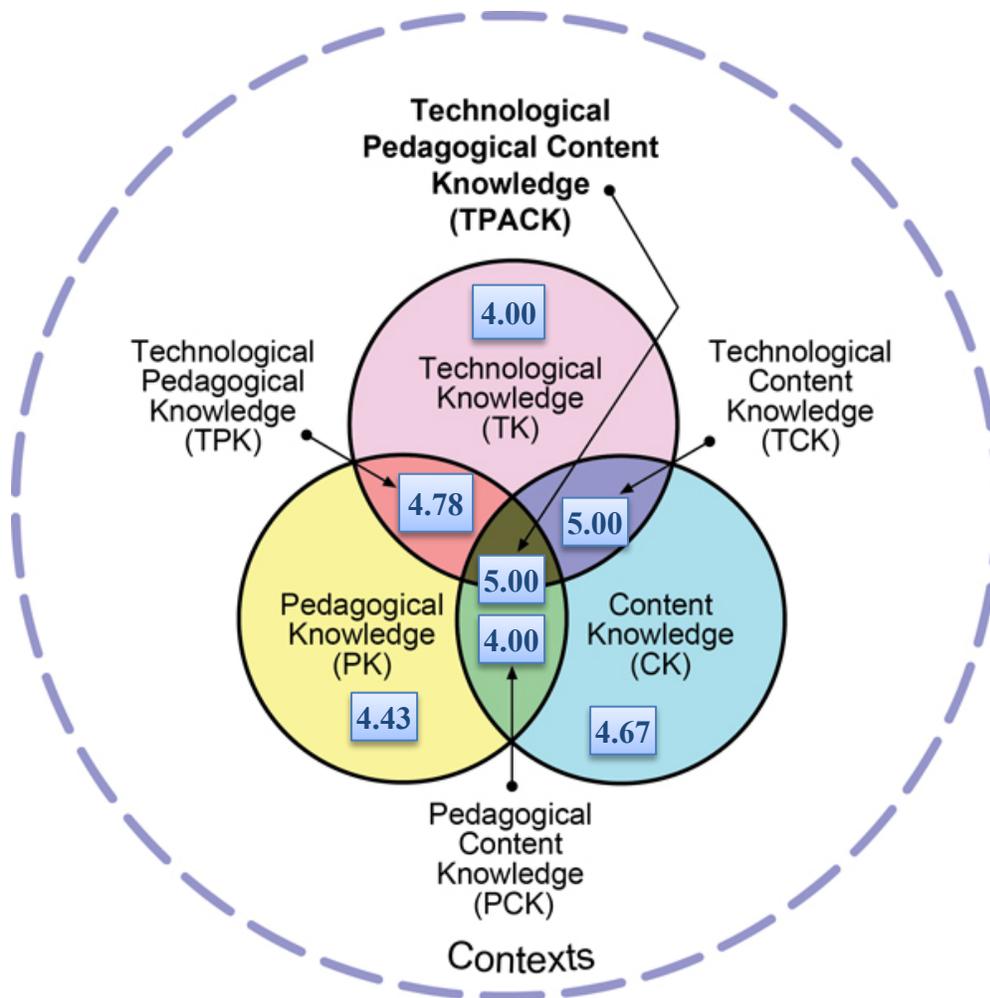


Figure 13. Tara's mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

During the follow-up interview, Tara noted her perceived weakness in her technological skills (TK) was probably because she did not feel as up to date with various technologies due to the amount of time that had passed since the OITI in 2003. In addition, Tara indicated her schedule did not allow her to dedicate as much time to learning emerging technologies as she had during the OITI. Regarding her strengths in TCK and TPACK, Tara affirmed her confidence in integration of technology based upon her OITI experiences stating, "I'm abreast of all the current executive functioning skills to help students succeed and how to deliver...I think I'm able to

bring in ‘What do I want my kids to know? How do I want to deliver it? I think that’s like a strength of mine, but as far as the technology, even though it’s not as strong, I think it’s there but I know it’s not an innate or natural as some of these students.’” When Tara was asked about whether or not the curriculum covered in the OITI impacted her TPACK strengths and weaknesses, she stated:

Definitely I think...where technology was in 2003, I think I did increase my technological skills and how to deliver content online at that point in time. I think it did increase and I can see why the scores would be within the 5. Perhaps if I had scored this back in 2003, my technological knowledge would be higher because the technology was different at that time. The bar was probably lower. I can see how OITI helped me looked at information and how to number one, make it more appealing, make it more engaging whether or not it’s just visually engaging or engaging online so that you have more chance of success with the students. So thinking through that process.

During analysis of Tara’s ISTE Standards•T self-assessment rubrics instrument (Appendix N), her mean scores ranged from 2.50 (between developing and proficient) to 3.50 (between proficient and transformative) (Table 11). Scores were assigned as 1 (beginning), 2 (developing), 3 (proficient), and 4 (transformative). Tara self-assessed the highest in ISTE Teacher Standard 1 ($M = 3.50$), facilitating and inspiring student learning and creativity, indicating a high confidence level with this standard. Standard 1 focused on a teacher’s ability to apply their knowledge to engage students and encourage creativity and innovation through meaningful and relevant facilitation (ISTE, 2008). Tara self-assessed the lowest in ISTE Teacher Standard 4 ($M = 2.50$), promoting and modeling digital citizenship and responsibility. Standard 4 focused on a teacher’s ability to model and teach students to use technology in a safe and ethical manner (ISTE, 2008).

Table 13.

Tara's Mean Scores for ISTE Teacher Technology Standards Self-Assessment

ISTE Standard 1	ISTE Standard 2	ISTE Standard 3	ISTE Standard 4	ISTE Standard 5
3.50 (highest mean)	3.25	3.00	2.50 (lowest mean)	3.25

Note. Research instrument (Appendix N) included rubric scores that ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative).

During the follow-up interview, Tara shared she rated herself highest in ISTE Teacher Standard 1 (facilitate and inspire student learning and creativity), probably because “OITI helped you look at content and delivery and try to be as creative as possible.” In addition, Tara acknowledged that, “if you can inspire students face to face, I think it’s a natural lens to inspire online because whether or not you’re looking at a great learning module or project or helping them devise their own, I think you will be able to do that online as well.” Regarding Tara’s self-perceived weakness in digital citizenship (ISTE Teacher Standard 4), she explained she felt more comfortable addressing this topic in her curriculum as an English teacher versus in her current position as an Academic Support Specialist. She specified, “Promoting and modeling digital citizenship responsibility I think we perhaps touched upon...now it’s a little bit different because we talked a lot about indigenous intellectual propriety rights from indigenous perspectives, but I think I’m able to talk more about that in an English content.”

During administration of the ISTE Standards•T online self-assessment rubric (Appendix N), Tara provided examples of addressing each teacher technology standard through qualitative open-ended responses. Written responses relevant to Tara’s integration of technology into her curriculum included:

In the English Department, I piloted and pioneered electronic portfolios that served as a substitute for the paper-based collection of writing exemplars. Students were able to showcase their personalities adding to the authentic ownership of the portfolios.

In my current position at the Student Support Center, I was able to morph the idea of electronic portfolios from a Dreamweaver-based platform to a more user-friendly Google sites where teachers and students could provide feedback virtually to their individual sites.

We are constantly trying to involve the parent or caregiver component into our program. Thus, we have started Shutterfly accounts that document learning and field trips throughout the year. Whenever we upload and add to the site, an email prompts parents and caregivers to join us and see what their children are experiencing and at times they feel comfortable enough to leave comments.

OITI definitely assisted in helping to share the development of authentic assessment. In my English classroom, the use of iMovies based on sense of community and written expression was then transferred to a Blackboard course that encouraged participation and engagement beyond the confines of the school day. My participation in OITI allowed me to develop such an authentic assessment that targeted the standards and objectives of the course yet at the same time speaking to the authentic voices of my students.

It appears the triangulation of the TPACK quantitative data, ISTE quantitative and qualitative data, combined with the face-to-face qualitative interview qualitative data resulted in a comprehensive description of how the OITI professional development experience continued to successfully impact Tara and her integration of technology into her instruction.

Research Question 2.

One main theme emerged during analysis of the qualitative face-to-face interview as it related to how the OITI professional development experience continued to impact Tara implementing distance learning instructional strategies in an online environment. Tara confidently referenced relationships. She explained, “I know it seems weird to say that but I think OITI reinforced how well you can maximize interactions, that engagement because that I think, is a factor that keeps any learner regardless of age to keep coming back...So I think that experience with OITI whether or not we were working in pairs and responding to posts and trying to build a sense of community is something that I continue to perpetually implement in the classes that I help to facilitate currently.” When asked how consistently she applied her

knowledge gained from OITI for online learning, Tara stated, “I think anytime I log on, to be honest, every time I log on I’m constantly looking at that as far as engagement and responding to emails.”

During administration of the iNACOL national standards for quality online teaching self-assessment rubrics instrument (Appendix O), Tara’s mean scores ranged from 2.14 to 3.67, with the majority of the scores ($M = 3.00$) fairly close to satisfactory (Table 14). The data indicated that Tara was fairly confident in her ability to address standards related to quality online teaching. Scores were assigned as 0 (absent), 1 (unsatisfactory), 2 (somewhat satisfactory), 3 (satisfactory), and 4 (very satisfactory). Tara was the most confident with iNACOL Standard C ($M = 3.67$), a standard related to the online teacher implementing strategies to encourage student engagement and collaboration (iNACOL, 2011b). She was the least confident with iNACOL Standard F ($M = 2.14$). Standard F focused on the online teacher’s ability to address diverse learning styles in addition to accommodation of all learners’ needs, including those with special needs (iNACOL, 2011b).

Table 14.

Tara’s Mean Scores for iNACOL Standards for Quality Online Teaching Self-Assessment

iNACOL Standards:										
A	B	C	D	E	F	G	H	I	J	K
2.67	2.60	3.67	3.10	3.00	2.14	2.67	3.00	3.31	3.50	3.00
		(highest mean)			(lowest mean)					

Note. Research instrument (Appendix O) included rating scores that ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

During the follow-up interview, Tara implied her highest mean score for iNACOL Standard C was in alignment with ISTE Teacher Standard 1, in which both standards referenced

utilizing instructional strategies to engage students in a collaborative learning environment. She further noted, “A student’s sense of belonging is so important to the success, I think, of any classroom. So I think that makes sense as far as why...I also think it’s just the way your words are delivered online as well...even if it’s a happy face or it’s an encouraging word or exclamation point that’s something you have the use that’s not going to be picked up in a face to face environment.” Regarding Tara’s iNACOL weakness, Standard F, she indicated she was comfortable addressing the diversity academic needs of her students, but if there was a student who required special needs, she did not feel as confident in the identification and use of online tools to address those needs in an online environment.

During administration of the iNACOL standards for quality online teaching instrument (Appendix O), Tara provided qualitative open-ended responses that addressed each standard.

Responses relevant to Tara’s continual implementation of distance learning strategies included:

OITI was the catalyst for me to think outside of the box – beyond the traditional instructional delivery methods of lecture, discussion, group projects, etc. OITI allowed me to incorporate online learning through various platforms. I was able to incorporate Blackboard into my courses and then I was able to help develop an online Literature course that was primarily online.

I feel that the OITI experience in creating asynchronous and synchronous learning opportunities emphasized the importance of cultivating a sense of community. As a face-to-face classroom teacher, this was/is one of my strengths. However, the challenge was to demonstrate that strength in an online environment. The OITI, through discussion board postings and highlighted learning activities that are highly personalized, I was able to feel confident that my learners will experience that same sense of community.

OITI exposed many of us, as classroom teachers, to the world of technology. Yes, we were able to learn about basic technology skills, such as PowerPoint, formatting iMovie, Dreamweaver, etc. However the workshops that we went through challenged the way to view our content not only in an engaging, visual way but in a way to increase interaction between learners and facilitators.

The triangulation of Tara’s iNACOL online teacher standards quantitative and qualitative data, combined with her face-to-face qualitative data provided a comprehensive perspective of

how the OITI professional development experience continued to successfully impact her implementation of distance learning instructional strategies.

Research Question 3.

One main theme arose during analysis of how Tara perceived herself impacting her students as a result of completing the OITI. She stressed her continued focus on meeting the needs of her students while trying to find a balance with the integration of technology. Tara affirmed, “I think the OITI helped me increase my knowledge base but I know I’m not ever going to be ahead because it’s not something natural for me to have access 24/7. But how can you maximize that access when kids have that access whether or not it be an app or if I can alleviate or make something a little bit easier for them if that’s what they want or expect.”

Research Question 4.

Tara’s insight, when asked to think about the aspect that has been most impactful of the OITI professional development experience, revolved around online curriculum development. She shared it was her experience working with another instructor to develop the online Hawaiian Pacific Literature curriculum that “sticks out” to her. She was particularly drawn in by the challenge of transitioning face-to-face content into an online learning environment without losing engagement and was very interested in creating learning modules “that speak” and were personalized and relevant for her students. She indicated, “It’s not only engagement of the discussion board threads or one to one emails, it’s building that sense of community and the content has to still be anchored and personal at least for adolescent learners.” Upon reflection of her challenge during development of online curriculum, she shared “even though it was tough, it forced me to think outside the box.” Tara also shared through the OITI, she obtained skills to diversify her delivery of instruction for her students, including the perspective of keeping

“engagement 24/7 beyond the time that you meet with the kids.” During self-reflection of where she was on the traditional classroom to online spectrum (Table 1) prior to and after the OITI, Tara noted she conducted her class in a traditional setting prior to the OITI. After the OITI, Tara shifted to a blended environment in her English high school teacher and Academic Support Specialist roles. She transitioned fully online while she taught online enrichment Hawaiian language courses part-time.

Since the completion of the OITI, Tara participated in technology integration related professional development such as the annual Kamehameha Schools Technology Slams. When asked if there was anything else Tara wanted to share regarding her OITI experience, she concluded:

I think the whole way it was constructed, from the beginning having teachers from the same school (K-12), it was after school, the way it was broken up, we received credit [University of Hawai‘i educational technology course credits]. There were so many pluses the way it was put together because as teachers, our time is a commodity and number one we want to know that if this is something that we’re going to invest our time in, there’s going to be a payback. Payback with regards to it’s going to inform my instructional knowledge right away and the pluses were that yes it did. I incorporated immediately into my classroom with webfolios, e-portfolio and what not. I was able to collaborate with people around me...that professional learning community...and then there are opportunities to expand your professional development through contract work. Granted the learning curve was steep and it was high and it was hard, but you learn something and you’re able to incorporate it right away.

Chapter Summary

For Lani, the OITI was an intense, yet positive experience that impacted her continued integration of technology and implementation of distance learning strategies. Prior to the OITI, Lani integrated technology in her instruction inconsistently. After the OITI, she shifted her face-to-face instruction into a blended environment, consistently utilizing the Blackboard Learn LMS with her 21st century middle school students. She also transitioned successfully into a part-time online instructor role after completion of the OITI. Analysis of Lani’s TPACK scores revealed

that although she self-perceived her weakness to be technological pedagogical content knowledge (TPACK), she was confident in her technological content knowledge (TCK), indicating she was comfortable in understanding appropriate technologies that could be integrated for learning. Analysis of Lani's ISTE scores revealed she was confident in her ability to incorporate appropriate digital tools to model and promote digital-age work and learning. Analysis of Lani's iNACOL scores indicated she was confident in her ability to address all standards related to quality online teaching, in particular applying instructional design to create engaging content to enhance learning for students. It appears the OITI professional development experience contributed to Lani's impact on her students, resulting in increased motivation, engagement and transfer of knowledge. Lastly, the OITI was a catalyst that increased Lani's skills sets and provided her with additional opportunities to consider, in particular, teaching online part-time.

For Kaila, the OITI was an impactful professional development experience that provided her with the skills to integrate technology more effectively and explore the world of online learning. Prior to the OITI, Kaila's classroom was on the lower spectrum of the Web facilitated spectrum closer to the traditional setting utilizing some technology, but mainly still focused on activities using paper and pencil. After the OITI, Kaila converted her science classroom to a blended environment and eventually transitioned online to become a part-time online instructor. Analysis of Kaila's TPACK scores revealed that although she self-perceived her weakness to be technological knowledge (TK), she was confident in her TCK and TPACK, indicating her confidence in understanding the relationships between content, pedagogy, and technology to transform and engage her students with learning. Analysis of Kaila's ISTE scores revealed she was confident in her ability to incorporate appropriate digital tools to model and promote digital-

age work and learning. Analysis of Lani's iNACOL scores indicated she was fairly confident in her ability to address all standards related to quality online teaching, in particular with understanding best practices and strategies for online teaching. It appears the OITI professional development experience attributed to Kaila's impact on her students' 21st century skills such as global and digital citizenship, technology skills and media literacy, and knowledge producing and sharing (P21, 2011). Lastly, the OITI contributed to Kaila's career pathway, allowing her with the flexibility to continue teaching online part-time, even after resigning from her full time teaching position.

For Jasmine, the OITI was a professional development experience that further improved her instruction by being exposed to various instructional technologies. In addition, it provided her with the opportunity to be more creative when communicating and evaluating her students. Prior to the OITI, Jasmine noted her classroom environment was fairly traditional. After the OITI, she confidently progressed to a blended environment with her high school math students, incorporating the use of the Blackboard Learn LMS consistently to engage her students. She also transitioned successfully into a part-time online instructor role after completion of the OITI. Analysis of Jasmine's TPACK scores revealed that although she self-perceived her weakness to be TK, her overall TCK and TPACK scores implied she was confident in integrating technology effectively with her students. Analysis of Jasmine's ISTE scores indicated she was confident in her ability to model and promote digital-age learning and citizenship. Analysis of Jasmine's iNACOL scores implied she was fairly confident in her ability to address standards related to quality online teaching, in particular providing clear expectations and prompt feedback to students. It appears the OITI professional development experience assisted Jasmine's ability to explore further differentiated instruction through the use of various instructional technologies to

engage and build relationships with her students. Lastly, Jasmine enjoyed participating and sharing with other KS teachers in a meaningful professional learning community.

For Tara, the OITI was a challenging, yet meaningful and relevant professional development experience that resulted in her immediate application of blending and online learning skills. Prior to the OITI, Tara's instructed in a traditional setting. After the OITI, Tara immediately transitioned to a blended environment for her English high school students. She also transitioned successfully into part-time online curriculum developer and instructor roles after completion of the OITI. Analysis of Tara's TPACK scores revealed that although she self-perceived her weakness to be TK, she was confident in her TCK and TPACK, indicating she was comfortable with effective integration of technology within her instruction. Analysis of Tara's ISTE scores indicated she was confident in her ability to facilitate and inspire student learning and creativity. Analysis of Tara's iNACOL scores suggested that she was fairly confident in her ability to address standards related to quality online teaching, in particular implementing strategies to encourage collaboration and active learning. It appears the OITI experience ascribed to Tara's impact on her students, resulting in increased engagement and interactions. Lastly, the OITI provided many benefits, such as university course credits and professional learning community, which made it worthwhile despite her busy schedule.

Table 15.

Individual Participant Analysis Qualitative Summary

Participant	Qualitative Themes	Integrated Technologies for Instruction
Lani	<p>Research Question 1</p> <ul style="list-style-type: none"> • Consistent seamless and advanced technology integration • Prior to the OITI technology integration was “here and there” • Increase of technology access for students since the OITI <p>Research Question 2</p> <ul style="list-style-type: none"> • Awareness of DL instructional strategies • No online teaching experience prior → teaching online • No prior experience with Bb Learn → consistent use of Bb Learn • Online curriculum development • Consistent integration of the OITI skills <p>Research Question 3</p> <ul style="list-style-type: none"> • Application of the OITI skills resulted in increased student engagement validated by student feedback • Students capable of demonstrating their learning through different technologies <p>Research Question 4</p> <ul style="list-style-type: none"> • Felt OITI was intense, but beneficial to learn technical skills • Attitude changed in which she was willing to step outside of her comfort zone with technology exploration • Learning basic visual design skills were beneficial • Professional development (PD) after the OITI: KS Technology Slams, KSDL Instructor Gatherings • Enjoyed PLC <p>OITI was a springboard to other opportunities</p>	<ul style="list-style-type: none"> • Mathletics • Global Pi Day • Phone, Camera & Computer (compound shape photo project) • Blackboard Learn • Edmodo • We Video • KS Connect • EZ Grade Pro • QR codes • Pic Collage • Smilebox • Video creation tool • Song creation tool • Comic strip creation tool • Newsletter creation tool • Brochure creation tool • Handout creation tool • Synchronous communication tool • Asynchronous communication tool • Google Docs • PowerPoint • Padlet • Voice Thread

Participant	Qualitative Themes	Integrated Technologies for Instruction
Kaila	<p>Research Question 1</p> <ul style="list-style-type: none"> • Increased awareness of technologies for instruction • Consistent application of skills such as use of Bb Learn after the OITI for student collaboration (discussion board) and content dissemination • Created online lab report module <p>Research Question 2</p> <ul style="list-style-type: none"> • Learning aesthetic design skills were beneficial • Consistently applied the OITI skills for online teaching • No online teaching experience prior → teaching online <p>Research Question 3</p> <ul style="list-style-type: none"> • Ability to address 21st century skills with students (e.g. global citizenship, technology skills and media literacy, digital citizenship) • College preparation • Students engaged in ethical research • Students engaged in a variety of technologies to create products based upon multiple intelligences <p>Research Question 4</p> <ul style="list-style-type: none"> • Increase in technology skills = meaningful implementation for students • Able to keep up with emerging technologies after the OITI ended • Introduction to digital citizenship changed her instructional practices • PD after the OITI: KSDL Instructor Gatherings, self-paced PD, self-exploration of emerging technologies 	<ul style="list-style-type: none"> • Blackboard Learn • Dropbox • LockDown Browser

Participant	Qualitative Themes	Integrated Technologies for Instruction
Jasmine	<p>Research Question 1</p> <ul style="list-style-type: none"> • Blackboard Learn use became an “everyday thing” • Consistent integration of technology based upon the situation <p>Research Question 2</p> <ul style="list-style-type: none"> • After the OITI, developed online math course pilot for summer school • Increased awareness of DL instructional strategies • No online teaching experience prior → teaching online <p>Research Question 3</p> <ul style="list-style-type: none"> • Build better relationships with students through differentiated instruction using technology tools • Ability to assess students’ learning and assist students individually (e.g. synchronous sessions) <p>Research Question 4</p> <ul style="list-style-type: none"> • OITI enhanced instruction in curriculum organization, assessments, and technology integration • PD after the OITI: ISTE, Schools of the Future Conference, Blended campus discussions <p>Enjoyed PLC</p>	<ul style="list-style-type: none"> • Blackboard Learn • Adobe Connect • Elluminate • ALEKS • Math CL • Graphic calculators • Adaptive Learning
Tara	<p>Research Question 1</p> <ul style="list-style-type: none"> • Increased student engagement as a result of the OITI • Development of online Hawaiian Pacific Literature course with another instructor • Visual design skills were beneficial • Consistent application of skills through her “OITI lens” 	<ul style="list-style-type: none"> • Blackboard Learn • Shutterfly • Edmodo • Google Sites • Weebly • Electronic portfolios • Dreamweaver • iMovies • PowerPoint

Participant	Qualitative Themes	Integrated Technologies for Instruction
Tara (continued)	<p>Research Question 2</p> <ul style="list-style-type: none"> • OITI skills reinforced maximizing student engagement and interactions online • No online teaching experience prior → teaching online <p>Research Question 3</p> <ul style="list-style-type: none"> • Continued focus of meeting needs of her students while balancing integration of technology <p>Research Question 4</p> <ul style="list-style-type: none"> • Online curriculum development of the Hawaiian Pacific Literature course “sticks out” • Enjoyed PLC and also integrated PLCs with her students • PD after the OITI: KS Technology Slams 	

This chapter reported on individual analysis of the four teachers participating in this case study. The next chapter takes a closer look at data across all four teacher perspectives, searching for common themes and differences when comparing all viewpoints holistically.

Chapter V

Cross-Case Analysis

This chapter describes the cross-case analysis amongst the four individual teacher perspectives to examine similarities and differences that emerged from the case study. According to Miles and Humberman (1994), cross-case analysis begins after individual analysis, with a focus of understanding patterns and explanations across cases. This type of analysis provided researchers with the ability to understand and “develop more sophisticated descriptions and more powerful explanations” (Miles & Huberman, 1994, p.172). Qualitative and quantitative data gathered according to each research question was analyzed in detail and presented (reference Table 5). Common qualitative and quantitative themes were extracted according to each individual research question in sequential order. To identify qualitative common themes, triangulation of data was applied by comparing qualitative codes for teachers sequentially according to the research questions. To identify quantitative common themes, triangulation of data was applied by comparing quantitative data of teachers using an Excel spreadsheet for the TPACK, ISTE, and iNACOL data.

To address the first research question, cross-case analysis amongst the four teachers included exploring themes that arose from the qualitative interview, TPACK quantitative self-assessment, and ISTE teacher technology standards quantitative self-assessment. To address the second research question, cross-case analysis amongst the four teachers included identification of themes that arose from the qualitative interview, and iNACOL quantitative online teaching standards self-assessment. To address the third and fourth research questions, cross-case analysis was conducted by compiling and comparing the four teachers’ qualitative interview data.

Research Question 1.

The cross-case analysis of how the OITI professional development experience continued to impact the four teachers integrating technology into their blended instruction during the qualitative interviews (Appendix M) resulted in four themes. The first common theme was related to their consistency of applying their knowledge gained from their OITI experience. All four teachers indicated they consistently applied their OITI knowledge into their instruction, with varied responses such as “always constantly looking at instructional delivery through the OITI lens” and “pretty much across the board, consistently.” Their approaches towards technology integration naturally also varied, from creating fully technology integrated units, to developing online tutorials, and integrating the Blackboard Learn learning management system into their instruction. The second common theme that emerged was the integration of the Blackboard Learn learning management system. All four teachers’ perspectives on the use of Blackboard Learn features were positive with the discussion board being the most popular tool integrated to engage students with collaborative discussions. The third common theme that appeared was related to the intent of the teachers integrating technology into their instruction. Always with a focus on their students, the teachers applied their OITI knowledge to excite them, engage them with visually appealing curriculum, prepare them for future online courses, and ensured they were prepared to conduct ethical research beginning with checking the validity of references and Web site resources. The fourth common theme that arose was the mention of technology access and how they adapted to it over the years. All teachers, without a designated prompt in the interview questions, mentioned technology access had improved over the years. They began with some computers in the classroom during the OITI, progressing to 1:1 laptops. They indicated

each student having access to a computer and the increase of instructional technology tools over the years made it more convenient for them to integrate technology into their instruction.

The cross-case analysis of the TPACK quantitative data amongst all four teachers provided further insight on commonalities and differences in their self-perception of strengths and weaknesses as it related to technology integration (Appendix L). All teachers indicated one or more TPACK strengths with the majority of the teachers signifying confidence in more than one TPACK category (Figure 14). Kaila was very confident in five TPACK categories ($M = 5.00$), Lani in three categories ($M = 5.00$), Tara in two categories ($M = 5.00$), and Jasmine in one category ($M = 4.43$). The two most common strength TPACK categories that arose were pedagogical knowledge (PCK) and technological content knowledge (TCK) (Figure 15). The second most common strength TPACK categories were content knowledge (CK) and technological pedagogical content knowledge (TPACK). Pedagogical content knowledge (PCK) was also indicated as a strength TPACK category. There were two TPACK categories that were not indicated as strengths by any of the teachers, technological knowledge (TK) and technological pedagogical knowledge (TPK). The data signified the majority of the teachers participating in the case study were most confident in their abilities to teach with a focus on instructional strategies and integration of technologies that would be most relevant to their subject specialization ($M = 5.00$). Three teachers self-assessed highest at $M = 5.00$, while Jasmine's highest at $M = 4.43$. Overall, teachers were confident in their abilities to integrate technology into their instruction in a meaningful way to impact student learning.

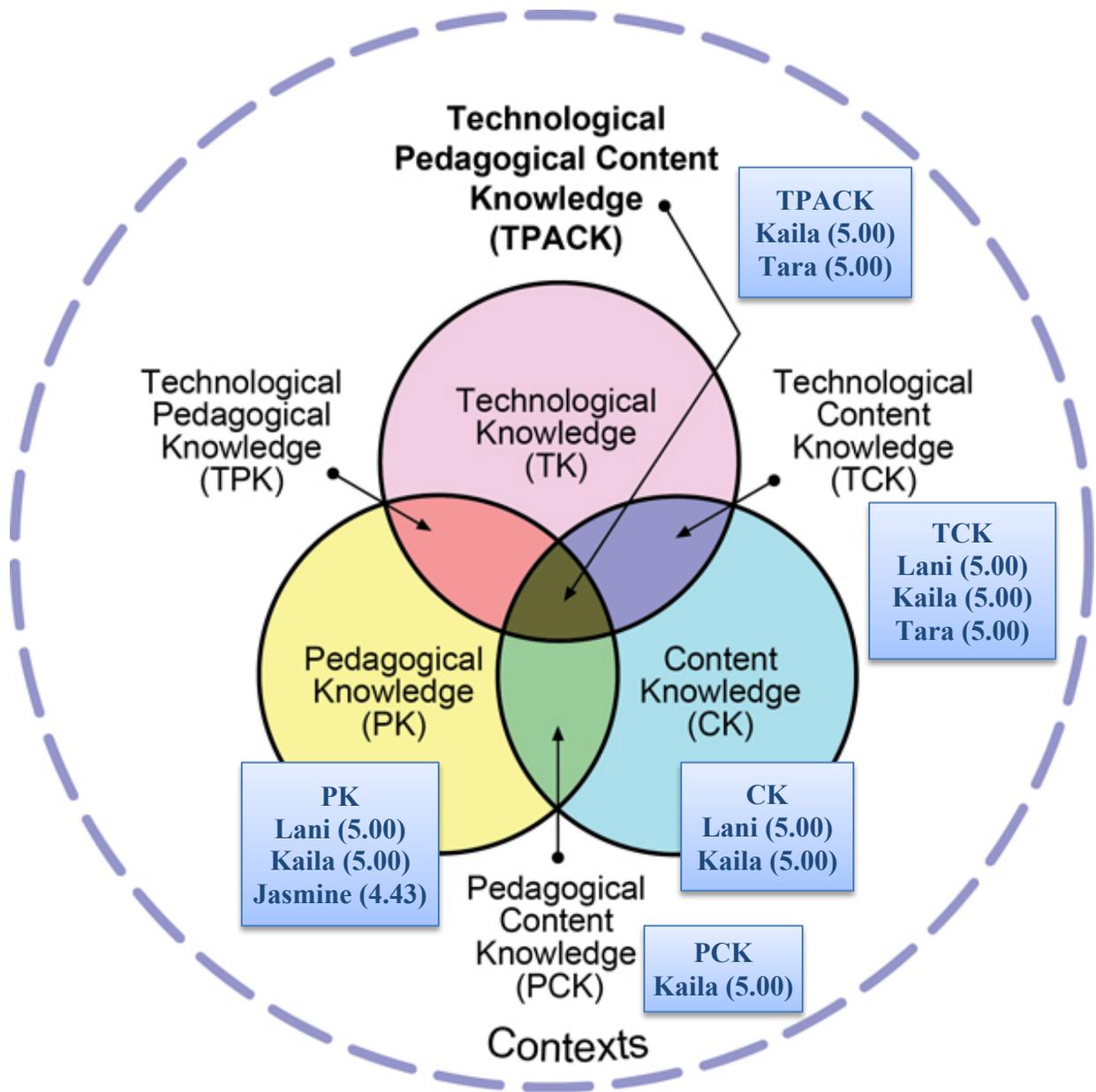


Figure 14. Lani, Kaila, Jasmine & Tara’s compiled highest mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

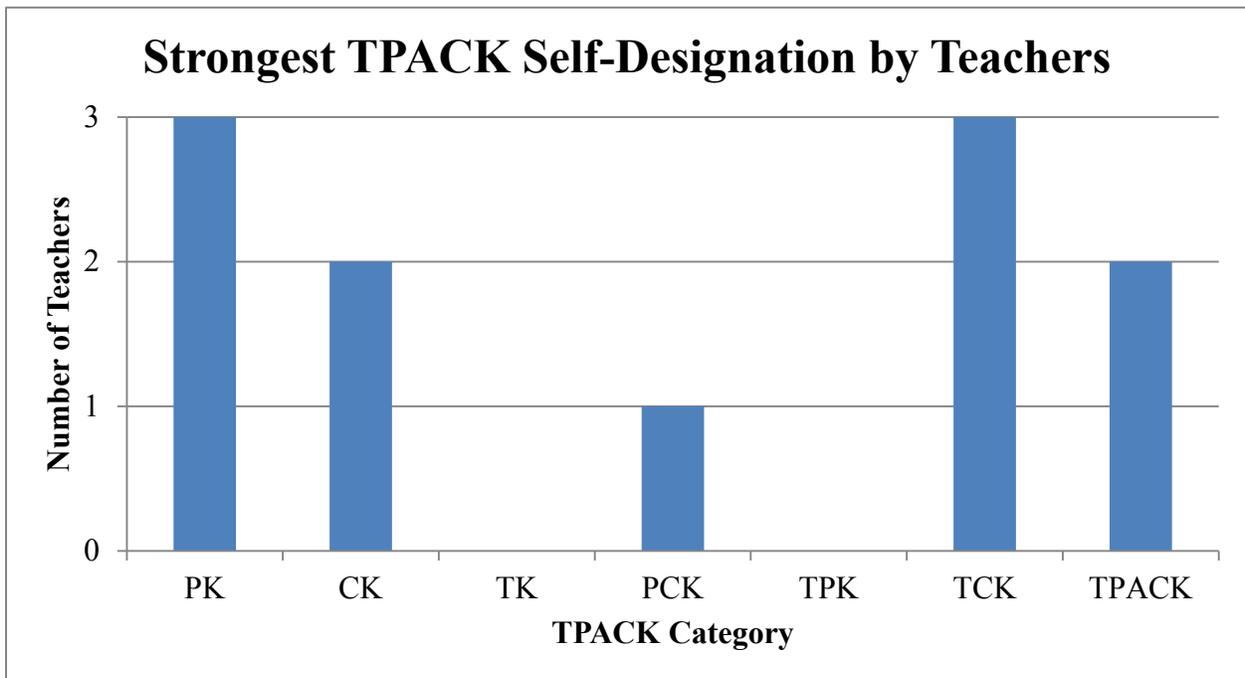


Figure 15. Lani, Kaila, Jasmine & Tara’s compiled highest mean scores bar graph for the modified TPACK self-assessment survey (Appendix L). Some teachers had strong results in more than one TPACK category.

The cross-case analysis of the TPACK strengths follow-up explanations during the qualitative interview (Appendix M) resulted in all four teachers indicating they were most confident in CK, PK, or both. Lani indicated she was most comfortable in CK and PK because these categories did not require technology while Kaila’s explanation was because she had focused on these two categories for a longer period of time as a traditional teacher. Jasmine, most confident in PK, also attributed her highest mean score to potentially the number of years she had been teaching. Although Tara’s quantitative results were highest in TCK and TPACK, she mentioned her comfort level in CK and PK during her follow-up explanation as it related to her strengths. Three of the four teachers’ TPACK highest mean scores also implied confidence in TCK. Lani explained she was comfortable with TCK, especially with technologies she has used and practiced prior. For all four teachers, the categories with the highest TPACK mean scores were related to their comfort level in teaching.

The cross-case analysis of the TPACK quantitative data as it related to the teachers' self-perceived technology integration weaknesses revealed commonalities in different TPACK categories (Figure 16). Lani and Tara were least confident in two TPACK categories ($M = 4.00$), and Kaila ($M = 3.83$) and Jasmine ($M = 3.33$) were least confident in one TPACK category. The most common weakness TPACK category that emerged was technological knowledge (TK) (Figure 17). The second most common weakness TPACK category was pedagogical content knowledge (PCK). Technological pedagogical content knowledge (TPACK) was also indicated as a weakness TPACK category. This signified the majority of the teachers participating in the case study were least confident in their technical skills when using technology, with scores ranging between neutral and agree to agree ($M = 3.33$, $M = 3.83$, and $M = 4.00$). Lani, the only teacher in the case study who did not indicate TK as her least confident TPACK category, was least confident in TPACK and PCK categories ($M = 4.00$). Overall, the data showed that some teachers were less confident in their technical skills ($M = 3.33$), but still felt fairly confident with all other TPACK categories ($M \geq 4.00$). The only one weaker score was Jasmine's confidence as it related to technological pedagogical knowledge ($M = 3.56$), indicating between neutral and agree.

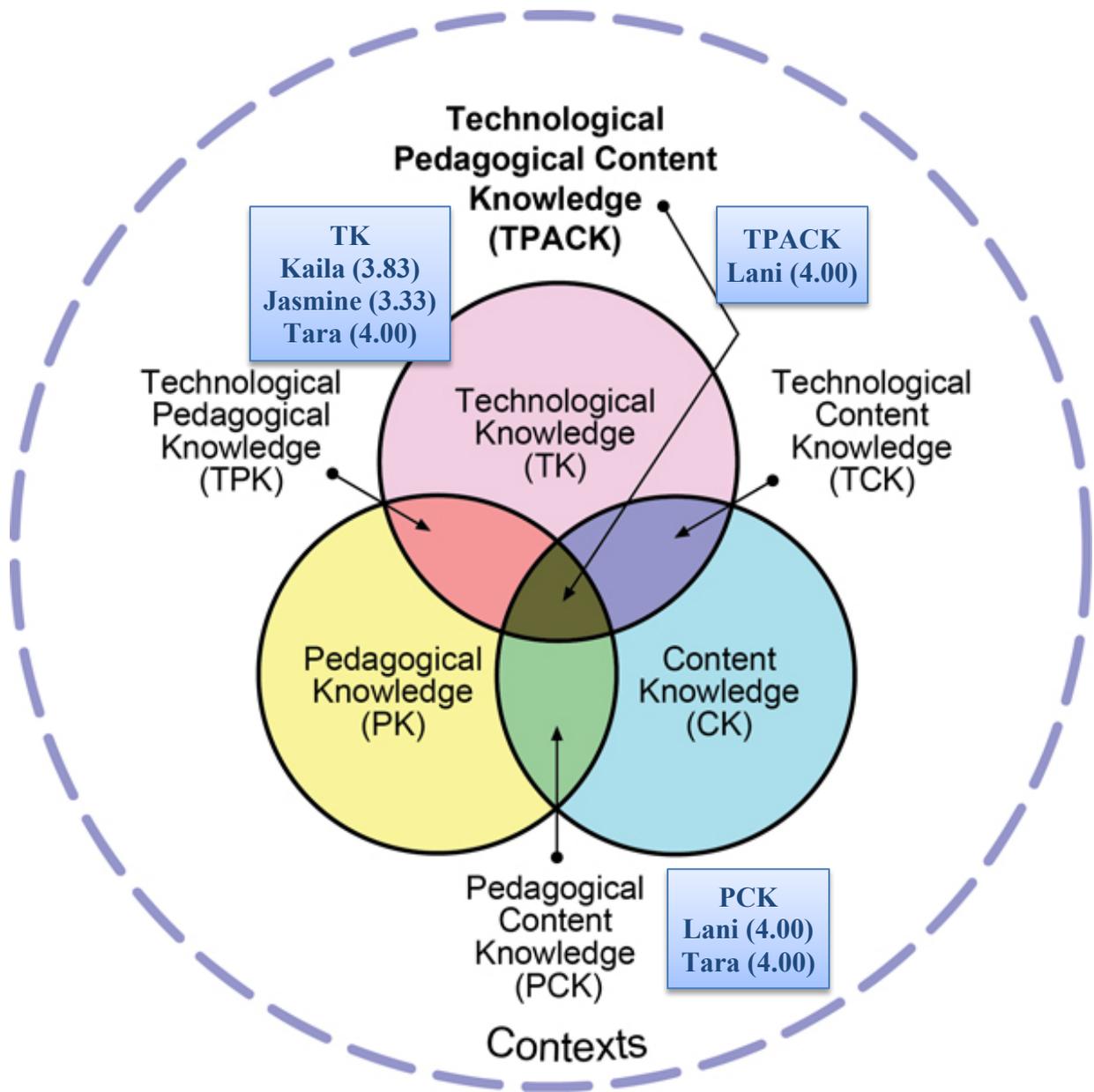


Figure 16. Lani, Kaila, Jasmine & Tara’s compiled lowest mean scores for the modified TPACK self-assessment survey (Appendix L). Research instrument included scores that ranged from 1 (strongly disagree), 2 (disagree), 3 (neither agree or disagree), 4 (agree), to 5 (strongly agree). Permission to modify original TPACK instrument for pre-service teachers provided by Schmidt-Crawford, D.

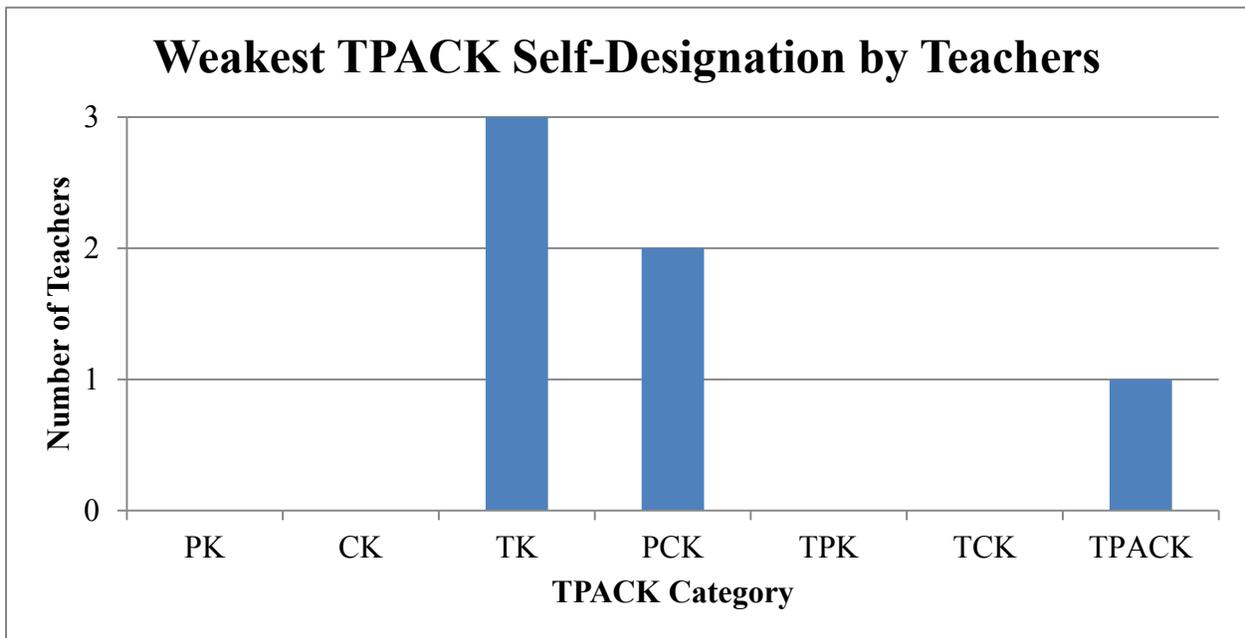


Figure 17. Lani, Kaila, Jasmine & Tara’s compiled lowest mean scores bar graph for the modified TPACK self-assessment survey (Appendix L). Some teachers had weak results in more than one TPACK category.

The cross-case analysis of the TPACK weaknesses follow-up explanations during the qualitative interview (Appendix M) resulted in all four teachers confirming they were least confident in TK. Although Lani’s lowest mean scores were in TPACK and PCK, she mentioned during the explanation of her PK and CK strengths that these two categories did not require technology. In addition, she shared her weakness in TK was because she was not currently in a technology position designated to keep up to date with most current technology trends. Both Kaila and Tara also felt quite a bit of time had passed since the OITI and their day-to-day up keep in technology was not their strength. Jasmine’s explanation differed from the other three teachers in which she stated she was comfortable teaching herself emerging technologies she was interested in. However, she self-rated based upon the perspective of whether or not she felt confident enough as a department chair to teach and roll out the emerging technologies with all teachers within the department.

In addition to the qualitative interview and quantitative TPACK data, quantitative ISTE teacher standards data (Appendix N) were also analyzed to determine if there were similarities or differences among the four teachers as they perceived themselves addressing technology standards. The majority of the teachers specified one ISTE standard strength, while Jasmine indicated two ISTE standard strengths (Figure 18). The scores ranged from between developing and proficient ($M = 2.50$) to between proficient and transformative ($M = 3.50$). Two teachers, Lani and Jasmine, self-assessed the highest in ISTE Teacher Standard 3, modeling digital-age work and learning. Tara, Jasmine and Kaila self-assessed highest in ISTE Teacher Standard 1 (facilitate and inspire student learning and creativity), ISTE Teacher Standard 2 (design and develop digital-age learning experiences and assessments), and ISTE Teacher Standard 4 (promote and model digital citizenship and responsibility) respectively. No teacher indicated ISTE Teacher Standard 5 (engage in professional growth and leadership) as a strength. When comparing all teachers, Tara self-assessed the highest in ISTE Standard 1 ($M = 3.50$), while Jasmine and Kaila had lower scores ($M = 2.50$).

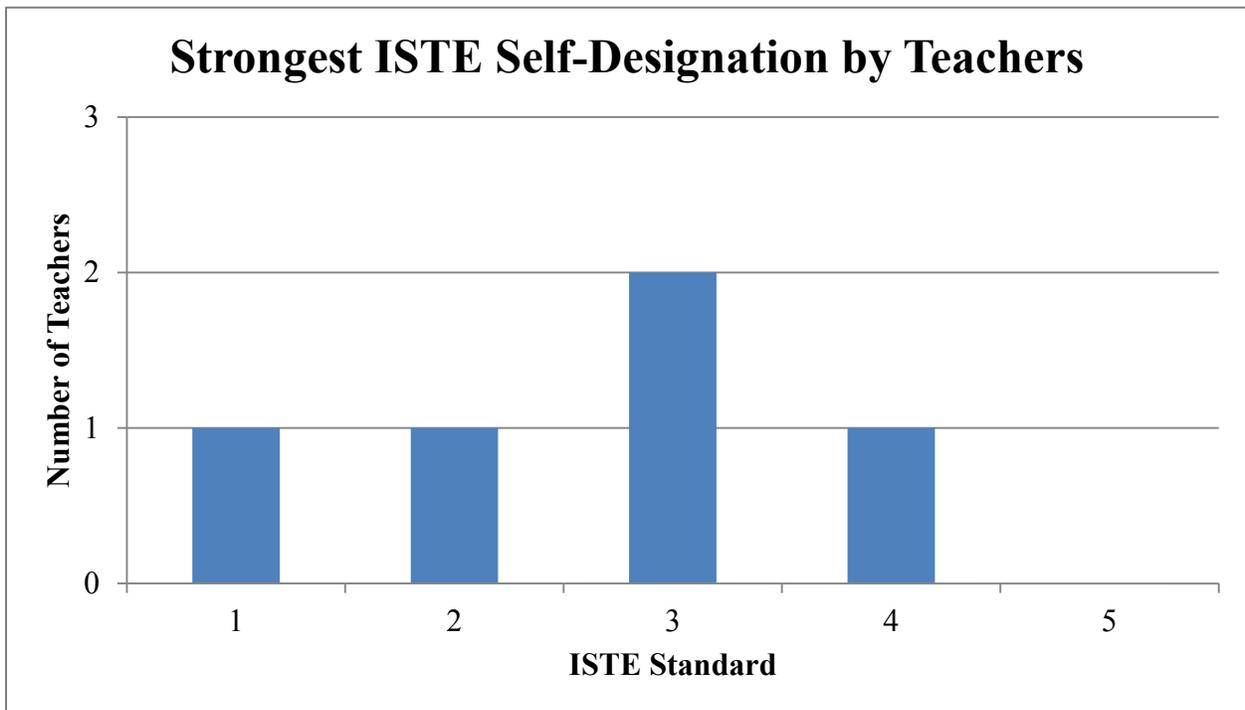


Figure 18. Lani, Kaila, Jasmine & Tara’s compiled highest mean scores bar graph for the ISTE Standards•T self-assessment rubrics (Appendix N). Scores ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative). Some teachers had strong results in more than one ISTE standard.

The cross-case analysis of the ISTE Standards•T strength follow-up explanations during the qualitative interview (Appendix M) indicated teachers were most confident and comfortable in diverse areas as it related to the standards. All four teachers’ follow-up explanations generally pointed to examples of their abilities to integrate technology into their instruction with their students. Overall, ISTE teacher standard strengths seemed to vary between individual teachers.

During comparison of the ISTE teacher standards lowest mean scores (Appendix N), each teacher specified one ISTE teacher standard weakness, with mean scores that ranged between beginning and developing ($M = 1.50$) to between developing and proficient ($M = 2.50$) (Figure 19). Two teachers, Lani and Kaila, self-assessed the lowest in ISTE Teacher Standard 5 (engage in professional growth and leadership). Jasmine self-assessed lowest in ISTE Teacher Standard 2 (design and develop digital-age learning experiences and assessments), and Tara self-

assessed lowest in ISTE Teacher Standard 4 (promote and model digital citizenship and responsibility). No teachers indicated ISTE Teacher Standard 1 (facilitate and inspire student learning and creativity) or ISTE Teacher Standard 3 (modeling digital-age work and learning) as a weakness. Jasmine and Kaila self-assessed the lowest ISTE Teacher Standards 2 ($M = 1.50$) and 5 ($M = 1.50$).

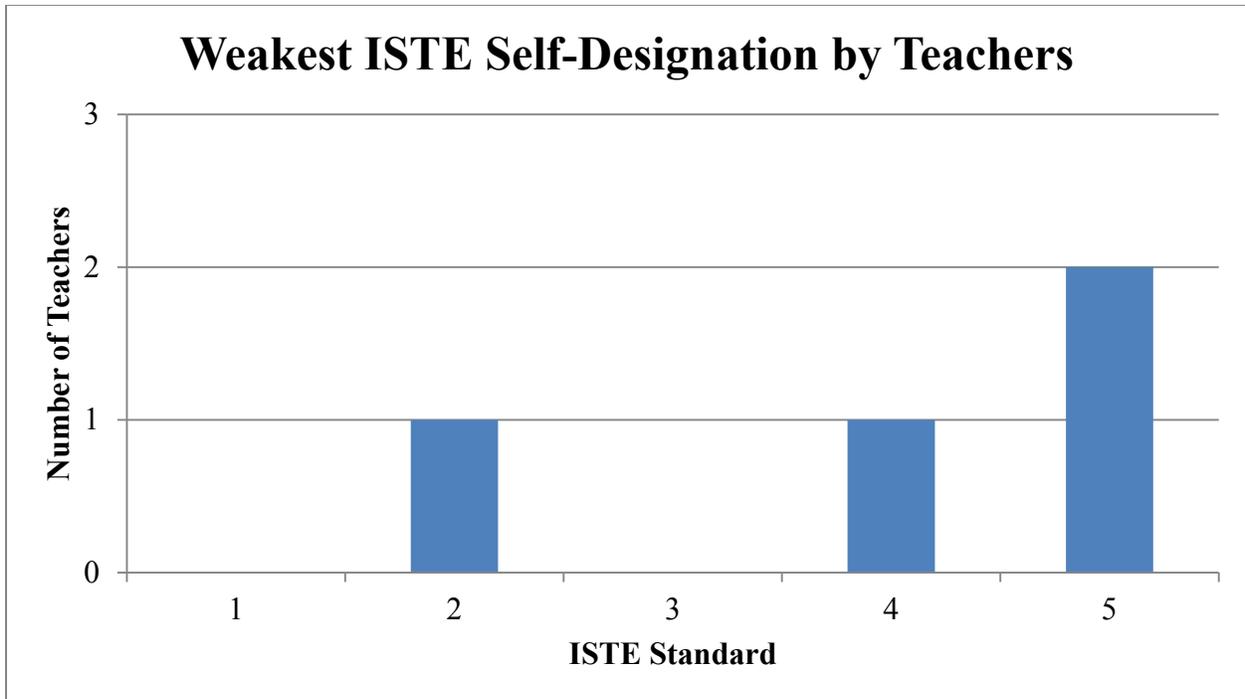


Figure 19. Lani, Kaila, Jasmine & Tara’s compiled lowest mean scores bar graph for the ISTE Standards•T self-assessment rubrics (Appendix N). Scores ranged from 1 (beginning), 2 (developing), 3 (proficient), to 4 (transformative).

The cross-case analysis of the ISTE Standards•T weakness follow-up explanations during the qualitative interview (Appendix M) indicated teachers were least confident in diverse areas as it related to the standards. Each individual teacher’s explanation of their weakness varied. For example, Lani indicated obtaining less professional development in technology leadership (ISTE Teacher Standard 5), Kaila felt she had the most room for improvement in technology leadership (ISTE Teacher Standard 5), Jasmine felt her weakness was attributed to her perspective of being comfortable with the standard but not incorporating technology with her students daily (ISTE

Teacher Standard 2), and Tara thought digital citizenship was more relevant in her prior position as an English teacher versus her current Academic Support Specialist position (IST Teacher Standard 4). Similar to ISTE teacher standard strengths, their self-perceived weaknesses also seemed to vary amongst individual teachers.

Research Question 2.

The cross-case analysis of how the OITI professional development experience continued to impact the four teachers implementing distance learning instructional strategies during the qualitative interviews (Appendix M) resulted in some similarities and differences. The main common theme was related to their consistency of applying their knowledge gained from their OITI experience. Although all four teachers did not have any online teaching experience prior to the OITI, they all validated they consistently applied their OITI knowledge during online instruction with remarks such as, “every time I facilitate an online course” and “any time I log on.” The type of distance learning instructional strategies impacted as a result of the OITI differed for each teacher. They ranged from the Blackboard Learn learning management system skills learned serving as a foundation for teaching online courses, to the awareness of “aesthetic and design for online environment and how it impacts users’ experience,” and reinforcement of how to maximize interactions and engagement in an online environment.

The cross-case analysis of the iNACOL standards for quality online teaching quantitative data (Appendix O) provided additional insight on the teachers’ self-perception of strengths and weaknesses as it related to addressing online teaching standards. Each teacher specified one iNACOL standard strength, with scores that ranged between 3.33 (between satisfactory to very satisfactory) to 4.00 (very satisfactory) (Figure 20). Kaila self-assessed the highest in iNACOL Standard A (basic foundation of effective online instruction), while Tara self-assessed the

highest in iNACOL Standard C (online instructional strategies). Jasmine self-assessed the highest in iNACOL Standard D (clear instructions and prompt feedback), and Lani self-assessed the highest in iNACOL Standard K (arranging media and content to help transfer knowledge in an online environment). In comparison to the other teachers, Lani self-assessed the highest with a mean score of 4.00 (very satisfactory, no improvement needed).

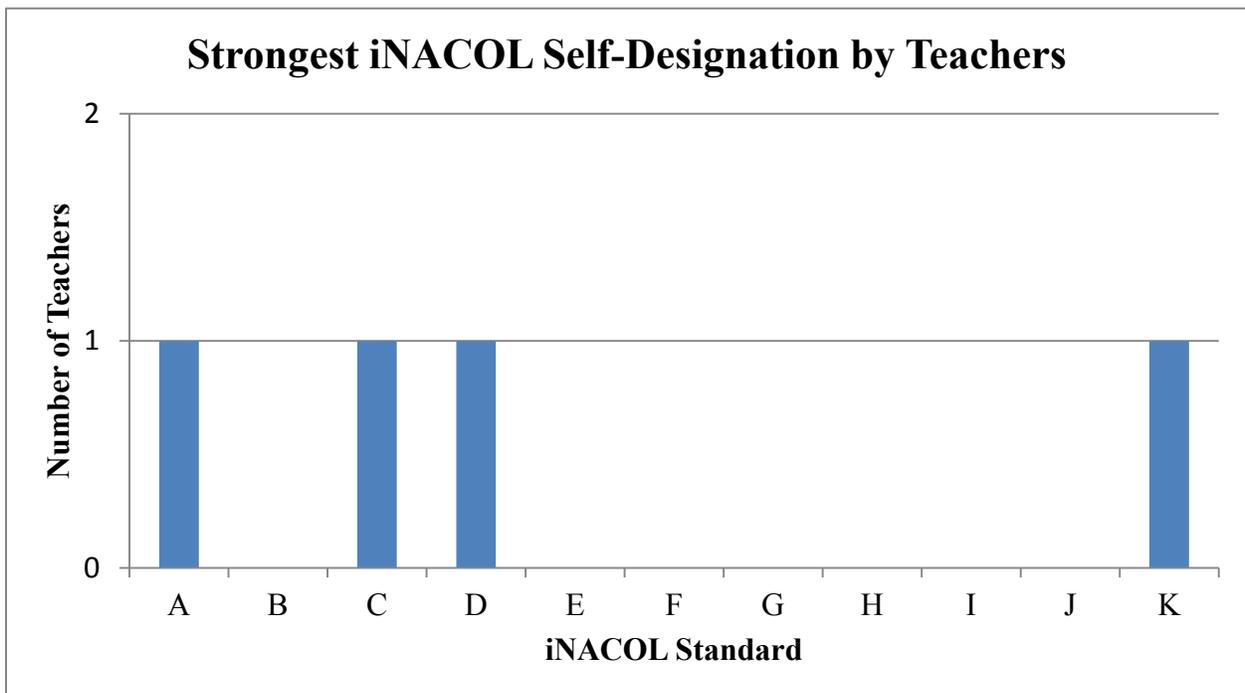


Figure 20. Lani, Kaila, Jasmine & Tara’s compiled highest mean scores bar graph for the iNACOL standards for quality online teaching (Appendix O). Scores ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

The cross-case analysis of the iNACOL teacher standards strengths follow-up explanations during the qualitative interview (Appendix M) resulted in teachers feeling most confident in diverse areas. Each teacher’s strength follow-up explanation was directly related to the impact of online instruction on their students. Lani felt her students were able to transfer knowledge effectively in an online environment (iNACOL Standard A), while Jasmine felt she

increased her prompt responses to students over the last several years because the course had to be “well organized and thought of about what you want to see from students” (iNACOL Standard D). In addition, Tara felt a “students’ sense of belonging is so important to the success...of any classroom” (iNACOL Standard C), and Kaila improved her foundational skills in effective online instruction based upon evaluation feedback from her students over the years (iNACOL Standard A). Overall, iNACOL quality online teaching standard strengths varied greatly between individual teachers.

During the cross-case analysis of the iNACOL standards for quality online teaching lowest mean scores (Appendix O), each teacher specified one iNACOL standard weakness. The mean scores ranged from somewhat satisfactory ($M = 2.14$) to satisfactory ($M = 3.00$) (Figure 21). Tara and Kaila both self-assessed the lowest in iNACOL Standard F (addresses diverse learners, including accessibility accommodations). Lani self-assessed the lowest in iNACOL Standard E (digital citizenship), and Jasmine self-assessed the lowest in iNACOL Standard G (creating and implementing assessments). In comparison to other teachers, Tara self-assessed the lowest, indicating somewhat satisfactory ($M = 2.14$).

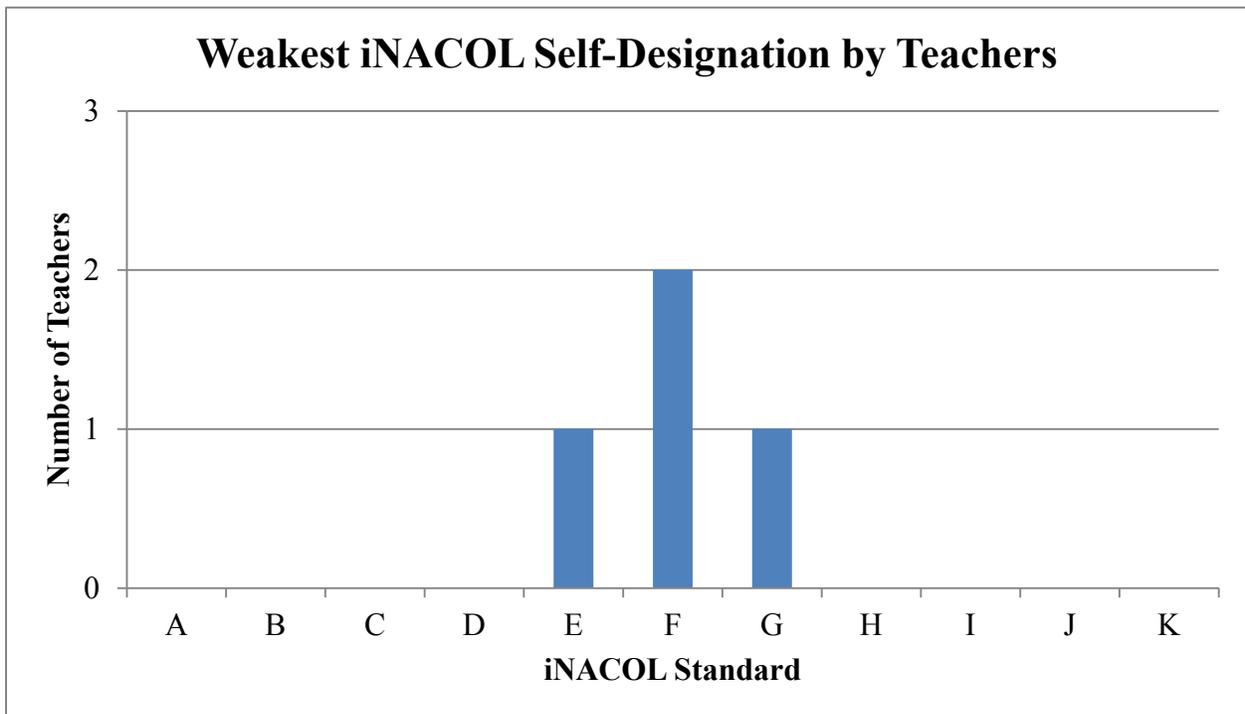


Figure 21. Lani, Kaila, Jasmine & Tara’s compiled lowest mean scores bar graph for the iNACOL standards for quality online teaching (Appendix O). Scores ranged from 0 (absent-component is missing), 1 (unsatisfactory-needs significant improvement), 2 (somewhat satisfactory-needs targeted improvements), 3 (satisfactory-discretionary improvement needed), to 4 (very satisfactory-no improvement needed).

The cross-case analysis of the iNACOL teacher standards weaknesses follow-up explanations during the qualitative interview (Appendix M) resulted in teachers feeling least confident in different areas based upon diverse rationalization. Two teachers, Tara and Kaila, felt addressing diverse learners (including addressing accessibility accommodations) in an online environment were a weakness for them (iNACOL Standard F). Tara indicated it was more difficult to address learners who were not engaged or logged into the online course, while Tara felt she was not aware of advanced online tools to address learners with special needs, for example those who had dysgraphic or were dyslexic. Lani and Jasmine’s weaknesses (iNACOL Standards E and G) were related to the consistency of their application of digital citizenship and

online assessments into their instruction. Both were aware of the skills required of an online instructor, but rated themselves lower in these areas due to less integration with their students.

Research Question 3.

The cross-case analysis of how teachers perceived themselves impacting their students as a result of the OITI professional development during the qualitative interview (Appendix M) highlighted two common themes. The dominant theme, indicated by all four teachers, was related to how their OITI experience provided them with skills and technology tools to differentiate instruction for their students. Examples included students using different technology tools based upon their learning styles to meet course objectives, integrating synchronous sessions to personalize student learning, and working with students to create electronic portfolios to showcase learning. The second common theme, indicated by two teachers (Lani and Jasmine), was focused on better teacher and student relationships as a direct result of applying their skills learned through the OITI training. Examples included teachers having the ability to build strong relationships and increase engagement through the use of tools such as the discussion board, email and synchronous online sessions.

It appears teachers participating in the case study approached student impact in multiple ways. Lani integrated Mathletics and Global Pi Day into her curriculum, in which students utilized their knowledge gained from math class to compete and engage collaboratively in math projects with other students globally. Kaila structured her assessments by encouraging her students to showcase their learning based upon their multiple intelligences. For example, instead of writing an essay, one of her students composed and recorded a song for her science class. Jasmine utilized Adobe Connect, a synchronous videoconferencing tool, to engage and assess her students. By connecting synchronously online individually with her students, she was able to

assess, personalize, and differentiate instruction for her math students based upon their progress. Tara worked with her students to create student-centered electronic portfolios to showcase their collection of writing exemplars. Although each individual teacher's instructional approach varied, their intent and objective was to increase student engagement and impact.

Research Question 4.

The cross-case analysis of what aspects teachers perceived as the most impactful from their OITI experiences during the qualitative interview (Appendix M) resulted in various commonalities and differences. The main theme, as indicated by all four teachers, was related to the technical skills and knowledge that was gained through their professional development experience. Learning emerging technologies, for these teachers, equated to new instructional tools that could be incorporated into their instruction to impact student learning. Terms such as “intense,” “challenging,” and “staying abreast,” were stated when referencing the OITI curriculum. These terms were usually coupled with teachers expressing their increased comfort level of exploring and integrating technologies, as well as instruction in a blended and online environment as a direct result of the OITI. All four teachers also indicated some type of change in instruction as a direct result of their OITI experience, whether it was being a more creative teacher, developing online curriculum, or stepping out of their comfort zone to try new things. When asked if their attitudes, beliefs, or dispositions changed directly as a result of their participation in the OITI, three teachers replied astoundingly with “yes,” while Lani indicated that although she was not sure if her attitudes changed or not, it highlighted for her how curriculum should be organized and delivered in an online environment.

When teachers were asked to reflect on where on the blended and online spectrum their classes were before and after the OITI, it appears all four teachers had progressed successfully to

teaching online (Figure 22). Jasmine and Tara both progressed the most, shifting from teaching in a traditional classroom environment, while Lani and Kaila entered the OITI with some technology integration experience. All four teachers indicated they were successful in shifting their face-to-face classes to a blended environment after their OITI experiences, and were successful in shifting to an online teaching environment through their part-time online instructor experiences with Kamehameha Schools Distance Learning.

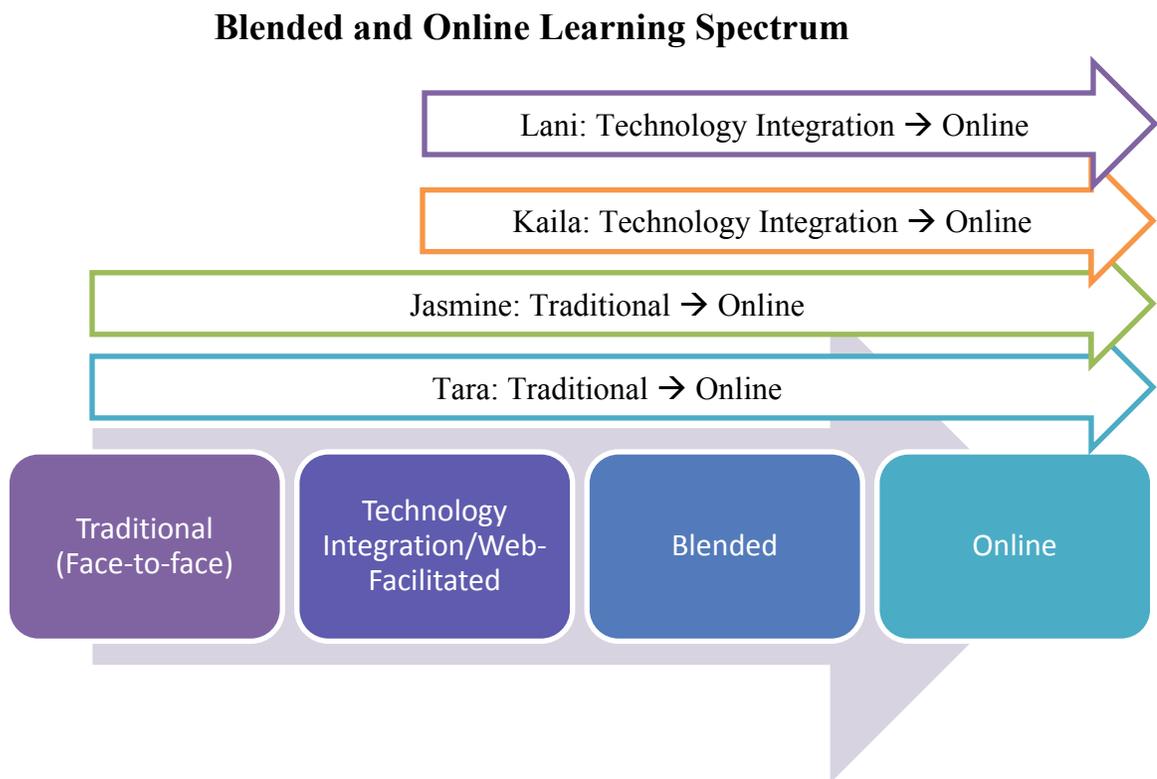


Figure 22. Lani, Kaila, Jasmine & Tara’s compiled blended and online learning spectrum summary. This figure summarizes the teachers’ instructional practice change as a result of the OITI (before and after). Reference Table 1 for detailed course category descriptions.

When teachers were asked to share their professional development experiences after the OITI that was relevant to technology integration or online learning, the two common events that surfaced included the bi-annual one day KSDL part-time online instructor gatherings and the annual one to two days KS Technology Slams. The KSDL part-time online instructor gatherings

provided teachers with the opportunity to connect with other online instructors as well as obtain feedback, skills and knowledge to continually improve their online instruction. The KS Technology Slams were in-service professional development days formatted similarly to a mini-conference with breakout sessions focused specifically on technology integration and digital learning. Other professional development opportunities mentioned included self-exploration of technology tools, conferences hosted by external organizations such as the ISTE and Schools of the Future Conference, and engagement in KS organizational blended and online discussions.

Towards the end of the qualitative interview, the four teachers were asked if they wanted to share about anything else regarding their OITI experience. Two dominant themes that arose were the satisfaction of the professional learning community (PLC) formed in the OITI, and not initially being aware that the OITI would be a “springboard” to other opportunities. Teachers appreciated the cohort style set-up in the OITI, with numerous opportunities to network, connect, and share with their peers. They also felt it was a bonus having the capability to improve their teaching while receiving university professional development credits, and having the opportunity to become an online instructor afterwards.

Chapter Summary.

A thorough cross-analysis of the four teachers as it tied directly to each research question for this case study resulted in numerous similarities and differences (Table 15).

Table 16.

Cross-Case Analysis Summary

Research Question	Similarities	Differences
1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum?	<ul style="list-style-type: none"> • Consistent in applying knowledge gained from OITI experiences for blended environment • Integration of Blackboard Learn LMS with positive perception • Technology integration intent with a focus on students • Teachers felt technology access improved over the years • Two most common TPACK strengths: PCK and TCK • Most common TPACK weakness: TK 	<ul style="list-style-type: none"> • Application of OITI knowledge varied • Blackboard Learn LMS tools varied • Technology integration approach with students varied • ISTE teacher standards strengths varied • ISTE teacher standards weaknesses varied
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies?	<ul style="list-style-type: none"> • No online teaching experience prior to the OITI • Consistent in applying knowledge gained from OITI experiences for online environment 	<ul style="list-style-type: none"> • Application of distance learning instructional strategies varied • iNACOL standards for quality online teaching strengths varied • iNACOL standards for quality online teaching weaknesses varied
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?	<ul style="list-style-type: none"> • OITI experience provided skills and technology tools to differentiate instruction for students • Better teacher and student relationships as a direct result of applying OITI skills 	

Table 15. (Continued) Cross-Case Analysis Summary

Research Question	Similarities	Differences
<p>4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?</p>	<ul style="list-style-type: none"> • Learning emerging technologies = new instructional tools to impact student learning • Teachers expressed although challenging, the OITI increased their comfort level of exploring and integrating technologies into instruction for blended and online environments • Attitudes, beliefs and dispositions changed as a result of the OITI • Shifted successfully on the blended and online instruction spectrum to become online instructors • After completing the OITI, KSDL part-time online instructor gatherings and KS Technology Slam professional development offerings were common • Teachers were satisfied with the OITI professional learning community • Teachers were initially not aware the OITI would be a springboard to other opportunities 	<ul style="list-style-type: none"> • Prior to the OITI, two teachers began with traditional (face-to-face) instruction and two teachers began with a some technology integration • Professional development experiences related to technology integration or online learning after the OITI varied

The next and final chapter presents conclusions drawn from the case study, recommendations for training online instructors, implications for future research, and closing thoughts.

Chapter VI

Discussion and Conclusion

In the previous chapters, the rationale for the case study of online instructors who participated in the Kamehameha Schools Online Instructor Training Institute (OITI) seven to ten years ago was outlined. Four research questions that guided this study were developed. The questions focused on taking an in-depth look at how four teachers continued to integrate technology into their instruction, implemented distance learning instructional strategies, their perceived impact on students, and their perceived impact of the OITI professional development experience. An extensive literature review was conducted on topics relevant to distance learning and professional development of K-12 online instructors. With a limited selection of research focused specifically on professional development for K-12 online instructors, the rationale for this study was validated. The two theoretical frameworks that guided the case study were the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and Thomas Guskey's model for evaluating professional development (Guskey, 2000). In designing and implementing the case study, I utilized research design and methods suggested by researchers such as Yin (2003), Creswell (2007), Merriam (1998), Fraenkel & Wallen (2006), and Patton (2002).

This final chapter synthesizes the key findings and presents discussion of the results according to the research questions developed for this case study. Following the discussion of results, I indicate limitations of the study followed by providing recommendations for future research as it relates to the larger field of distance learning and educational technology prior to concluding my research.

Discussion of Results

These findings corresponded to and were organized around the research questions that guided this case study:

1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum in a blended environment?
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies in an online environment?
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?
4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?

The key findings included verification of teachers consistently applying their knowledge gained from the OITI integrating technology in their classrooms and implementing distance learning instructional strategies when teaching online. In addition, teachers perceived themselves impacting their students utilizing various methods. It also seemed as if the OITI was a professional development experience that impacted their perceptions and attitudes towards online teaching positively.

Integration of Technology after the OITI.

In addressing the first research question, it seems as if all four teachers in this case study integrated technology consistently, applying what they have learned, even seven to ten years after their OITI professional development experience. With newer technologies over the years and transition to 1:1 environments, teachers continued to focus on students and progress with exploring and integrating technologies that would engage their students in a blended

environment. This quote from Kaila highlights the impact of the OITI as it related to integration of technology, “I think it [OITI] helped a lot with blending how to incorporate technology with my content and pedagogically it helped with how to tie it all together and bring it so that it was more seamlessly integrated.”

The quantitative analysis of the TPACK self-assessment further strengthened how the OITI continued to impact teachers and their integration of technology in a blended environment. As it related to the TPACK framework (Mishra & Koehler, 2006), the teachers generally reported positive agreement for all the TPACK categories, indicating teachers were confident in with the overlapping relationships between content, pedagogy, and technology to transform learning through good teaching. Even though the rubric data showed the technological skills (TK) as the lowest of the TPACK categories, the teachers explained in the interviews that OITI strengthened teachers’ technological skills. Lani stated, “I think if I didn’t do OITI, the pink bubble (TK) would be way lower.”

There were many similarities when comparing this case study’s TPACK mean scores to Archambault and Oh-Young’s (2009) study of 596 K-12 online teachers. Archambault and Oh-Young reported teachers self-assessed the highest in pedagogical knowledge (PK), content knowledge (CK), and pedagogical content knowledge (PCK). They were confident about their content knowledge and ability to use a variety of teaching strategies with their students. They were less confident with their technical skills (TK) when troubleshooting computer hardware or software challenges. However, their confidence increased when technology was combined with content (TCK) or pedagogy (TPK). In this case study, the overall strengths of the four teachers included PK, CK, and TCK. Overall, their self-assessed weakness was their technical skills (TK). The strengths of PK and CK were not surprising since traditional teachers naturally needed to

continually improve upon their pedagogical and content skills. In addition, many pre-service teacher preparation programs focus heavily on pedagogy and content in comparison to educational technology skills, with beginning teachers not feeling prepared to effectively integrate technology into their classrooms (Tondeur, et al., 2012). The TCK scores, based upon qualitative interview follow-up responses, indicated teachers self-assessed high in this area as a direct result of the OITI experience due to their comfort level in which technologies would best display the content in multiple representations for their students.

The ISTE teacher standards self-assessment quantitative data also indicated how teachers were impacted with their integration of technology after the OITI, in particular as it related to ISTE Teachers Standard 3, modeling digital age work and learning (ISTE, 2008). When comparing all five teacher standards, the descriptors of ISTE Teacher Standard 3 seemed to correlate with the OITI curriculum the most, focusing on teachers “demonstrating fluency in technology systems and the transfer of current knowledge to new technologies and situations,” and “communicating relevant information and ideas effectively...using a variety of digital age media and formats” (ISTE, 2008). All four teachers generally reported they were proficient or developing their skills as it related to the ISTE standards.

Given the continuously evolving technologies and the teachers’ ability to adapt and continually integrate newer technologies into their instruction (e.g. QR codes, Glogster, Blackboard Learn, Edmodo, Smilebox, etc.), it appears the OITI continued to impact teachers and their integration of technology into their curriculum in a blended environment years later.

Implementation of Distance Learning Instructional Strategies after the OITI.

In addressing the second research question, all four teachers in this case study built upon and utilized their technology integration skills in a blended environment as a foundational

stepping stone for online instruction. Lani shared, “I truly do feel that OITI did prepare me to use a variety of mediums in different contexts, gave me the know-how and courage to try and explore new tools and test their applicability...OITI helped me better understand what it meant to be an online instructor.” The interview data suggest that the teachers applied what they learned consistently, implementing distance learning instructional strategies in an online environment. Tara affirmed as an online instructor, “To be honest, every time I log on, I’m constantly looking at that [what she learned] as far as engagement and responding to emails.” With limited professional development opportunities the teachers engaged in since the OITI that were relevant to technology integration or online learning, and none specifically focused on foundational skills for online teaching, responses from the teachers suggest that the OITI provided a solid foundation for teachers to transition to online teaching.

The tool teachers were introduced to during the OITI, which they continued to utilize when implementing of distance learning instructional strategies was Blackboard Learn, a learning management system (LMS). All four teachers, with positive perceptions, indicated Blackboard Learn as a tool they have continued to rely upon when engaging their online students. Analysis of their qualitative comments confirmed the significance of integrating LMS training as a foundation skill for training online instructors.

The quantitative analysis of the iNACOL standards for quality online teaching self-assessment further strengthened how the OITI continued to impact teachers implementing distance learning instructional strategies in an online environment. The majority of the mean scores for all iNACOL standards ranged between somewhat satisfactory to satisfactory ($M = 2.57$) and very satisfactory ($M = 4.00$). The only two lower scores that were closer to the somewhat satisfactory range were Standard G for Jasmine ($M = 2.14$) and Standard F for Tara

($M = 2.33$). iNACOL Standard F was the most common self-assessed weakness, with Tara and Kaila sharing they both felt challenged if they were responsible in addressing accommodations of students with disabilities in an online environment. This indicated weakness is not surprising since the OITI curriculum did not cover assistive technologies.

With all four teachers not having online teaching experience prior to the OITI, but evolving to becoming part-time online teachers with five to six years of online teaching experience, it appears the OITI professional development experience resulted in concrete skills that prepared teachers to transition smoothly into an online teaching environment.

Teachers' Perception of Their Impact on Students.

In addressing the third research question, it seemed as if all four teachers in this case study perceived themselves impacting their students as a result of the OITI. The qualitative analysis provided concrete examples of how teachers integrated a variety of technology tools to differentiate instruction and personalize learning for their students. By applying the skills they learned in the OITI, teachers were also successful in building better relationships with their students, which resulted in their perception of increased engagement. Although teachers approached student impact through application of diverse methods, it appears their assessments of students through global student collaboration and competition, multiple intelligence-based projects, personalized synchronous sessions, and electronic portfolios resulted in an impact on their student learning.

According to Carol Ann Tomlinson (2014, p. 4), an expert in differentiated instruction, “teachers who differentiate provide specific alternatives for individuals to learn as deeply as possible and as quickly as possible, without assuming one student’s road map for learning is identical to anyone else’s.” Engagement of students individually is important because it leads to

student achievement. As quoted in Tomlinson's book (2014, p. 12) of Lasley & Matczynski (2002), "only teachers who utilize a variety of instructional models will be successful in maximizing the achievement of all students.

OITI Impact from an Online Instructor Perspective.

In addressing the fourth and last research question, all four teachers shared insightful perspectives on what they felt were most impactful from their OITI experiences, which addressed elements of the research question. The qualitative analysis resulted in meaningful themes that could be incorporated into recommendations for future professional development in training online instructors. All teachers felt learning emerging technologies through the OITI increase their technical skills, resulting in increased comfort levels of integrating technologies into their blended and online teaching. The analysis also suggest that teachers felt their attitudes and behaviors toward technology integration and online learning were positively impacted through participation in the OITI. They believed the relevance of the curriculum, modeling of strategies by the instructor and immediate application of their knowledge increased their skills and comfort level. This feedback from the teachers were in direct alignment to Thomas Guskey's (2002) model for evaluating professional development beginning with ensuring participants' reactions to their professional development experience were positive (Level 1), followed by participants acquiring intended knowledge and skills resulting in a change in participants' attitudes, beliefs, or dispositions (Level 2).

It is also important to highlight in this case study of what teachers learned, internalized and implemented varied by individual. For example, it appears teachers approached student impact in diverse ways, as evidenced in their qualitative interview responses. This reaffirmed the theory of motivational engagement as mentioned in the National Educational Technology Plan

(U.S. D.O.E., 2010, p. x), “We learn and remember what attracts our interest and attention, and what attracts interest and attention can vary by learner. Therefore, the most effective learning experiences are not only individualized in terms of pacing and differentiated to fit the learning needs of particular learners, but also personalized in the sense that they are flexible in content or theme to fit the interests of particular learners.”

Limitations of the Study

During reflection of this study, there were several limitations noted. First and foremost, when reviewing the methodology, the data collection is from a teacher self-reported perspective. In my initial thought process, I was thinking of integrating classroom observation data in my qualitative data and methodological triangulation. However, due to my former role as the OITI instructor and logistical challenges with schedule coordination, I felt keeping the study’s main focus of capturing teacher perspectives would be the best way to ensure quality and credibility. Furthermore, studies have verified that “teachers’ beliefs are strongly connected to teaching practices” (Kim, Kim, Lee, Spector, & DeMeester, 2013, p. 82). For future studies conducted with another researcher who is not tied directly to the OITI, it may be beneficial to integrate blended and online class observations.

Secondly, during the qualitative interview session, Jasmine explained she answered the quantitative self-assessments based upon her perspective as a department chair and whether or not she could “roll out” what she learned with her department colleagues, resulting in generally lower mean scores. Her sharing indicated to me that each individual teacher’s perspective when answering the quantitative self-assessments may have varied to some extent. In future studies, providing additional clarification in the online instructors for the quantitative self-assessments help to improve the research instruments. For this case study, this limitation did not impact the

overall results since explanations of the quantitative scores were clarified in the qualitative interview session.

Thirdly, the TPACK framework, ISTE standards and iNACOL standards were developed after the implementation of the OITI. Therefore, the OITI curriculum was not directly aligned to the quantitative self-assessments. Although the OITI curriculum was aligned to an earlier 2000 version of the ISTE teacher standards, the revised 2008 standards were quite different when comparing both sets of standards. To address this limitation in future studies, the recommendation would be to incorporate these framework and standards into future online teacher training curriculum, which would provide more direct alignment of data for future studies.

Lastly, due to a limited number of teachers participating in this case study, the small sample size could have potentially skewed my results. In addition, the sample size limits the results from being generalized.

Recommendations for Training Online Instructors

Based upon the findings in this study, there are several proposed recommendations for training online instructors. It appears in this case study teachers varied in what they learned, internalized and implemented in their blended and online teaching environments. This reaffirmed the need to not only personalize instruction for students (U.S. D.O.E., 2010), but also understand it is important to personalize instruction for teachers in online instructor training professional development programs. Interestingly, many recent articles supporting personalized learning for educators highlight the significance of teachers also requiring personal, relevant, and engaging professional development (Vega, 2013; Lange, 2014; Quattrochi, 2014).

Another recommendation based upon this case study's findings is to ensure highly skilled facilitators or trainers are capable of modeling effective online teaching strategies, creating relevance, and building relationships with teachers while focusing on foundational online teaching skills. This allows teachers to grow professionally through gaining confidence and becoming comfortable with shifting to an online teaching environment. It is important when designing online teacher professional development programs to take an in-depth look at what would be considered foundational online teaching skills. Examples to take into consideration include prior technology integration and blended and online skills teachers may come with when entering the professional development training. Their skills as it relates to technology integration will probably continue to change as new generation of teachers are trained and enter the work force. This study confirmed that foundational skills in technology integration is a necessary first step in becoming successful online instructors as evidenced through teachers' testimonials on the OITI building their confidence and comfort levels in technology, which enabled them to progress from blended to online teaching. Referencing Thomas Guskey's (2000) model for evaluating professional development will provide a solid foundation when designing relevant and meaningful professional development experiences that would "stick" for teachers and ensure improvement in student performance and achievement. In this study, it appeared the teachers' consistently applied their OITI knowledge and skills and changed their instructional practice (Guskey's Level 4). Teachers' perspective on their impact on students also began to address Guskey's Level 5 focus on student learning outcomes. In addition, referencing foundational characteristics of professional development of online instructors is needed. For example, findings from digital and online learning focused organizations such as ISTE and iNACOL, alongside the limited research focused on professional development of online instructors, such as the case

study of PBS Teacherline (Storandt et al., 2012), will be valuable. Furthermore, based upon teacher responses during the interview regarding not being as comfortable addressing special needs students, it would be beneficial to incorporate universal design learning (UDL), a framework that assists educators in creating curricula that addresses the needs of all learners (National Center on Universal Design for Learning, 2014), in future training curriculum.

Teachers in this study also mentioned the OITI professional learning community (PLC) was an enjoyable experience, allowing them to connect, build relationships, and share teaching practices with each other. Therefore, another recommendation when training online instructors would be to thoroughly research PLCs, determining which type of instructional strategies could be incorporated to ensure meaningful, relevant and long lasting PLCs. It is also essential to model and encourage teachers to incorporate PLCs with their students, similar to how Tara felt confident her learners would experience the same sense of community she experienced in the OITI.

Lastly, there is a lot of content to cover to ensure teachers gain skills essential for online teaching. From this study, teachers indicated the increase in their technological skills through exploration of technology tools was beneficial, hence necessary as a foundation skill for blended and online teaching. The recommendation is to be selective in the technology tools introduced, determining which tools would be foundational, easy to learn, and serve multiple purposes in engaging students and increasing student impact and achievement.

Recommendations for Future Research

The findings of this study provided insight on recommendations for future research. First, it would be beneficial to study the new generation of teachers and research their confidence levels as it relates to the TPACK framework, ISTE teacher standard, and iNACOL standards for

quality online teaching. Knowing what technological and pedagogical skills are being taught in pre-service versus in-service professional development trainings for online teacher preparation would be important for the field of distance learning. In addition, if a study included conducting pre and post self-assessments of online teachers related to the TPACK framework, ISTE teacher standards and iNACOL standards for quality online teaching, research findings would also contribute to learning more about skills and topics future online trainings should include.

Secondly, I suggest conducting another case study of the OITI, but modifying the criteria to study those who participated in the OITI, but did not become online instructors or those who became online instructors and decided to explore other career endeavors. Studying where they are now in their careers and what impacted them the most from the OITI, in comparison to those who became online instructors as a result of the OITI, would further strengthen additional professional development offerings.

Thirdly, given all the teachers in this case study did not have prior online teaching experiences, I believe conducting additional research on how to seamlessly connect pre-service teacher trainings with in-service K-12 professional development opportunities to increase the pool of competent K-12 online instructors is needed to ensure quality online learning for students as K-12 online learning continues to expand. According to researchers (Barbour, Siko, Gross & Waddell, 2013, p. 60), “At present, there are few examples of the preparation of teachers for the online environment in teacher education. Even more unfortunate is less than 40% of all online teachers in the United States reported receiving any professional development before they began teaching online.”

My remaining recommendations for future research would include conducting additional studies focused on professional learning community models determining what would be most

effective for online teachers. I would also recommend researching types of LMS tools that would engage students and impact learning given teachers mentioned learning Bb tools helped them engage their students. Lastly, I would recommend expanding and incorporating additional perspectives from students, parents and administrators on the impact of student learning and achievement as a result of the OITI.

Conclusion

This case study provided insights on the long term impact of the Kamehameha Schools Online Instructor Training Institute professional development experience on educators who became distance learning instructors. Building on the limited current knowledge of training K-12 online instructors, this research study contributes to the body of knowledge in the field of distance learning, showcasing how four Kamehameha Schools teachers continued to be impacted by the OITI seven to ten years later. Even with the completion of this study, there is a need to continue conducting additional research on various aspects of training and sustaining competent online instructors. Professionally, I have gained a more in-depth perspective, based upon the findings, on how to approach program design and planning for future online professional development trainings for instructors. By conducting this case study, I have also learned a lot from the research process. I am now more confident and excited to continue additional research as it relates to online learning.

References

- Allen, E. & Seaman, J. (2011). *Going the Distance: Online Education in the United States, 2011*. CA: Babson Survey Research Group for The Sloan Consortium. Retrieved February 14, 2013, from <http://www.onlinelearningsurvey.com/reports/goingthedistance.pdf>.
- Allen, E., Seaman, J. & Garrett, J. (2007). *Blending In: The Extent and Promise of Blended Education in the United States*. CAL Babson Survey Research Group for The Sloan Consortium. Retrieved April 9, 2013, from <http://www.eric.ed.gov/PDFS/ED529930.pdf>.
- Anglia Ruskin University. (2013). *The History of Distance Learning - Infographic - eLearning Industry*. Retrieved February 13, 2013, from <http://elearningindustry.com/the-history-of-distance-learning-infographic>.
- Archambault, L. (2008). Using TPACK as a Framework for Understanding Effective Online Teaching. *Proceedings of Society for Information Technology & Teacher Education International Conference 2008*, 5190-5195. Chesapeake, VA: AACE. Retrieved May 7, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p128100>.
- Archambault, L. (2011). The Practitioner's Perspective on Teacher Education: Preparing for the K-12 Online Classroom. *Journal of Technology and Teacher Education*. 19(1), 73-91. Chesapeake, VA: AACE. Retrieved March 12, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p31410>.
- Archambault, L. & Crippen, K. (2009). K-12 Distance Educators at Work: Who's Teaching Online Across the United States. *Journal of Research on Technology Education*. 41(4), 370-378.
- Archambault, L. & Oh-Young, C. (2009). Putting the T in PCK: Exploring the Nature of the TPACK Framework Among K-12 Online Educators Using a Web-Based Survey. *Proceedings of Society for Information Technology & Teacher Education International Conference 2009*, 4008-4014. Chesapeake, VA: AACE. Retrieved May 7, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p31285>.
- Barbour, M., Archambault, L., & DiPietro, M. (2013). K-12 Online Distance Education: Issues and Frameworks. *American Journal of Distance Education*. 27(1), 1-3. doi: 10.1080/08923647.2013.759452.
- Barbour, M., Brown, R., Waters, L., Hoey, R., Hunt, J., Kennedy, K., . . . Trimm, T. (2011). *Online and Blended Learning: A Survey of Policy and Practices of K-12 Schools Around the World*. For iNACOL. Retrieved April 15, 2013, from http://www.inacol.org/cms/wp-content/uploads/2012/11/iNACOL_IntnlReport2011.pdf.

- Barbour, M., Siko, J., Gross, E., & Waddell, K. (2013). Virtually Unprepared: Examining the Preparation of K-12 Online Teachers. In Hartshorne, R., Heafner, T., & Petty, T., *Teacher Education Programs and Online Learning Tools: Innovations in Teacher Preparation* (pp. 60-81). Retrieved September 14, 2014, from http://www.michaelbarbour.com/research/pubs/chaper_hartshorne.pdf.
- Barker, P. (2002). Skill Sets for Online Teaching. *Digital Library for Education & Information Technology (EdITLib)*. Retrieved, May 4, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/9873>.
- Blackboard. (2009). *Blended Learning: Where Online and Face-to-Face Instruction Intersect for 21st Century Teaching and Learning*. Retrieved April 9, 2013, from <http://www.blackboard.com/CMSPages/GetFile.aspx?guid=be3a6c2a-ea0f-47c3-8148-8cf4caedd40b>.
- Blomeyer, R. (2002). *Virtual Schools and E-Learning in K-12 Environments: Emerging Policy and Practice*. NCREL Policy Issues: A Research-Based Analysis of Education Issues, 11.
- Bordelon, R. S., & Hinson, J. (2002). Skills, Modifications, and Obstacles: Teaching Online Courses at the High School Level. *Digital Library for Education & Information Technology (EdITLib)*. Retrieved, May 4, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/10529>.
- Childs, E. & Crichton, S. (2004). The Impact of Online Professional Development on Teaching Practice: Research Summary and Final Results. In J. Nall & R. Robson (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 256-263. Chesapeake, VA: AACE.
- Christensen, C.M., Horn, M.B., & Johnson, C.W. (2009). *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*. NY: McGraw Hill.
- Cohen, D. (2006). RWJF - Qualitative Research Guidelines Project | *Member checking* | *Member Checks*. Retrieved February 3, 2013, from <http://www.qualres.org/HomeMemb-3696.html>.
- Colorado State University. (2013). *Commentary on Case Studies: Strengths and Weaknesses of Case Studies*. Retrieved May 10, 2013, from <http://writing.colostate.edu/guides/page.cfm?pageid=1300>.
- Creswell, J.W. (2007). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

- Cyrs, T.E. (1997). Competence in Teaching at a Distance. *New Directions for Teaching and Learning*, (71), 15. Retrieved May 4, 2013, from <http://web.ebscohost.com.eres.library.manoa.hawaii.edu/ehost/detail?vid=3&sid=155c6442-3cc1-416c-90bc-4e1112a5a66d%40sessionmgr12&hid=22&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=aph&AN=9711033780>.
- Dawley, L., Rice, K. & Hinck, G. (2010). *Going Virtual! 2010: The Status of Professional Development and Unique Needs of K-12 Online Teachers*. Retrieved March 10, 2013, from <http://edtech.boisestate.edu/goingvirtual/goingvirtual3.pdf>.
- Davis, N. & Rose, R. (2007). *Professional Development for Virtual Schooling and Online Learning*. VA: iNACOL. Retrieved March 8, 2013, from https://www.inacol.org/research/docs/NACOL_PDforVSandOlnLrng.pdf.
- Deubel, P. (2008). K-12 Online Teaching Endorsements: Are They Needed? *The Journal*, Retrieved March 3, 2013, from <http://thejournal.com/articles/2008/01/10/k12-online-teaching-endorsements-are-they-needed.aspx>.
- Dick, W., & Carey, L. (1996). *The Systematic Design of Instruction* (4th ed.). New York: Longman.
- Dole, S. & Bloom, L. (2009). Office of the Provost | Georgia Southern University. *Online Course Design: A Case Study*. Retrieved February 2, 2013, from http://academics.georgiasouthern.edu/ijstol/v3n1/articles/PDFs/Article_DoleBloom.pdf.
- Dziuban, C., Hartman, J. & Moskal, P. (2004). Blended Learning. *Educause Center for Applied Research Bulletin*. Retrieved April 9, 2013, from <http://net.educause.edu/ir/library/pdf/erb0407.pdf>.
- Evans, J. R., & Mathur, A. (2005). The Value of Online Surveys. *Internet Research*, 15(2), 195-219. Retrieved January 29, 2013, from <http://www.emeraldinsight.com.eres.library.manoa.hawaii.edu/toc/intr/15/2>.
- Florida Virtual Campus. (n.d.). *Towards a Definition of Distance Learning*. Retrieved April 8, 2013, from http://www.fldlc.org/taskforce/pdf/toward_definition.pdf.
- Florida Virtual School. (FLVS). (2013). *Quick Facts*. Retrieved February 14, 2013, from <http://www.flvs.net/areas/aboutus/pages/quickfactsaboutflvs.aspx>.
- Fraenkal, J., & Wallen, N. (2006). *How to Design and Evaluate Research and Education* (6th ed.). New York, NY: McGraw-Hill, 430.
- Frels, R. & Onwuegbuzie, A. (2013). Administering Quantitative Instruments with Qualitative Interviews: A Mixed Research Approach. *Journal of Counseling & Development*, 91(2), 184-194.

- Goodyear, P., Salmon, G., Spector, M., Steeples, C., & Tickner, S. (2001). Competencies for Online Teaching: A Special Report. *Educational Technology Research & Development*, 49 (1), 65-72. Retrieved May 4, 2013, from http://www.academia.edu/313849/Competences_for_online_teaching_A_special_report.
- Great Schools Partnership (2014). *The Glossary of Education Reform*. Retrieved July 28, 2014, from <http://edglossary.org/>.
- Guskey, T. (1989). Attitudes and Perceptual Change in Teachers. *The International Journal of Educational Research*, 13(4), 439-453.
- Guskey, T. (2000). *Evaluating Professional Development*. Thousand Oaks, CA: Corwin Press, 79-81.
- Guskey, T. (2002a). Professional Development and Teacher Change. *Teachers and Teaching: Theory and Practice*, 8(3), 381-384.
- Guskey, T. (2002b). Does it Make a Difference? *Evaluating Professional Development. Educational Leadership*, 59(6), 45-51. Retrieved July 18, 2013, from <http://www.ascd.org/publications/educational-leadership/mar02/vol59/num06/Does-It-Make-a-Difference%C2%A2-Evaluating-Professional-Development.aspx>.
- Hatch, J. A. (2002). *Doing Qualitative Research in Education Settings*. NY: SUNY Press. Retrieved May 9, 2013, from <http://books.google.com/books?hl=en&lr=&id=KuB4fjzM5DsC&oi=fnd&pg=PR9&dq=popularity+of+qualitative+case+studies+in+education&ots=TBFXwZoHkU&sig=uqZckCyV24YJfuJHS1QvccQObMk#v=onepage&q=popularity%20of%20qualitative%20case%20studies%20in%20education&f=false>.
- Hathaway, D. & Norton, P. (2012). An Exploratory Study Comparing Two Modes of Preparation for Online Teaching. *Journal of Digital Learning in Teacher Education*, 28, 4. Retrieved March 19, 2013, from <http://www.eric.ed.gov/PDFS/EJ972456.pdf>.
- Hawai'i Department of Education. (2007). *State of Hawaii, Department of Education Strategic Plan: July 1, 2008 – June 30, 2011*. Retrieved September 10, 2009, from <http://doe.k12.hi.us/>.
- Hawai'i Department of Education. (2012). *State of Hawaii, Department of Education Strategic Plan 2011-2018: 2012 Update*. Retrieved April 16, 2013, from <http://doe.k12.hi.us/curriculum/strategicplan2011-2018/update/BOE%20DOE%20StratPlan%202012%20Update%20rev20120914.pdf>.
- Hawai'i Department of Education E-School. (2013). *Program Description*. Retrieved July 11, 2013, from <http://eschool.k12.hi.us/home/program-description>,
- Hawai'i Technology Academy. (2014). *Vision*. Retrieved September 26, 2014, from <http://hi.myhta.org/vision/>.

- Hawai'i Virtual Learning Network. (2014). *About Us*. Retrieved September 26, 2014, from <http://hawaiiivln.k12.hi.us/who-we-are>.
- Hesse-Biber, S. *Mixed Methods Research: Merging Theory with Practice*. New York, NY: Guilford Press.
- Hirata, D. (2007, Feb.). A 3-Year Professional Development Journey in Training K-12 Educators to Become Successful Distance Learning Instructors. *2007 Illinois Online Conference*. Online presentation conducted during the 2007 Illinois Online Conference.
- Horn, M., & Darrow, R. (2012). *A Conversation About Blended Learning, Trends and Teachers*. [PowerPoint Presentation] for International Association for K-12 Online Learning (iNACOL) presentation. Retrieved from, <http://www.inacol.org/cms/wp-content/uploads/2012/11/Blended-Learning-Horn-Darrow-Final.pptx>.
- Howland J., & Wedman, J. (2004). A Process Model for Faculty Development: Individualizing Technology Learning. *Journal of Technology and Teacher Education*, 12(2), 239-263. Retrieved May 5, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/4472>.
- International Association for K-12 Online Learning (iNACOL). (2011a). *National Standards*. Retrieved February 27, 2013, from <https://www.inacol.org/research/nationalstandards/>.
- International Association for K-12 Online Learning (iNACOL). (2011b). *National Standards for Quality Online Teaching*, 2nd Version. Retrieved April 24, 2013, from http://www.inacol.org/cms/wp-content/uploads/2013/02/iNACOL_TeachingStandardsv2.pdf.
- International Association for K-12 Online Learning (iNACOL). (2011c). *The Online Learning Definitions Project*. Retrieved January 7, 2013, from http://www.inacol.org/research/docs/iNACOL_DefinitionsProject.pdf.
- International Association for K-12 Online Learning (iNACOL). (2012). *Fast Facts About Online Learning*. Retrieved February 17, 2013, from http://www.inacol.org/press/docs/nacol_fast_facts.pdf.
- International Society for Technology in Education (ISTE). (2000). *National Educational Technology Standards for Teachers*. Retrieved April 13, 2006, from http://cnets.iste.org/teachers/pdf/Appendix_A.pdf.
- International Society for Technology in Education (ISTE). (2008). *National Educational Technology Standards for Teachers*. Retrieved April 24, 2013, from <http://www.iste.org/docs/pdfs/nets-t-standards.pdf?sfvrsn=2>.
- Kamehameha Schools. (2000). *Kamehameha Schools Strategic Plan 2000-2015*. Retrieved April 20, 2013, from, <http://www.ksbe.edu/osp/Publications/EntireDocument.pdf>.

- Kamehameha Schools. (2013). *About Kamehameha Schools*. Retrieved April 29, 2013, from <http://www.ksbe.edu/about/>.
- Kamehameha Schools Distance Learning. (2010). *About Distance Learning*. Retrieved April 29, 2013, from <http://ksdl.ksbe.edu/aboutus.html>.
- Kamehameha Schools Distance Learning. (2014). A‘o Kumu Professional Development for Educators. Retrieved September 26, 2014, from <http://ksdl.ksbe.edu/aokumu/>.
- Kamehameha Schools Strategic Planning 2015-2040. (2014). *Progress and Promise: Envisioning our Future*. Retrieved September 26, 2014, from <http://www.ksbe.edu/progressandpromise/>.
- Kaplan-Leiserson, E. (2006). *Learning Circuits: ASTD’s Source for E-Learning Glossary*. Retrieved September 16, 2014, from <http://www.astd.org/Publications/Newsletters/Learning-Circuits/Glossary>.
- Kearsley, G. & Blomeyer, R. (2004). Preparing K-12 Teachers to Teach Online. *Educational Technology*, (1), 49-52. Retrieved May 4, 2013, from <http://home.sprynet.com/~gkearsley/TeachingOnline.htm>.
- Kennedy, K. & Archambault, L. (2012). Offering Preservice Teachers Field Experiences in K-12 Online Learning: A National Survey of Teacher Education Programs. *Journal of Teacher Education*, 63(3), p. 185-200.
- Kennedy, K., Tysinger, T., Bailey, C. & LaFrance, J. (2013). Preparing Education Professionals for K-12 Online Learning Programs (Chapter). *Educational Media and Technology Yearbook*, 38, 120. NY: Springer. Retrieved March 12, 2013, from http://link.springer.com/chapter/10.1007/978-1-4614-4430-5_10#page-1.
- Kihei Charter School. (2014). *History of KCS*. Retrieved September 26, 2014, from <http://www.kiheicharter.org/index.php/282>.
- Kim, C., Kim, M., Lee, C., Spector, M. & DeMeester, K. (2013) Teacher Beliefs and Technology Integration. *Teaching and Teacher Education*, 29, 76-85. Retrieved September 10, 2014, from <http://www.sciencedirect.com.eres.library.manoa.hawaii.edu/science/article/pii/S0742051X1200131X>.
- King, F.B., Young, M.F., Drivere-Richmond, K., & Schrader, P.G. (2001). *Defining Distance Learning and Distance Education*. Neag School of Education, The University of Connecticut. Retrieved April 8, 2013, from <http://editlib.org/p/17786/>.
- Klieger, A. & Oster-Levinz, A. (2010). How Online Tasks Promote Teachers’ Expertise Within the Technological Pedagogical Content Knowledge (TPACK). *Transformative Learning and Online Education; Aesthetics, Dimensions and Concepts*, 219-235.

- Koehler, M. (2013). *TPACK Bibliography*. Retrieved May 6, 2013, from <http://mkoehler.educ.msu.edu/tpack/tpack-bibliography/>.
- Koehler, M. & Mishra, P. (2009). *What is Technological Pedagogical Content Knowledge? Contemporary Issues in Technology and Teacher Education*, 9(1). Retrieved April 1, 2013, from <http://www.citejournal.org/articles/v9i1general1.pdf>.
- La Pietra. (2013). *Online School for Girls*. Retrieved July 11, 2013, from <http://www.lapietra.edu/academics/online-school-for-girls/index.aspx>,
- Lange, J. (2014). Why Teachers Need Personalized Professional Development. *Edudemic: Connecting Education and Technology*. Retrieved September 13, 2014, from <http://www.edudemic.com/teachers-need-personalized-professional-development/>.
- Laupahoehoe Public Charter School. (2014). *How It Works*. Retrieved September 26, 2014, from <http://www.k12local.com/laupahoehoe/who-we-are/how-it-works>.
- Lederman, D. (2013). *Growth for Online Learning*. Retrieved February 14, 2013, from <http://www.insidehighered.com/news/2013/01/08/survey-finds-online-enrollments-slow-continue-grow>.
- Lincoln, Y., & Guba, E. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in Educational Research: From Theory to Practice*. San Francisco, CA: Wiley & Sons.
- MachLachlan, D. (2002). Supporting Teachers in Active Online Learning Environments. *Digital Library for Education & Information Technology (EdITLib)*. Retrieved, May 4, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/10476>.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., Jones, K. (2010). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*. United States Department of Education (U.S. D.O.E.), Office of Planning, Evaluation, and Policy Development. Retrieved February 25, 2013, from <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>.
- Merriam, S. (1998). *Qualitative Research and Case Study Applications in Education*. CA: Jossey-Bass.
- Merriam-Webster. (2013). *Definition of Distance Learning*. Retrieved July 23, 2013, from <http://www.merriam-webster.com/dictionary/distance%20learning>.
- [Mersberg, A.] [2003]. *Kamehameha Schools Online Instructor Training Institute Rationale*. Unpublished document, Kamehameha Schools Distance Learning. Kamehameha Schools, HI.

- Miles, M. B., and Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.
- Mills, A., Durepos, G., & Wiebe, E. (2009). *Encyclopedia of Case Study Research*. Los Angeles: Sage Publications. Retrieved February 3, 2013, from <http://books.google.com.eres.library.manoa.hawaii.edu/books>.
- Mishra, P. & Koehler, M. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108(6), p. 1017-1054.
- Myron B. Thompson Academy. (2014). *School Profile*. Retrieved September 26, 2014, from <http://ethompson.org/web/page/view/school-profile>.
- Natale, C. (2011). *Teaching in the World of Virtual K-12 Learning: Challenges to Ensure Educator Quality*. NJ: Educational Testing Service. Retrieved March 10, 2013, from http://www.ets.org/s/educator_licensure/ets_online_teaching_policy_final_report.pdf.
- National Center on Universal Design for Learning. (2014). *About UDL*. Retrieved October 16, 2014, from <http://www.udlcenter.org/aboutudl/udlguidelines>.
- National Education Association (NEA). (2012). *NEA Handbook and Policy Statement*. Retrieved March 10, 2013, from <http://www.nea.org/assets/docs/2012-NEA-Handbook-Policy-Statements.pdf>.
- Office of Educational Technology. (2000). *E-learning: Putting a World-Class Education at the Fingertips of All Children* (The National Educational Technology Plan). Washington, D: U.S. Department of Education.
- Oliver, Osborne & Brady. (2009). What are Secondary Students' Expectations for Teachers in Virtual School Environments? *Distance Education*, 30(1), 32-36. doi: 10.1080/01587910902845923.
- Online School for Girls. (2014). *Community: Our Schools*. Retrieved September 26, 2014, from <http://www.onlineschoolforgirls.org/community/our-schools/>.
- Osborne, C. & Coltman, G. (2012). *The history of distance learning [Infographic]*. Retrieved February 13, 2013, from <http://www.zdnet.com/blog/igeneration/the-history-of-distance-learning-infographic/15791>.
- Palloff, R., & Pratt, K. (1999). *Lessons from the Cyberspace Classroom*. Paper presented at the 17th Annual Conference on Distance Teaching and Learning, Madison, Wisconsin. Retrieved, May 4, 2013, from http://www.uwex.edu/disted/conference/resource_library/proceedings/01_20.pdf.
- Partnership for 21st Century Skills (2011). Framework for 21st Century Learning. Retrieved June 29, 2014, from http://www.p21.org/storage/documents/1.__p21_framework_2-pager.pdf.

- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods* (3rd ed.). CA: Sage Publications.
- Patrick, S. & Dawley, L. (2010). *Redefining Teacher Education: K-12 Online-Blended Learning and Virtual Schools*. Embedded within Going Virtual! 2010. Retrieved March 10, 2013, from <http://edtech.boisestate.edu/goingvirtual/goingvirtual3.pdf>.
- Pennsylvania Historical & Museum Commission (2002). *Radio in Pennsylvania*. Retrieved February 13, 2013, from <http://www.portal.state.pa.us/portal/server.pt/community/things/4280/radio/478686>.
- Phillips, P., Hammett, R.F., St. Croix, L. & White, G. (2012). Teaching with Digital Technologies: A Case Study Using TPACK. In T. Bastiaens & G. Marks (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2012* (p. 315). Chesapeake, VA: AACE.
- Phipps, R. & Merisotis, J. (1999). What's the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education. *Institute for Higher Education Policy*. Retrieved April 29, 2013, from http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED429524&ERICExtSearch_SearchType_0=no&accno=ED429524.
- Project Tomorrow. (2011a). *The New 3 E's of Education: Enabled, Engaged Empowered: How Today's Students are Leveraging Emerging Technologies for Learning*. Retrieved February 21, 2013, from http://www.tomorrow.org/speakup/pdfs/SU10_3EofEducation_Students.pdf.
- Project Tomorrow. (2011b). *Learning in the 21st Century: 2011 Trends Update*. Irvine, CA: Speak Up and Washington D.C.: Blackboard. Retrieved March 11, 2013, from http://www.blackboard.com/resources/k12/k12Trends2011_web.pdf.
- Project Tomorrow. (2012). *Learning in the 21st Century: A 5 Year Retrospective on the Growth in Online Learning*. Irvine, CA: Speak Up and Washington D.C.: Blackboard. Retrieved April 15, 2013, from http://www.tomorrow.org/speakup/learning21Report_2012_Update.html.
- Project Tomorrow. (2013). *Learning in the 21st Century: Digital Experiences and Expectations of Tomorrow's Teachers*. Irvine, CA: Speak Up and Washington D.C.: Blackboard. Retrieved March 11, 2013, from http://images.email.blackboard.com/Web/BlackboardInc/%7B44fe5cc3-3c7d-4ec0-824b-489b25ca8062%7D_ProjectTomorrow2013_Teacher_Report_Draft.pdf.
- Punahou School. (2013). *Global Online Academy*. Retrieved September 26, 2014, from <http://www.punahou.edu/academics/academy/academy-course-listing/academy-go/index.aspx>.

- Quattrochi, C. (2014). A Path Towards Personalized PD. *edSurge*. Retrieved September 13, 2014, from <https://www.edsurge.com/n/2014-06-03-a-path-towards-personalized-pd>.
- Queen, B. & Lewis, L. (2011). *Distance Education Courses for Public Elementary and Secondary School Students: 2009-10* (NCES 2012-008). U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office.
- Reis, R. (2009). *1013 Tomorrow's Professor Msg.#1013 Strengths and Limitations of Case Studies*. Retrieved May 10, 2013, from <http://cgi.stanford.edu/~dept-ctl/tomprof/posting.php?ID=1013>.
- Rice, K. (2012). *Making the Move to K-12 Online Teaching: Research-Based Strategies and Practices*. NJ: Pearson Education.
- Ross, J. & Bruce, C. (2007). Teacher self-assessment: A mechanism for facilitating professional growth. *Teacher and Teacher Education*. 23(2), 146-159. Retrieved April 24, 2012, from <http://www.sciencedirect.com.eres.library.manoa.hawaii.edu/science/article/pii/S0742051X06000813>.
- Saint Andrew's Priory School for Girls. (2013). *iPriory*. Retrieved July 11, 2013, from <http://www.priory.net/page.cfm?p=855>,
- Salmons, J. (2011). *Designing and Conducting Research with Online Interviews*. SAGE Publications. Retrieved January 31, 2013, from http://www.sagepub.com/upm-data/43888_1.pdf.
- Schoenfeld-Tacher, R., & Perischitte, K. (2000). Differential Skills and Competencies Required of Faculty Teaching Distance Education Courses. *International Journal of Educational Technology*, (2), 1. Retrieved May 4, 2013, from <http://ascilite.org.au/ajet/ijet/v2n1/schoenfeld-tacher/>.
- Shulman, L. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*. 15(2), 4-14. Retrieved March 27, 2013, from <http://www.jstor.org.eres.library.manoa.hawaii.edu/stable/pdfplus/1175860.pdf?acceptTC=true>.
- Sheehy, K. (2012). States, Districts Require Online Ed for High Schools Graduation. *U.S. News*. Retrieved February 20, 2013, from <http://www.usnews.com/education/blogs/high-school-notes/2012/10/24/states-districts-require-online-ed-for-high-school-graduation>.
- Simonson, M. (2008) for United States Distance Learning Association (USDLA). *DL Glossary*. Retrieved April 1, 2013, from http://www.usdla.org/assets/pdf_files/Glossary_Distance.pdf.
- Simonson, M., Smaldino, S., Albright, M., Zvacek, S. (2006). *Teaching and Learning at a Distance: Foundations of Distance Education*. NJ: Pearson Merrill Prentice Hall.

- Spector, J. M., & Teja, I. (2001). Competencies for Online Teaching. *ERIC Clearing House on Information & Technology at Syracuse University*. Retrieved, May 4, 2013, from <http://www.ibstpi.org/downloads/online-competencies.pdf>.
- Spector, J.M., Klein, J., Fields, D., Teja, I., Grabowski, B., Sims, R.C., & Visser, J. (2002). Developing and Validating Competencies for Classroom and Online Teachers. *Digital Library for Education & Information Technology (EdITLib)*. Retrieved, May 4, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/10758>.
- SPSS. (2013). *SPSS Statistics: Put the power of advanced statistical analysis in your hands*. Retrieved April 24, 2013, from <http://www01.ibm.com/software/analytics/spss/products/statistics/>.
- Staker, H. & Horn, M. (2012). *Classifying K-12 Blended Learning*. MA: Innosight Institute. Retrieved April 9, 2013, from <http://www.innosightinstitute.org/innosight/wp-content/uploads/2012/05/Classifying-K-12-blended-learning2.pdf>.
- Storandt, B., Dossin L., & Lacher, A. (2012) Toward an Understanding of What Works in Professional Development for Online Instructors: The Case of PBS Teacherline. *Journal of Asynchronous Learning Networks*, 16(2). Retrieved September 13, 2014, from <http://onlinelearningconsortium.org/jaln/v16n2/toward-understanding-what-works-professional-development-online-instructors-case-pbs-teac>.
- Tomlinson, C. (2014). *Differentiated Classroom: Responding to the Needs of All Learners*. VA: ASCD. Retrieved September 11, 2014, from <http://books.google.com/books?hl=en&lr=&id=CLigAwAAQBAJ&oi=fnd&pg=PP1&dq=the+effect+of+differentiated+instruction+on+student+achievement&ots=AekjoMfett&sig=OtDJBYLOV92uFFXBIOhyLGZ2I0#v=onepage&q&f=false>.
- Tondeur, J., Braak, J., Sang, G., Voogt, J., Fisser, P. & Ottenbreit-Leftwich, A. (2012). Preparing Pre-Service Teachers Teachers to Integrate Technology in Education: A Synthesis of Qualitative Evidence. *Computers and Education*. 59(1), 134-144. Retrieved September 9, 2014, from <http://www.sciencedirect.com.eres.library.manoa.hawaii.edu/science/article/pii/S0360131511002533#>.
- Treacy, B. (2007). *What's Different about Teaching Online? How are Virtual Teachers Changing Teaching?* Retrieved March 8, 2013, from <http://edtechleaders.org/documents/teachingonline.doc>.
- U.S. Department of Education, Office of Educational Technology. (2010). *Transforming American Education: Learning Powered by Technology, National Educational Technology Plan 2010*. Retrieved February 26, 2013, from <http://www.ed.gov/sites/default/files/netp2010.pdf>.
- University of Hawai'i (UH). (2012). Committee on Human Studies (CHS) Overview. Retrieved Feb. 2013, from <http://www.hawaii.edu/irb/html/about.php>.

- Vega, V. (2013). Teacher Development Research Review: Keys to Educator Success. *Edutopia*. Retrieved September 13, 2014, from <http://www.edutopia.org/teacher-development-research-keys-success>.
- Veletsianos, G., Doering, A., & Henrickson, J. (2012). Field-Based Professional Development of Teachers Engaged in Distance Education: Experiences from the Arctic. *Distance Education*, 33(1), 45-59. Retrieved April 9, 2013, from <http://www.tandfonline.com/doi/abs/10.1080/01587919.2012.667959#.VDns8fldWSo>
- Ward, C. & Benson S. N. (2010). Developing New Schemas for Online Teaching and Learning: TPACK. *Journal of Online Learning and Teaching*, 6(2). Retrieved http://jolt.merlot.org/vol6no2/ward_0610.htm.
- Watson, J. (2008). *Promising Practices in Online Learning: Blended Learning: The Convergence of Online and Face-to-Face Education*. Retrieved April 9, 2013, from http://www.inacol.org/cms/wp-content/uploads/2012/09/NACOL_PP-BlendedLearning-lr.pdf.
- Watson, J., Murin, A., Pape, L. (2014). *Teaching Online Across States*. Retrieved September 26, 2014, from http://kpk12.com/cms/wp-content/uploads/EEG_KP-TchnStLines.pdf.
- Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2011). *Keeping Pace with K-12 Online Learning: An Annual Review of Policy and Practice*. Colorado: EverGreen Consulting Associates for iNACOL. Retrieved March 13, 2013, from <http://kpk12.com/cms/wp-content/uploads/KeepingPace2011.pdf>.
- Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2013). *Keeping Pace with K-12 Online & Blended Learning: An Annual Review of Policy and Practice*. Colorado: EverGreen Consulting Associates for iNACOL. Retrieved September 26, 2014, from http://kpk12.com/cms/wp-content/uploads/EEG_KP2013-lr.pdf.
- Wicks, M. (2010). *A National Primer on K-12 Online Learning Version 2*. VA: iNACOL. Retrieved February 22, 2013, from http://www.inacol.org/research/docs/iNCL_NationalPrimerv22010-web.pdf
- Yin, R. (2003). *Case Study Research: Design and Methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Yin, R. (2008). *Case Study Research: Design and Methods*. (4th ed.). CA: Sage Publications. Retrieved May 9, 2013, from <http://books.google.com/books?hl=en&lr=&id=FzawIAdilHkC&oi=fnd&pg=PR1&dq=single+vs.+multiple+case+study&ots=1X3W1djR-o&sig=Je0rYodHRblaTuBVjn9cpNCL6hU#v=onepage&q=single%20vs.%20multiple&f=false>.

Yu, Q. H. (2003). Teacher Preparation for Online Education: Beyond Technology Issues. *Digital Library for Education & Information Technology (EdITLib)*. Retrieved, May 4, 2013, from <http://www.editlib.org.eres.library.manoa.hawaii.edu/p/17960>.

Appendices

Appendix A

Online Instructor Training Institute Course Descriptions

Online Instructor Training Institute Course Descriptions

- Title: Introduction to Technology Integration for Educators
(Hands-on training for “Technology for Teachers” worth 2 B-Credits)
Description: Provide potential distance learning instructors with hands-on opportunities to familiarize themselves with a variety of technologies for integration into the classroom.

- Title: Technology For Teachers (3 College Credits)
Description: Introduction to application of educational technology in teaching and learning using strategies in design, selection, development, integration, and evaluation.

- Title: Introduction to Distance Learning Technologies
(Hands-on training for “Development of Online Courses worth 2 B-Credits)
Description: Provide potential distance learning instructors with hands-on opportunities to familiarize themselves with a variety of distance learning technologies.

- Title: Development of Online Courses (3 College Credits)
Description: Planning, design, and development of online instruction for educational and training settings. Implementation of online course elements such as student interaction, course management, testing, and content delivery using an authoring environment such as Web course tools or equivalent



ETEC 415: TECHNOLOGY FOR TEACHERS

Course Description: Introduction to the application of educational technology in teaching and learning using strategies in design, selection, development, integration, and evaluation.

Prerequisite: Basic teacher certification or consent.

Target Audience: Teachers of Hawaiian students in grades 7-12 with an interest in developing distance learning courses.

Course Delivery: ETEC 415 will be delivered as a hybrid course with two face-to-face meetings with the instructor(s) at the beginning and end of the semester. The majority of the course will be delivered in an online environment utilizing the Internet supplemented with several videoconference meetings.

Required Equipment and Facilities:

- Access to a computer (minimum 128 MB RAM) with Internet connection (Road Runner or DSL preferred) and CD-ROM drive
- Access to a printer
- Software: Microsoft Office (including Word and PowerPoint), Email, Web Browser
- Willing to go to a videoconference site.

Textbook:

Integrating Educational Technology into Teaching, 3rd ed. by M.D. Roblyer

Goals

The goals of ETEC 415 are having the students acquire:

- Introductory knowledge of the theoretical and practical aspects of a broad range of educational media and technology.
- The ability to design instruction which incorporates applications of appropriate media and technology selection, production, and evaluation.
- Increased levels of confidence in using media and technology for instructional purposes.

Objectives:

Knowledge Objectives

Knowledge objectives are listed on the first page of each chapter of the required text.

Performance Objectives

At the end of this course, you should be able to:

- Use computer course management software tools to communicate virtually with your instructor and peers.
- Utilize Internet search strategies to identify resources and evaluate them for accuracy and suitability.
- Model and teach legal and ethical practices related to technology use.
- Align course materials to content standards.
- Use word processing with digitized images with all written materials free of spelling, typing, and grammatical errors.
- Work collaboratively in “virtual groups” on educational technology projects.
- Create presentations integrated with your curriculum that meets professional production standards.
- Create educational web pages that will increase communication between teachers, students, parents, and administrators.
- Describe distance education technologies and its benefits when used by teachers and students in an educational setting.
- Identify and use technology resources that affirm diversity.
- Make presentations as a part of a group that advocates for the use of newer technologies in teaching.
- Create an electronic portfolio that showcases projects completed in this course with all technology integrated lesson plans aligned to content.

Attitudinal Objectives

At the end of this course, it is anticipated that you will choose to:

- Continue use of computer course management software and adapt to one’s own classroom needs.
- Continue use of technology resources to engage in ongoing professional development and lifelong learning.
- Select media and techniques that are appropriate and motivating for specific audiences when designing instruction.
- Use word processing and computer graphics to create learning materials.
- Create multimedia presentations that will integrate with lessons for learners with diverse backgrounds, characteristics, and abilities.
- Learn more about becoming a distance learning instructor.
- Continue improving upon electronic portfolio as you integrate technology with your curriculum.
- Keep updated with current copyright laws and model legal and ethical practices related to technology use.



ETEC 415 Spring 2004 Calendar

#	Date	Topic	Site	Readings	Assignment Due
1	Jan. 14	Introduction The Ins and Outs of Blackboard	Online		
2	Jan. 24 (Saturday)	Face-to-face meeting Learning Community Directory Being a Successful Online Student NETS standards	On-Site	Ch. 1	The Ins and Outs of Blackboard "What is Distance Learning to You?" Weekly Reflection Log #1
3	Jan. 28	Internet Search Strategies Evaluating Internet Resources	Online	Ch. 8 (p.196-215)	BINGO Online Icebreaker Weekly Reflection Log #2
4	Feb. 4	Copyright for Educators	Online	Ch.2	Internet Scavenger Hunt Evaluating Web Sites Annotated Electronic Resource Weekly Reflection Log #3
5	Feb. 11	Integrating Word Processing in an Educational Setting	VTC	Ch. 4 & Ch. 5 (p.117-127)	Copyright Quiz Weekly Reflection Log #4
6	Feb. 18	Integrating Multimedia in an Educational Setting (Visual Basics/PowerPoint) Introduction of Technology Unit Plan	VTC	Ch. 3	Computer Graphic Handout OR Job Aid/Tutorial Weekly Reflection Log #5
7	Feb. 25	Virtual Teambuilding Group PowerPoint Project	Online	Ch. 7	Weekly Reflection Log #6
8	March 3	Finalize Group PowerPoint Project	Online		Virtual Team Building Activity Educational Issues Pertaining to Native Hawaiian Children and Youth Assignment Weekly Reflection Log #7
9	March 10	Elements of Web Site Design Creating Educational Web Pages Introduction of Newer Technology Sharing of Group Presentation Project	VTC		Group Power Point Project Weekly Reflection Log #8
10	March 17	Creating Educational Web Pages – Part II Introduction of Electronic Portfolio Project	Online		Web Site Plan Weekly Reflection Log #9
11	March 24	Holiday: Spring Break			
12	March 31	Distance Learning Technologies (Live Video Streaming Session)	Online (Synchronous)	Ch. 8 (p.190-196)	Educational Web Site Weekly Reflection Log #10
13	April 7	Technology Unit Plan work time Newer Technologies work time Electronic Portfolio work time	Online	Ch. 9	Weekly Reflection Log #11
14	April 14	Technology Unit Plan work time Newer Technologies work time Electronic Portfolio work time	Online	Ch. 10-15 (choose one chapter)	Weekly Reflection Log #12
15	April 21	Newer Technologies rehearsal Electronic Portfolio work time	VTC		Technology Unit Plan Weekly Reflection Log #13
16	April 28	Newer Technology Presentations	VTC		Newer Technology Presentation Weekly Reflection Log #14
17	May 8 (Saturday)	Kamehameha Schools Studio Tour Sharing of Electronic Portfolio Wrap Up/Course Evaluation	On-Site		Electronic Portfolio

1. Readings from your textbook and any other online reading materials should be completed in advance to support class activities.
2. Calendar is subject to change according to individual needs of the class and determination of the instructors.



ETEC 649: DEVELOPMENT OF ONLINE COURSES

Course Description: The planning, design, and development of online instruction for educational and training settings. Implementation of online course elements such as student interaction, course management, testing, and content delivery using an authoring environment such as Blackboard or equivalent.

Prerequisite: Basic teacher certification or consent. Successful completion of ETEC 415.

Target Audience: Teachers of Hawaiian students in grades 7-12 with an interest in developing distance learning courses.

Course Delivery: ETEC 649 will be delivered as a hybrid course with several face-to-face meetings with the instructor(s) throughout the semester. The course will be delivered in an online environment utilizing the Internet supplemented with videoconference meetings.

Required Equipment and Facilities:

- Access to a computer (minimum 128 MB RAM) with Internet connection (Road Runner or DSL preferred) and CD-ROM drive
- Access to a printer
- Software: Microsoft Office (including Word and PowerPoint), Email, Web Browser, Macromedia Studio (including Dreamweaver, Fireworks, and Flash)
- Willing to go to a videoconference site.

Textbook:

Teaching and Learning at a Distance, 2nd ed.

by M. Simonson, S. Smaldino, M. Albright, and S. Zvacek



Goals

The goals of ETEC 649 are having the students acquire:

- Introductory knowledge of the theoretical and practical aspects of teaching distance learning courses.
- Pedagogical and technical skills to develop an online course module accessible through Blackboard (learning management system).
- Knowledge on selection and use of appropriate authoring and multimedia tools when designing and developing curriculum for distance learning.
- Increased levels of confidence in using Blackboard and distance learning technologies for instructional purposes.

Objectives:

Knowledge Objectives

Knowledge objectives are listed on the first page of each chapter of the required text.

Performance Objectives

At the end of this course, you should be able to:

- Implement technology unit plan (aligned to content standards) and gather student samples for electronic portfolio
- Design a plan for an online course module utilizing the instructional design process.
- Develop an online module accessible through Blackboard (learning management system).
- Evaluate and assess the online course module you have designed and developed.
- Utilize a microphone headset when integrating audio with multimedia presentations for distance learning.
- Utilize a web camera for virtual meetings with peers when developing distance learning curriculum and recording short instructional video clips.
- Work collaboratively in “virtual groups” when developing distance learning curriculum.
- Set up your own course utilizing Blackboard (learning management system) software tools to communicate virtually with your instructors, peers, and students.
- Complete and electronic portfolio that showcases projects completed throughout the Online Instructor Training Institute.

Attitudinal Objectives

At the end of this course, it is anticipated that you will choose to:

- Continue use of computer course management software and adapt to one’s own classroom needs.
- Continue use of technology resources to engage in ongoing professional development and lifelong learning.
- Select media and techniques that are appropriate and motivating for specific audiences when designing instruction.
- Create curriculum for learners with diverse backgrounds, characteristics, and abilities.
- Learn more about asynchronous vs. synchronous learning at a distance.
- Learn more about distance learning technologies.
- Learn more about evaluation and assessment of online learning.
- Continue improving upon electronic portfolio as a professional development tool.

Appendix B

International Society for Technology in Education (ISTE)
National Educational Technology Standards (NETS) for Teachers - 2000

ISTE NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS (NETS) AND PERFORMANCE INDICATORS FOR TEACHERS

All classroom teachers should be prepared to meet the following standards and performance indicators.

I. TECHNOLOGY OPERATIONS AND CONCEPTS

Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:

- A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE *National Educational Technology Standards for Students*).
- B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

II. PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

- A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
- B. apply current research on teaching and learning with technology when planning learning environments and experiences.
- C. identify and locate technology resources and evaluate them for accuracy and suitability.
- D. plan for the management of technology resources within the context of learning activities.
- E. plan strategies to manage student learning in a technology-enhanced environment.

III. TEACHING, LEARNING, AND THE CURRICULUM

Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers:

- A. facilitate technology-enhanced experiences that address content standards and student technology standards.
- B. use technology to support learner-centered strategies that address the diverse needs of students.
- C. apply technology to develop students' higher order skills and creativity.
- D. manage student learning activities in a technology-enhanced environment.

IV. ASSESSMENT AND EVALUATION

Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:

- A. apply technology in assessing student learning of subject matter using a variety of assessment techniques.
- B. use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.
- C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.

V. PRODUCTIVITY AND PROFESSIONAL PRACTICE

Teachers use technology to enhance their productivity and professional practice. Teachers:

- A. use technology resources to engage in ongoing professional development and lifelong learning.
- B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.
- C. apply technology to increase productivity.
- D. use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.

VI. SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES

Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK–12 schools and apply that understanding in practice. Teachers:

- A. model and teach legal and ethical practice related to technology use.
- B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.
- C. identify and use technology resources that affirm diversity.
- D. promote safe and healthy use of technology resources.
- E. facilitate equitable access to technology resources for all students.

Appendix C

Online Instructor Training Institute Preliminary Evaluations

ETEC 415 "Technology for Teachers" Survey, 2004-2007

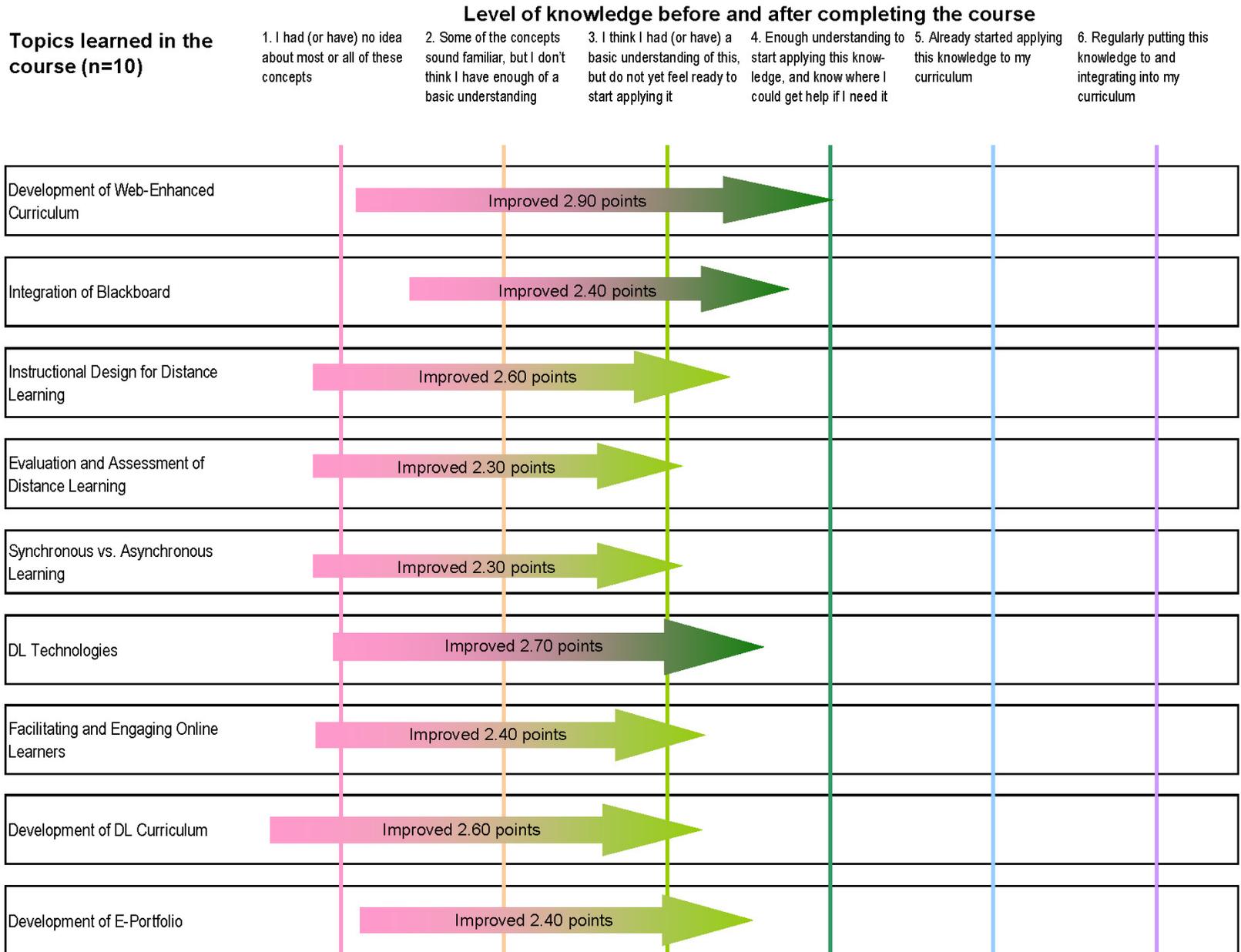
Topics learned in the course (n=39)

Level of knowledge before and after completing the course

- 1. I had (or have) no idea about most or all of these concepts
- 2. Some of the concepts sound familiar, but I don't think I have enough of a basic understanding
- 3. I think I had (or have) a basic understanding of this, but do not yet feel ready to start applying it
- 4. Enough understanding to start applying this knowledge, and know where I could get help if I need it
- 5. Already started applying this knowledge to my curriculum
- 6. Regularly putting this knowledge to and integrating into my curriculum



ETEC 649 "Development of Online Courses" Survey, 2005-2006



Appendix D

The History of Distance Learning Infographic via Charlie Osborne, ZDNet.com



THE ULTIMATE HISTORY OF DISTANCE LEARNING

As we approach the third century of distance learning we take a nostalgic look at its history from humble beginnings to its modern delivery today. American correspondence courses give way to studies aided by the advent of radio, television, the internet and now mobile app platforms...

1700

1728
An advert in the Boston Gazette, "Caleb Phillips, teacher of the new method of short hand" was seeking students for lessons to be sent weekly.

1840
Sir Isaac Pitman, the English inventor of shorthand, came up with an ingenious idea for delivering instruction to a potentially limitless audience: correspondence courses by mail. Pitman Shorthand Training.

1850

1852
The Phonographic Institute, Cincinnati, Ohio. Secretarial training in stenographics was conducted through the USPS. Those who completed the coursework would receive a certificate.

1856
In Europe, Charles Toussaint and Gustav Langenscheidt teach languages by correspondence in Germany.

1858
The University of London establishes its External Programme and claims to be the first offering distance learning degrees.

1873
Anna Ticknor, Boston, MA. Most early distance education was designed with women in mind. This program lasted 24 years and serviced some 10,000 women regardless of economic class.

1873
The University of the Cape of Good Hope was founded and became the largest university on the continent - a dedicated distance learning facility.

1881
William Rainey Harper Chautauqua, NY. The early days of Chautauqua focused on liberal education.

1883
Chautauqua, New Jersey. The state of New York authorized collegiate degrees to be awarded by the newly named Chautauqua College of Liberal Arts.

1890
Wilkes-Barre, Pasadena. The Colliery School of Mines began a program to teach mine safety but later became known as the International Correspondence Schools (ICS); also training iron and railroad workers.

1892
The University of Chicago established the first university-based distance education program. The university had a strong belief in educating farmers and farmers' children in order to support the state's economic structure. This model was followed by other universities, including but not limited to the following: The State University of Iowa, Ohio State University, Pennsylvania State College.

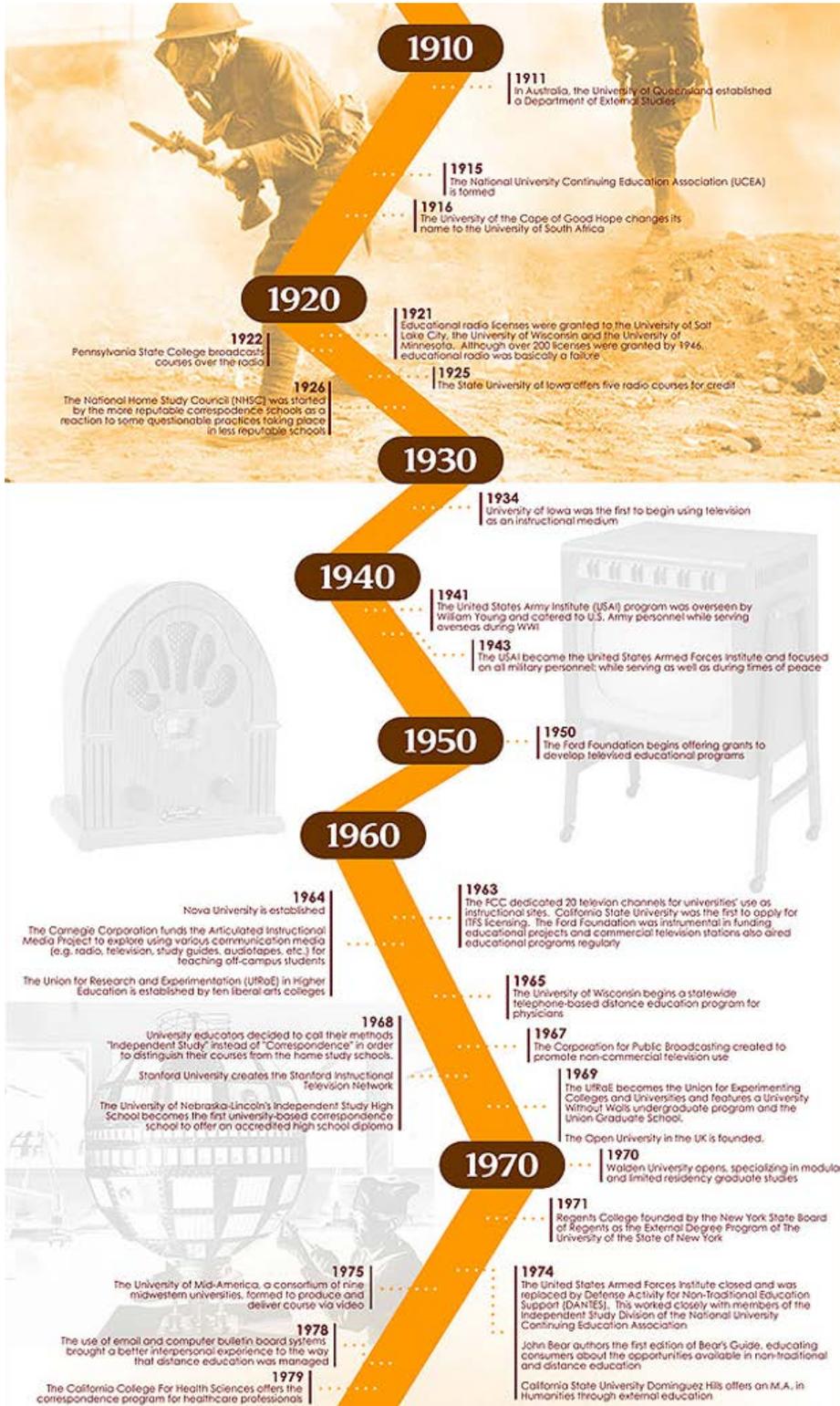
1900

1900
Martha Van Rensselaer, Cornell University, Ithaca, NY. This Home Economics Extension Program was targeted toward rural women throughout the state of New York. Within five years, over 20,000 women were enrolled.

1901
The Moody Bible Institute starts offering independent study courses.

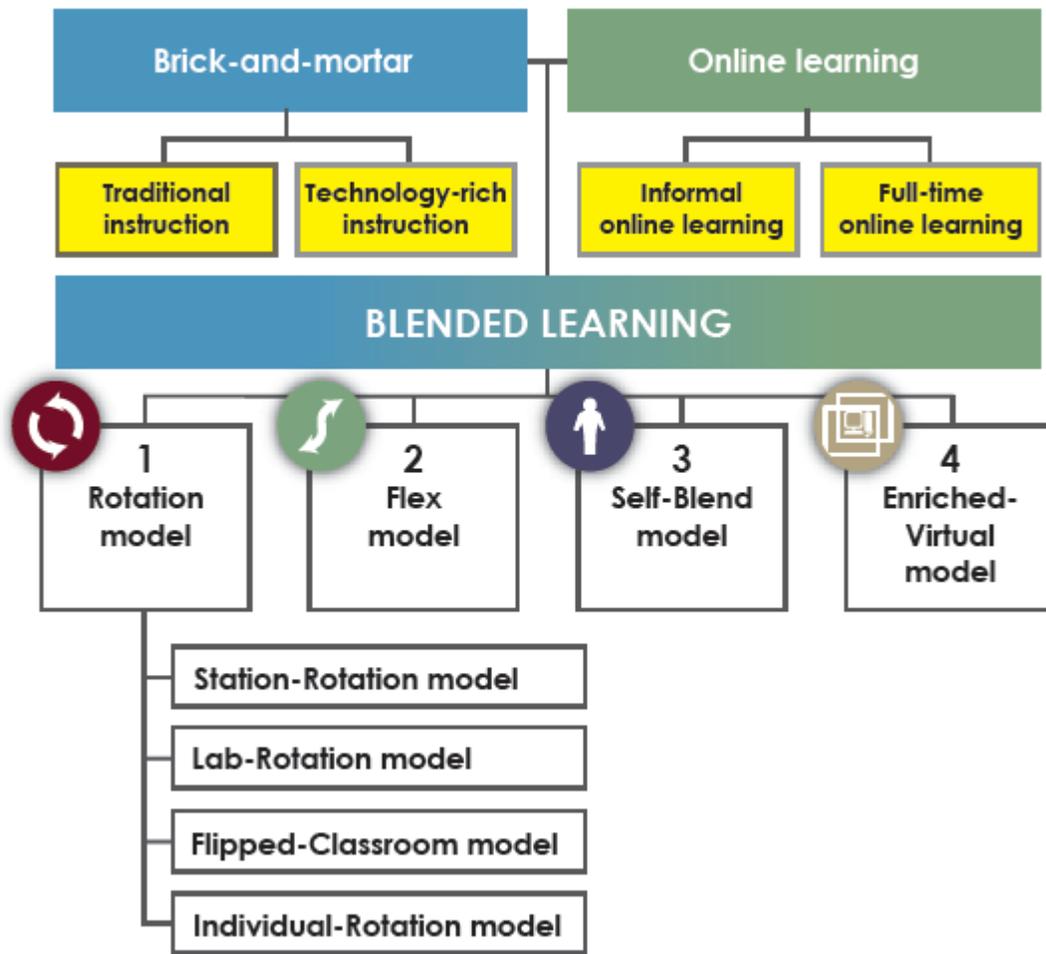
1906
The Calvert School of Baltimore becomes the first primary school in the United States to offer correspondence courses.

1906
The University of Wisconsin offers extension courses in engineering.



Appendix E

Blended Learning Models



Staker & Horn (2012). *Classifying K-12 Blended Learning*. MA: Innosight Institute. Figure 4. Retrieved April 9, 2013, from <http://www.innosightinstitute.org/innosight/wp-content/uploads/2012/05/Classifying-K-12-blended-learning2.pdf>.

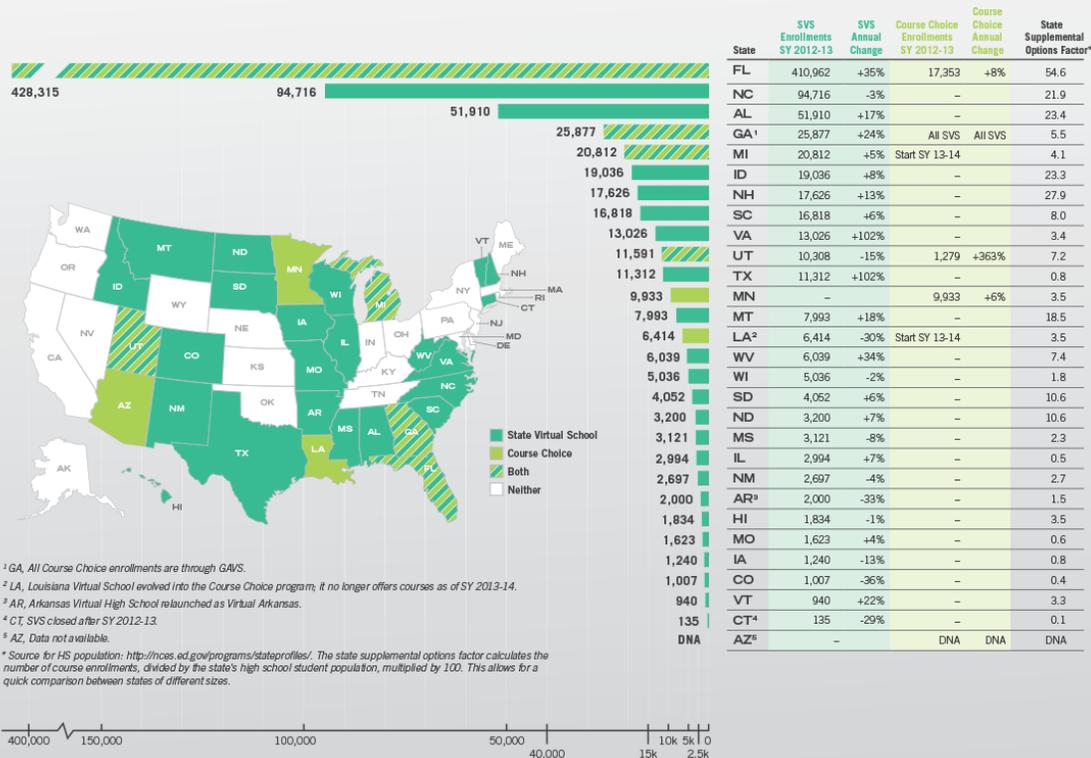
Appendix F

Keeping Pace with K-12 Online & Blended Learning 2013
State-supported Supplemental Option:
Program Type and Enrollments Relative to High School Population

2013

State-supported Supplemental Options

PROGRAM TYPE AND ENROLLMENTS RELATIVE TO HIGH SCHOOL POPULATION



Watson, J., Murin, A., Vashaw, L., Gemin, B., Rapp, C. (2013). *Keeping Pace with K-12 Online & Blended Learning: An Annual Review of Policy and Practice*. Retrieved September 26, 2014, from http://kpk12.com/cms/wp-content/uploads/EEG_KP2013-lr.pdf.

Permission available via <http://kpk12com/reports/>.

Appendix G

Thomas Guskey's Five Levels of Professional Development Evaluation

Five Levels of Professional Development Evaluation

Evaluation Level	What questions are addressed?	How will information be gathered?	What is measured or assessed?	How will information be used?
1. Participants' reaction	<ul style="list-style-type: none"> ▪ Was the facilitator knowledgeable and helpful? ▪ Did you have the opportunity during the session to effectively practice or apply the concepts provided? ▪ Did the session activities facilitate the sharing of work experiences among participants? ▪ Did the session materials contribute to your learning during the session? ▪ Were the facilities and equipment conducive to learning? ▪ Were the stated session objectives met? ▪ In terms of preparing you to do your job better, how would you rate the overall quality of the session? ▪ Did the participants acquire the intended knowledge & skills? ▪ Did participants' attitudes, beliefs or dispositions change? 	<ul style="list-style-type: none"> ▪ Questionnaires administered at end of a session ▪ Focus groups ▪ Interviews ▪ Personal learning logs 	<ul style="list-style-type: none"> ▪ Initial satisfaction with the experience 	<ul style="list-style-type: none"> ▪ To improve program design and delivery
2. Participants' learning	<ul style="list-style-type: none"> ▪ Was implementation advocated, facilitated, and supported? ▪ Was the support public and overt? ▪ Were problems addressed quickly & efficiently? ▪ Were sufficient resources allocated? ▪ Were successes recognized and shared? ▪ What was the impact on the organization? ▪ Did it affect the organization's climate and procedures? 	<ul style="list-style-type: none"> ▪ Paper-and-pencil instruments including self assessments and tests ▪ Simulations & demonstrations ▪ Participant reflections ▪ Participant portfolios ▪ Case study analyses 	<ul style="list-style-type: none"> ▪ New knowledge and skills of participants 	<ul style="list-style-type: none"> ▪ To improve program content, format and organization
3. Organization support & change	<ul style="list-style-type: none"> ▪ Was implementation advocated, facilitated, and supported? ▪ Was the support public and overt? ▪ Were problems addressed quickly & efficiently? ▪ Were sufficient resources allocated? ▪ Were successes recognized and shared? ▪ What was the impact on the organization? ▪ Did it affect the organization's climate and procedures? 	<ul style="list-style-type: none"> ▪ District and school records ▪ Minutes from follow-up meetings ▪ Questionnaires ▪ Structured interviews with participants and district/ school administrators ▪ Participant portfolios 	<ul style="list-style-type: none"> ▪ The organization's advocacy, support, accommodation, facilitation, and recognition 	<ul style="list-style-type: none"> ▪ To document and improve organizational support ▪ To inform future change efforts
4. Participants' use of new knowledge & skills	<ul style="list-style-type: none"> ▪ Did participants effectively apply the new knowledge and skills? ▪ Did teachers' instructional practice change? ▪ Are the teachers consistently applying the knowledge & skills? 	<ul style="list-style-type: none"> ▪ Questionnaires ▪ Structured interviews with participants and their supervisors ▪ Participant portfolios ▪ Participant reflections ▪ Direct observations ▪ Video or audio tapes 	<ul style="list-style-type: none"> ▪ Degree and quality of implementation 	<ul style="list-style-type: none"> ▪ To document & improve the implementation of program content
5. Student learning outcomes	<ul style="list-style-type: none"> ▪ What was the impact on students? ▪ Did it affect student performance or achievement? ▪ Did it influence students' physical or emotional well-being? ▪ Are students more confident as learners? ▪ Is student attendance improving? ▪ Are dropouts decreasing? 	<ul style="list-style-type: none"> ▪ Student records ▪ School records ▪ Questionnaires ▪ Structured interviews with students, parents, teachers, and/or administrators ▪ Participant portfolios 	<ul style="list-style-type: none"> ▪ Student learning: <ul style="list-style-type: none"> ○ Cognitive (performance & achievement) ○ Affective (attitudes & dispositions) ○ Psychomotor (skills & behaviors) ▪ Student participation & attendance 	<ul style="list-style-type: none"> ▪ To focus & improve all aspects of program design, implementation, and follow-up ▪ To demonstrate the overall impact of professional development

Adapted from a handout by Thomas R. Guskey shared at NCREL's Annual Meeting, 2002

ND Title I Program Improvement Workshop - 2007

Porter Center @ NCREL with ASCD

Appendix H

Kamehameha Schools A‘o Makua and A‘o Kumu Distance Learning Programs

KAMEHAMEHA SCHOOLS
DISTANCE LEARNING

FAMILIES & COMMUNITIES
EDUCATORS
HIGH SCHOOL STUDENTS

REGISTRATION
TECHNICAL SUPPORT

ABOUT
HAWAIIAN RESOURCES
NEWS





FAMILIES & COMMUNITIES

A'o Makua (For Families & Communities)

KSDL's A'o Makua is an online enrichment program for adults interested in Hawaiian language and culture. With A'o Makua, you can learn about or rediscover Hawaiian values, beliefs, and traditions in the comfort of your own home, and at your own pace.

Our goals are to provide:

- Culturally based learning opportunities worldwide, via a self-paced online environment;
- Access to culturally relevant resources for students to share with their families; and
- A virtual community where students can share ideas, resources, and experiences related to 'ike Hawai'i (Hawaiian knowledge).



Although primarily designed for parents and caregivers of children ages 0–5, there are a wealth of materials and activities that can be utilized by people of all ages who want to expand their knowledge base.

[Click here view KS Distance Learning HAWAIIAN RESOURCES](#)

- ▶ CLASSES
- ▶ COLLABORATORS
- ▶ REQUIREMENTS
- ▶ SCHEDULE
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STAY UPDATED   

A'o Kumu Distance Learning Program

<http://ksdl.ksbe.edu/aokumu>

KAMEHAMEHA
SCHOOLS

DISTANCE
LEARNING

FAMILIES & COMMUNITIES
EDUCATORS
HIGH SCHOOL STUDENTS

REGISTRATION
TECHNICAL SUPPORT

ABOUT
HAWAIIAN RESOURCES
NEWS



EDUCATORS



A'o Kumu (For Educators)

The A'o Kumu Program is our free, online professional development program for educators to engage in a learning community and explore how to seamlessly integrate Hawaiian culture-based education and 21st century skills into their curricula, while identifying and using technology tools to help them meet their objectives.

Educators can earn professional development credits for each course upon successful completion of learning portfolios requiring implementation of activities with students. Educators are also able to earn course credits toward a certificate or degree program through our collaboration with the Department of Educational Technology at the University of Hawai'i at Mānoa.

A New Direction

We have been making some exciting new changes to our program. As we launch our new courses, we want to continue to provide our current participants in the original courses the opportunity to complete the original series.

New Pathways

Those who have taken our previous A'o Kumu courses are also eligible to enroll in our new courses. These are completely new, offering shorter, more flexible learning opportunities that will allow you, as an educator, to customize your learning pathway. As you move through our new course offerings, you have a choice of the following options:

- Blended Pathway for Kamehameha Schools Certificate in Blended Learning
- Online Pathway for Kamehameha Schools Certificate in Online Learning
- Non-certification Pathway

More information on the new pathways can be found on the New Pathways page of the website.

Original Pathway

We are phasing out our original course series as we introduce our new pathways and course offerings. Those who have started our original course series will still be able to complete the series and earn professional development credits for each course.

Please view the A'o Kumu schedule for the remaining offering of Level 3: E-learning for Educators.

[Click here view
KS Distance Learning
HAWAIIAN RESOURCES](#)

- ▶ [NEW PATHWAYS](#)
- ▶ [ELIGIBILITY](#)
- ▶ [CLASSES](#)
- ▶ [SCHEDULE](#)
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Appendix I

UH Human Subjects Research Form



UNIVERSITY
of HAWAII
MĀNOA

Office of Research Compliance
Human Studies Program

June 6, 2013

TO: Dorothy Hirata
Principal Investigator
College of Education – Curriculum & Instruction

FROM: Denise A. Lin-DeShetler, MPH, MA *Denise A. Lin-DeShetler*
Director

SUBJECT: CHS #21283- "A Case Study of the Kamehameha Schools Online Instructor Training
Institute: Preparing Teachers to Become Distance Learning Instructors
Six to Nine Years Later"

This letter is your record of the Human Studies Program approval of this study as exempt.

On June 6, 2013, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45CFR 46.101(b)(Exempt Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at <http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html>.

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

1960 East-West Road
Biomedical Sciences Building B104
Honolulu, Hawai'i 96822
Telephone: (808) 956-5007
Fax: (808) 956-8683

An Equal Opportunity/Affirmative Action Institution

Appendix J

Agreement to Participate Consent Form

AGREEMENT TO PARTICIPATE IN

A Case Study of the Kamehameha Schools Online Instructor Training Institute (OITI):
Preparing Teachers to Become Distance Learning Instructors Six to Nine Years Later

By Dorothy Hirata

Email: dso@hawaii.edu, Telephone: (808) 729-2802

Mahalo nui for volunteering to participate in this research project. The purpose of my study is to conduct a mixed-method case study to research long term impacts of the OITI professional development experience to improve future K-12 programs preparing online teachers. You have been selected to participate in this study due to your fulfillment of the following criteria: 1) successfully completed OITI, 2) currently involved with development or facilitation of online curriculum, 3) willing to fully complete this case study research. There are approximately 3-5 participants in this study. This research will involve surveys, self-assessments, and a face-to-face or online interview (audio recorded and stored on my computer until project completion). Time will vary between one to two-hour time frames periodically throughout a span of three to five months. All of the information provided will be confidential and will be used as a part of my Doctoral dissertation research project and will be deleted (including audio recordings) upon the completion of my degree. During this research project, I will keep all data from the interviews in a secure location. Only I will have access to the data, although legally authorized agencies, including the University of Hawai'i Human Studies Program, have the right to review research records.

I truly appreciate your time and effort. I believe there are no direct benefits to you for participating in my research project. You are at no risk when participating in this study. Participation in this research project is voluntary. You can choose freely to participate or not to participate. In addition, at any point during this project, you can withdraw your permission without any penalty or loss of benefits. If you have any questions regarding your rights as a research participant, you may contact the UH Human Studies Program by emailing uhirb@hawaii.edu or calling 956-5007.

I certify that I have been given satisfactory answers to my inquiries concerning project procedures and other matters. I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the Principal Investigator or the institution or any employee or agent thereof from liability for negligence.

I agree and consent to be audio recorded during this research project.

Signature of Participant

Date

Appendix K

Participant Demographics Survey

Mahalo nui for agreeing to participate in my dissertation research study titled: "A Case Study of the Kamehameha Schools Online Instructor Training Institute: Preparing Teachers to Become Distance Learning Instructors Six to Nine Years Later." Results from this demographic survey will be used during the write up of my case study research. Please let me know if you have questions at any time (dso@hawaii.edu).

PhD OITI Demographics

First Name

Last Name

I would prefer you to:

Use a pseudo (alias) name

Use my own name

Age range: (optional)

30-39

40-49

50-59

60-69

Ethnicity: (optional)

Highest Education Degree:

Bachelor's

Master's

Doctorate

Area of Specialization in Teaching?

National Board Certified?

Yes

No

Year of National Board Certification:

Student Grade Levels You Have Taught:

- Elementary
- Middle
- High

How many years have you taught?

Kamehameha Schools position(s) prior to enrollment in the Online Instructor Training Institute (OIT):

Kamehameha Schools position during enrollment in the Online Instructor Training Institute (OIT):

Current Kamehameha Schools position:

What was your reason for enrolling in the Online Instructor Training Institute (OIT)?

What were your beliefs and philosophies about teaching prior to the Online Instructor Training Institute (OIT)?

Anything else related to demographics about yourself that you would like to share?

Appendix L

Technological, Pedagogical, Content & Knowledge (TPACK) Survey Instrument

Technological, Pedagogical, Content and Knowledge (TPACK) Survey
(Modified with permission from TPACK co-author Dr. Denise Schmidt)
Original TPACK survey is located at <http://www.tpack.org>.

12/30/13

University of Hawaii Mail - Use of TPACK Survey for My Dissertation Research



Dorothy So <dso@hawaii.edu>

Use of TPACK Survey for My Dissertation Research

3 messages

Dorothy So <dso@hawaii.edu>

Mon, Sep 9, 2013 at 4:16 PM

To: dschmidt@iastate.edu

Bcc: Dorothy So <dso@hawaii.edu>, dohirata@ksbe.edu

Aloha,

My name is Dorothy Hirata and I am currently a PhD student at the University of Hawai'i, College of Education, interested in conducting a case study research for my dissertation. I would appreciate if you could provide me with permission to utilize the TPACK survey with minor modifications to adjust questions to address my participants, which will include in-service teachers. I plan to utilize other research instruments in addition to TPACK as well. I'm providing additional information below to provide you with a context to my dissertation research.

Title: A Case Study of the Kamehameha Schools Online Instructor Training Institute (OITI): Preparing Teachers to Become Distance Learning Instructors Six to Nine Years Later

Research Questions:

1. How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum in a blended environment?
2. How does the OITI professional development experience continue to impact teachers implementing distance learning instructional strategies in an online environment?
3. How do teachers who completed the OITI perceive themselves impacting their students as a result of the professional development training?
4. What is the impact of the professional development experience as perceived by teachers who completed the OITI and are now online instructors?

Please let me know if you have questions regarding this. I look forward to hearing from you.

Dorothy Hirata

Crawford, Denise A [SOE] <dschmidt@iastate.edu>

Tue, Sep 10, 2013 at 2:53 AM

To: Dorothy So <dso@hawaii.edu>

Hi Dorothy,

Thanks for your interest in our TPACK survey. You are more than welcome to use the survey for your study and it appears that you are aware that the population that we have validated the study with was preservice teachers. Please note that for your own research.

Good luck!

Denise

Denise A. Schmidt-Crawford
Director & Associate Professor
Center for Technology in Learning and Teaching
Associate Director of Teacher Education
School of Education

The Technology Pedagogical and Content Knowledge (TPACK) survey has been used in various educational technology research with a focus on studying professional development related to technology integration. Your responses in this survey will be utilized to address my first of four research questions, "How does the OITI professional development experience continue to impact teachers and their integration of technology into their curriculum in a blended environment?" Some content questions that are content specific are labeled and marked with a *. Approximate time: 30 minutes or less.

Technology is a concept that can mean a lot of different things. For the purposes of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

PhD OITI TPACK

TK (Technology Knowledge)

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I know how to solve my own technical problems.	●	●	●	●	●
I can learn technology easily.	●	●	●	●	●
I keep up with important new technologies.	●	●	●	●	●
I frequently play around the technology.	●	●	●	●	●
I know about a lot of different technologies.	●	●	●	●	●
I have the technical skills I need to use technology.	●	●	●	●	●

When enrolled in OITI, I taught the following subject area:

- Math
- Science
- English

CK (Content Knowledge) - Math Subject Specific

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have sufficient knowledge about mathematics.	●	●	●	●	●
I can use mathematical way of thinking.	●	●	●	●	●
I have various ways and strategies of developing my understanding of mathematics.	●	●	●	●	●

CK (Content Knowledge) - Science Subject Specific

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have sufficient knowledge about science.	●	●	●	●	●

I can use a scientific way of thinking.	<input type="radio"/>				
I have various ways and strategies of developing my understanding of science.	<input type="radio"/>				

CK (Content Knowledge) - Literacy Subject Specific

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have sufficient knowledge about literacy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use a literary way of thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have various ways and strategies of developing my understanding of literacy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PK (Pedagogical Knowledge)

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I know how to assess student performance in a classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can adapt my teaching based upon what students currently understand or do not understand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can adapt my teaching style to different learners.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can assess student learning in multiple ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use a wide range of teaching approaches in a classroom setting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am familiar with common student understandings and misconceptions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to organize and maintain classroom management.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PCK (Pedagogical Content Knowledge) - **Subject Specific Questions***

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I can select effective teaching approaches to guide student thinking and learning in mathematics .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can select effective teaching approaches to guide student thinking and learning in literacy .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I can select effective teaching approaches to guide student thinking and learning in **science**.



TCK (Technological Content Knowledge) - **Subject Specific Questions***

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I know about technologies that I can use for understanding and doing mathematics .	●	●	●	●	●
I know about technologies that I can use for understanding and doing literacy .	●	●	●	●	●
I know about technologies that I can use for understanding and doing science .	●	●	●	●	●

TPK (Technological Pedagogical Knowledge)

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I can choose technologies that enhance the teaching approaches for a lesson.	●	●	●	●	●
I can choose technologies that enhance students' learning for a lesson.	●	●	●	●	●
My OITI program has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.	●	●	●	●	●
I am thinking critically about how to use technology in my classroom.	●	●	●	●	●
I can adapt the use of technologies that I am learning about to different teaching activities.	●	●	●	●	●
I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn.	●	●	●	●	●
I can use strategies that combine content, technologies and teaching approaches that I learned about in OITI in my classroom.	●	●	●	●	●
I can provide leadership in helping others to coordinate the use of content, technologies and teaching approaches at my school and/or district.	●	●	●	●	●

I can choose technologies that enhance the content for a lesson.



TPACK (Technology Pedagogy and Content Knowledge) - **Subject Specific Questions***

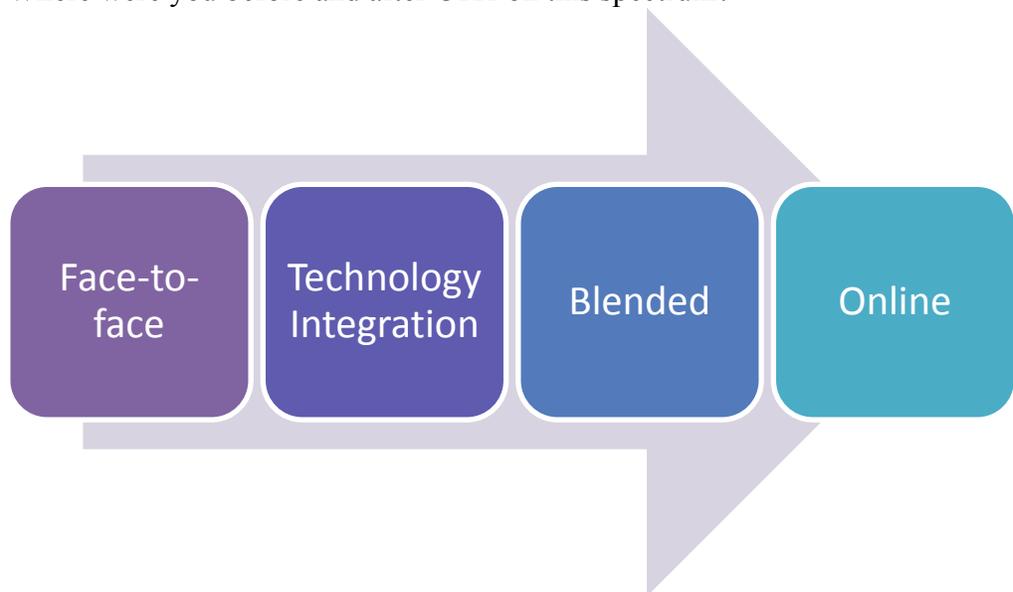
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I can teach lessons that appropriately combine mathematics , technologies and teaching approaches.	●	●	●	●	●
I can teach lessons that appropriately combine literacy , technologies and teaching approaches.	●	●	●	●	●
I can teach lessons that appropriately combine science , technologies and teaching approaches.	●	●	●	●	●

Appendix M

Open-Ended Qualitative Interview Instrument

Case Study Qualitative Interview Questions

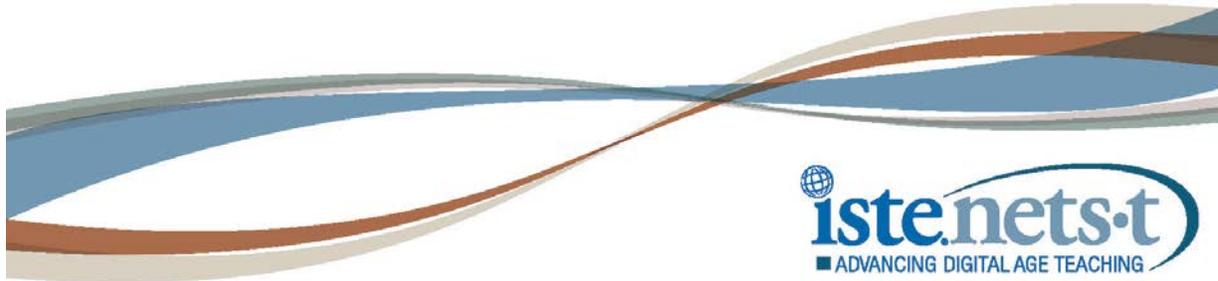
1. Please explain how your OITI experience continues to impact your integration of technology into your curriculum in a blended environment.
 - a. How consistently do you apply your knowledge gained from the OITI?
 - b. What was your classroom environment like prior to OITI? After OITI?
 - c. Follow up with additional details as needed.
2. Please explain how your OITI experience continues to impact your implementation of distance learning instructional strategies in an online environment.
 - a. How consistently do you apply your knowledge gained from the OITI?
 - b. Follow up with additional details as needed.
3. How do you perceive yourself impacting your students as a result of completing the OITI?
4. From your perception, what aspect of the OITI has been most impactful when viewing back from your current role as an online instructor?
5. Did your attitudes, beliefs, or dispositions change as a direct result of your participation in the OITI?
 - a. Why or why not?
6. Did your instructional practice change directly as a result of the OITI? Please explain.
 - a. Where were you before and after OITI on this spectrum?



7. Following up to the TPACK survey, your perceived strengths and weaknesses were... *(provide details based upon individual case study participant responses)*. Could you provide additional explanation or context to your quantitative responses?
 - a. Do you think the curriculum covered in the OITI impacted your strengths?
 - i. Why or why not?
 - b. Do you think the lack of curriculum covered in the OITI impacted your weaknesses?
 - i. Why or why not?
8. Following up to your ISTE self-assessment, your perceived strengths and weaknesses were... *(provide details based upon individual case study participant responses)*. Could you provide additional explanation or context to your quantitative responses?
 - a. Do you think the curriculum covered in the OITI impacted your strengths?
 - i. Why or why not?
 - b. Do you think the lack of curriculum covered in the OITI impacted your weaknesses?
 - i. Why or why not?
9. Following up to the iNACOL self-assessment, your perceived strengths and weaknesses were... *(provide details based upon individual case study participant responses)*. Could you provide additional explanation or context to your quantitative responses?
 - a. Do you think the curriculum covered in the OITI impacted your strengths?
 - i. Why or why not?
 - b. Do you think the lack of curriculum covered in the OITI impacted your weaknesses?
 - i. Why or why not?
10. What types of professional development opportunities have you engaged in since the completion of the OITI that were relevant to technology integration or online learning?
11. Is there anything else you'd like to share with me regarding your OITI experience?

Appendix N

International Society for Technology in Education (ISTE) Teacher Technology Standards
National Educational Technology Standards (NETS) for Teachers – 2008 Instrument



Effective teachers model and apply the NETS·S as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

- a. Promote, support, and model creative and innovative thinking and inventiveness.
- b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS·S.

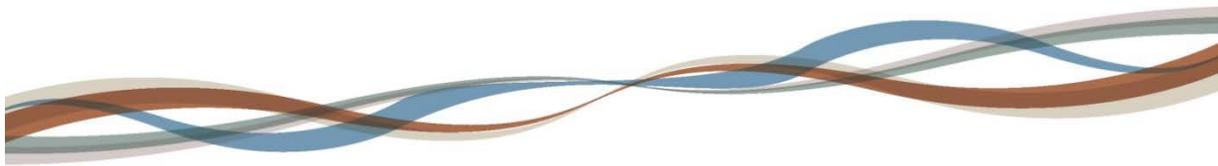
- a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity

- b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

- a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats
- d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning



4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.

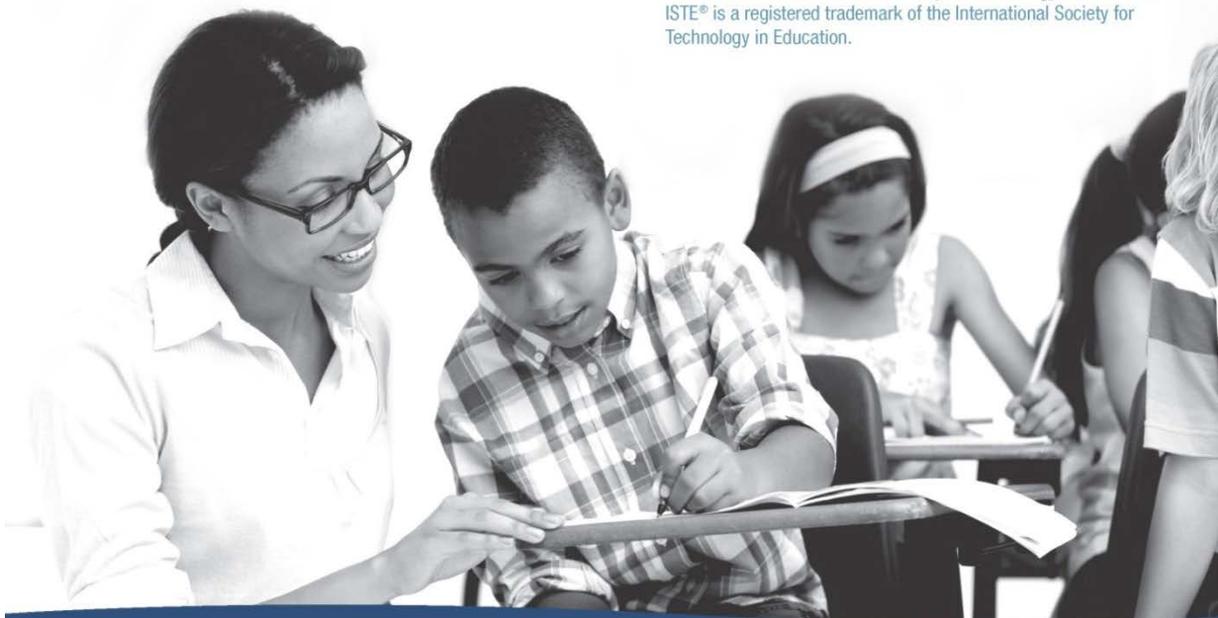
- a. Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- b. Address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources
- c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information
- d. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.

- a. Participate in local and global learning communities to explore creative applications of technology to improve student learning
- b. Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- d. Contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

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iste.org/nets



<http://www.iste.org/docs/pdfs/nets-t-standards.pdf?sfvrsn=2>.

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e-mail: PermDude@eclipse.net

January 10, 2014

Dorothy Hirata
Kamehameha Schools
Distance Learning Director
1887 Makuakane St Rm 109
Honolulu, HI 96817

Dear Ms Hirata:

Thank you for your request, for permission to use the National Educational Technology Standards for Teachers in your doctoral dissertation for the University of Hawai'i.

This letter will grant you permission to use the material as requested in your dissertation and in all copies to meet university requirements, including University Microfilms edition. You must credit our work as the source of the material, and you must re-apply if your dissertation is later published. The source line you have indicated in your email is fine, but please add "Used by permission" to the end to indicate our approval of the use.

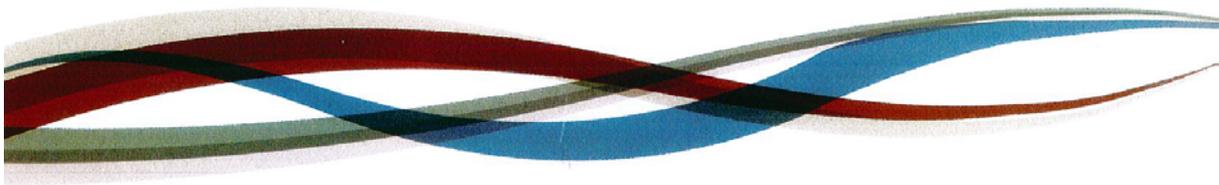
In lieu of a fee, please have a copy of your dissertation sent to:

Carolyn Sykora
ISTE®
180 West 8th Ave, Suite 300
Eugene, OR 97401-2916

Many thanks for your interest in ISTE®. Please don't hesitate to contact me if you have any questions.

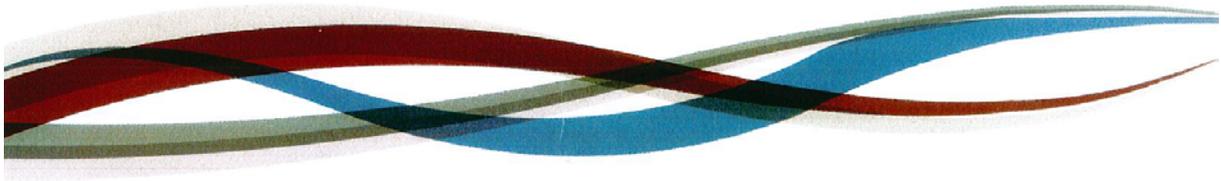
Sincerely,

Frederick T. Courtright, President
The Permissions Company, Inc.
Rights Agency for the International Society for Technology in Education



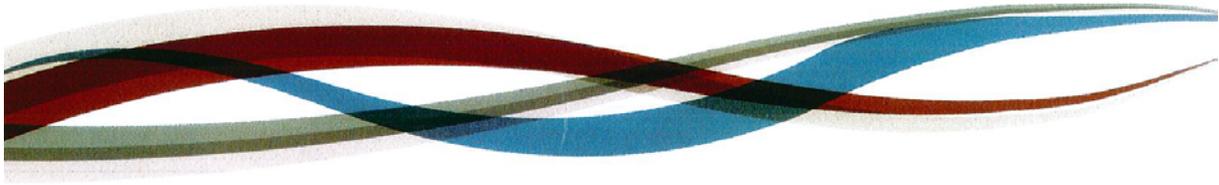
Rubric for Student Learning and Creativity

Standard 1. Facilitate and Inspire Student Learning and Creativity				
Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:				
Performance Indicator	Beginning	Developing	Proficient	Transformative
a. Promote, support, and model creative and innovative thinking and inventiveness	research and discuss ways students can use digital tools and resources to enhance creative and innovative thinking and to develop and express their understandings of knowledge and concepts.	facilitate creative thinking and inventiveness by modeling thought processes and creating visual representations of concept development and problem solving.	enable students to demonstrate creative thinking, construct knowledge, and develop innovative products and processes by promoting and supporting these activities and modeling related knowledge, skills, and attitudes.	regularly engage with students as lead learner in creative thinking activities and inspire students to explore complex issues, generate new ideas, create and critique original works, and develop and evaluate new products and processes.
b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources	develop technology-based learning activities to engage students in critical thinking, creativity, and authentic problem solving centered on real-world issues.	involve students in researching real-world problems and issues and evaluating diverse solutions using digital tools and resources.	facilitate activities that engage students in planning and managing research projects focused on real-world issues, in applying critical thinking to solve authentic problems, and in selecting appropriate digital tools and resources to accomplish and enhance the process.	regularly involve students in learning experiences that require identifying and defining authentic questions and problems, planning for and managing their research, and using multiple processes and perspectives to discover, propose, and evaluate multiple solutions.
c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes	demonstrate the use of collaborative tools to promote student reflection, planning, and creative thinking.	facilitate and support student use of collaborative tools to reflect on and clarify their own thinking, planning, and creativity.	engage students in reflecting on and clarifying their own thinking, planning, and creative processes, in correcting misconceptions, and in using meta-cognitive thinking strategies with collaborative tools and environments.	involve students in ongoing examination and evaluation of their own thinking, planning, and creativity. Encourage learners to articulate and share their thinking with others through technology-enhanced team work.
d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments	research and identify strategies for facilitating knowledge construction and creative thinking in either face-to-face or virtual environments.	facilitate knowledge construction, creative thinking, and collaborative interaction by engaging in learning with students, colleagues, and others in either face-to-face or virtual environments.	model knowledge construction and creative thinking by working collaboratively with individuals and groups, contributing to learning both face-to-face and virtually.	model knowledge construction and creative thinking in a variety of face-to-face and virtual learning environments and situations by engaging in real-world problem solving with students, peers, and experts.



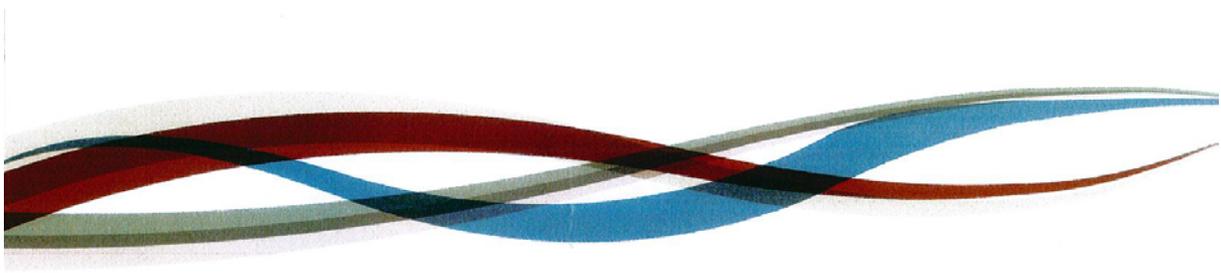
Rubric for Digital-Age Learning Experiences and Assessments

Standard 2. Design and Develop Digital-Age Learning Experiences and Assessments				
Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:				
Performance Indicator	Beginning	Developing	Proficient	Transformative
a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity	explain how existing learning resources could be designed or adapted to include students' use of technology tools to research and collect information online and to create a digital product.	adapt or create learning experiences that include students' use of technology tools to research and collect information online and to create a report, presentation, or other product.	design and customize technology-enriched learning experiences that engage students in developing research questions about real-world issues or problems, proposing and evaluating multiple creative solutions, and presenting a report to an audience, either face-to-face or virtually, for feedback.	engage students in collaborative learning challenges where they research global problems. Guide learners to select a specific problem to investigate, create research questions, select and employ strategies, and determine best solutions. Students use technology tools to present their results and share information for application in a real-world setting.
b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress	research and discuss ways in which technology resources enable students to explore questions and issues of individual interest and to plan and manage related research.	select and demonstrate the use of technology resources that enable students to explore questions and issues of individual interest and to plan, manage, and assess their own learning.	facilitate the use of technology resources to enable students to pursue questions and issues of individual interest, to identify and manage learning goals, to record reflections, and to assess their progress and outcomes.	enable students to independently use technology resources to manage their own learning goals, plan learning strategies, and evaluate their progress and outcomes.
c. Customize and personalize learning activities to address students' diverse learning styles, work strategies, and abilities using digital tools and resources	research and design learning activities that use digital tools and resources to address a variety of learning styles, work strategies, abilities, and developmental levels.	customize technology-based materials to address the learning styles, work strategies, abilities, and developmental levels of individual students.	facilitate student learning by recognizing preferred learning styles, work strategies, abilities, and developmental levels of students. Develop and use specific strategies that incorporate digital tools and resources to effectively differentiate learning experiences.	identify and develop with students personalized learning experiences aligned with preferred learning styles, work strategies, and abilities.
d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching	select examples of technology-based formative and summative assessments and demonstrate how they can be used to inform learning and teaching.	develop and conduct technology-based formative and summative assessments to inform learning and teaching.	provide students with multiple and varied opportunities to demonstrate their learning, and make data-based decisions to customize and adapt future learning opportunities aligned with content and technology standards.	engage students in the development and analysis of formative and summative assessments to adjust teaching and learning for increased success.



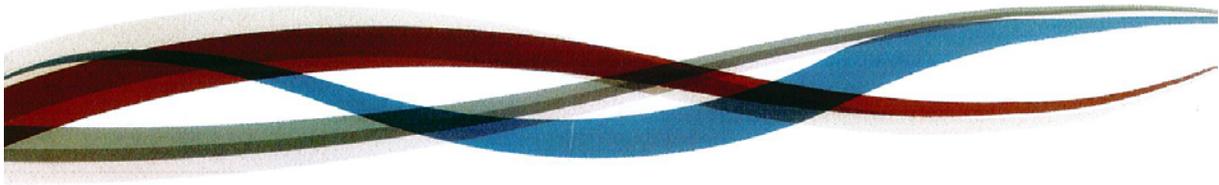
Rubric for Digital-Age Work and Learning

Standard 3. Model Digital-Age Work and Learning				
Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:				
Performance Indicator	Beginning	Developing	Proficient	Transformative
a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations	select and use hardware and software best suited to particular learning experiences and plan student learning experiences that appropriately use these tools.	plan, manage, and facilitate students' understanding and use of hardware and software best suited to particular learning experiences.	demonstrate and model efficient and effective use of a variety of digital tools and resources, select tools and systems best suited to accomplish teaching, learning, and assessment activities, and transfer this knowledge to new technologies and situations.	engage with students in collaborative exploration of emerging technologies and investigate together how these tools can be used in real world situations to solve problems. Involve students in identifying and solving common hardware and software problems that occur in everyday use.
b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation	explore and demonstrate digital tools and resources for communicating and collaborating with students and other stakeholders to share information and establish a connection between school and home environments.	communicate and collaborate with students and other stakeholders to share information and to support creativity, innovation, and improved learning outcomes.	effectively communicate and collaborate with students, peers, parents, and community members using a variety of digital tools to support student learning, problem solving, and the production of original works.	employ a variety of digital environments and media to collaborate with project teams or learners of other countries and cultures to produce original works or solve shared problems.
c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats	research and demonstrate effective use of digital resources for communicating with students, parents, and peers.	communicate relevant information and ideas to students, parents, and peers using multiple digital media and formats.	select and use the most relevant, facilitative, and effective media for communicating specific types of information and ideas to students, parents, and peers.	evaluate and use a variety of digital tools, resources, and media to communicate information and ideas to a global audience, demonstrating cultural understanding.
d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning	identify and discuss the effective use of current and emerging tools and resources to locate, analyze, evaluate, and use information resources for research and learning.	demonstrate the use of current digital tools to locate, analyze, evaluate, and apply information resources to support and disseminate student research and learning strategies.	model and facilitate effective use of current and emerging digital tools and resources to locate, analyze, evaluate and use information resources to support research and learning for themselves and for students.	use current and emerging digital tools and resources efficiently and effectively to deepen knowledge of information fluency and its application to teaching and learning and share results with students, parents, and colleagues.



Rubric for Digital Citizenship and Responsibility

Standard 4. Promote and Model Digital Citizenship and Responsibility				
Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:				
Performance Indicator	Beginning	Developing	Proficient	Transformative
a. Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources	research and apply effective practices for the safe, ethical, legal and healthy use of technology and the responsible care and handling of hardware, software, and information resources.	model acceptable use policies for technology resources including strategies for addressing threats to security of technology systems, data, and information.	advocate, model, and teach safe, legal, and ethical use of technology and information, including copyright, privacy issues, and cyberbullying, and security of systems, data, and information.	engage students in developing a system for promoting and monitoring safe, legal, and ethical use of digital information and technology and for determining a system for addressing misuse of technology resources.
b. Address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources	investigate issues related to equitable access and develop strategies for managing technology to address students' diverse learning styles and developmental levels.	apply strategies to address the diverse needs of learners, including access to hardware, curriculum software, and online resources.	facilitate equitable access to digital tools and resources, use learner-centered strategies, and employ features of universal access and assistive technologies to meet the diverse needs of learners.	examine and research issues related to equitable access to technology in school, community, and home environments including identification and use of assistive technologies to meet the diverse needs of students.
c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information	demonstrate digital etiquette and identify how social interactions can support student learning and responsible use of technology.	model correct and careful use of digital resources and inform learners of consequences for misuse.	promote proper use of digital technology, and discuss ethical issues, digital etiquette, and real-world examples of appropriate and inappropriate uses of digital tools and resources.	engage learners in researching the responsibilities related to the use of digital tools and resources and the consequences of misuse in a global information society. Work collaboratively with students in the development of policies and procedures for responsible use of technology and information resources.
d. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools	demonstrate the use of communication and collaboration tools for developing students' awareness of various cultures.	provide opportunities for students to apply communications technology resources to interact with students or experts from other communities and other countries.	involve students in opportunities to develop cultural understanding and global awareness through digital-age communications and collaboration projects with students from other countries.	engage students in collaborative research and publication with students and experts from other countries to develop global cultural understanding.



Rubric for Professional Growth and Leadership

Standard 5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

Performance Indicator	Beginning	Developing	Proficient	Transformative
a. Participate in local and global learning communities to explore creative applications of technology to improve student learning	explore and discuss attributes of local and global learning communities where teachers can explore creative applications of technology to improve student learning.	develop plans for using local or global learning communities to explore creative applications of technology that improve student learning.	actively participate in local and global learning communities to exchange and implement ideas and methods related to creative applications of technology to improve student learning.	help develop and sustain local and global learning communities to exchange ideas and methods related to creative applications of technology and to enhance the effective use of technology for learning.
b. Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others	identify and evaluate local and global visions of technology infusion, ways of participating in shared decision making and community building, and strategies for developing the technology skills of others.	demonstrate leadership for implementation of the school/district vision for technology infusion by applying it in their own learning environment.	adopt a shared vision of technology infusion appropriate for the educational environment, work cooperatively with others in decision making, and contribute to the development of leadership and technology skills in others.	participate in developing a vision for technology infusion in the school and the wider community, advocate for its adoption, help facilitate shared decision making, and promote the development of leadership and technology skills in others.
c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning	investigate and reflect on research and professional practice for using digital tools and resources to support student learning needs.	develop technology-based learning plans that integrate current research and promising professional practices for using digital tools and resources in support of student learning.	regularly evaluate and reflect on current research and apply promising practices for using existing and emerging tools and resources in support of student learning.	contribute to the effective use of technology to enhance teaching and learning by conducting action research, evaluating the outcomes, and sharing the results locally and globally.
d. Contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community	identify strategies for contributing to the effectiveness, vitality, and self-renewal of the teaching profession and the school community.	demonstrate and discuss with colleagues the effective use of digital resources and related teaching and learning strategies to enhance student learning and the teaching profession.	actively contribute to the effectiveness, vitality, and self-renewal of the teaching profession by sharing promising practices for using technology to improve student learning with others in the school, profession, and community.	demonstrate, discuss, and present to parents, school leaders, and the larger community the impact on learning of the effective use of digital resources and the ongoing renewal of professional practice.

The International Society for Technology in Education (ISTE) for Teacher Standards were initially developed in 2000 (referenced when developing OITI curriculum) with revisions over the years. Please proceed to self-asses based upon your OITI experiences with these current ISTE teachers standards listed below.

To jog your memory, I've provided a quick summary of topics covered in OITI:

- ETEC 415 (Technology for Teachers): Integration of Internet search strategies, awareness of copyright issues for educators, integration of word processing in educational settings, integration of multimedia in educational settings, creating an educational Web site, creating a technology unit plan aligned to standards, researching newer technologies for curriculum integration, awareness of distance learning (DL) technologies.
- ETEC 649 (Development of Online Courses): Development of Web-enhanced curriculum, integration of Blackboard LMS, instructional design for DL, evaluation & assessment of DL, synchronous vs. asynchronous learning, DL technologies, facilitating and engaging online learners, development of DL curriculum, development of e-portfolio.

Estimated time: 30-45 minutes or less

Default Question Block

Standard 1. Facilitate and Inspire Student Learning and Creativity

I use my knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

	Beginning	Developing	Proficient	Transformative
a. Promote, support, and model creative and innovative thinking and inventiveness	●	●	●	●
b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources	●	●	●	●
c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes	●	●	●	●
d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments	●	●	●	●

Please provide an example of how you currently address ISTE Teacher Standard 1 (as noted above) based upon your OITI experiences.

Standard 2. Design and Develop Digital-Age Learning Experiences and Assessments

I design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS-S.

	Beainnina	Developina	Proficient	Transformative
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a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity	●	●	●	●
b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.	●	●	●	●
c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources.	●	●	●	●
d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.	●	●	●	●

Please provide an example of how you currently address ISTE Teacher Standard 2 (as noted above) based upon your OITL experiences.

Standard 3. Model Digital-Age Work and Learning

I exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

	Beginning	Developing	Proficient	Transformative
a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations	●	●	●	●
b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation	●	●	●	●
c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats	●	●	●	●
d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate and use information	●	●	●	●

resources to support research and learning

Please provide an example of how you currently address ISTE Teacher Standard 3 (as noted above) based upon your OITL experiences.

Standard 4. Promote and Model Digital Citizenship and Responsibility

I understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.

	Beginning	Developing	Proficient	Transformative
a. Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources	●	●	●	●
b. Address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources	●	●	●	●
c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information	●	●	●	●
d. Develop and model cultural understanding and global awareness by engaging colleagues and students of other cultures using digital-age communication and collaboration tools	●	●	●	●

Please provide an example of how you currently address ISTE Teacher Standard 4 (as noted above) based upon your OITL experiences.

Standard 5. Engage in Professional Growth and Leadership

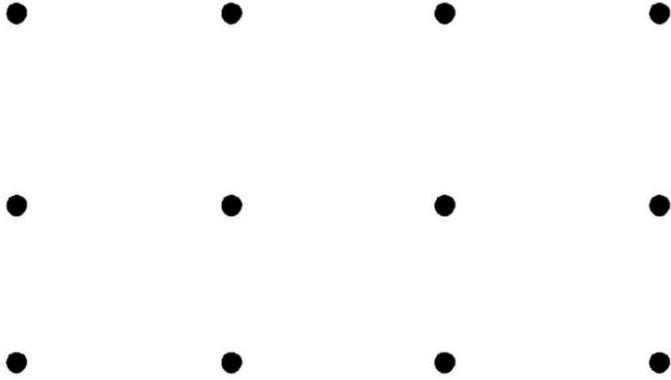
I continuously improve my professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.

	Beginning	Developing	Proficient	Transformative
a. Participate in local and global learning communities to explore creative applications of technology to improve student learning	●	●	●	●
b. Exhibit leadership by demonstrating a vision of technology infusion				

technology infusion, participating in a shared decision making and community building, and developing the leadership and technology skills of others

c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning

d. Contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community



Please provide an example of how you currently address ISTE Teacher Standard 5 (as noted above) based upon your OITI experiences.

Appendix O

International Association for K-12 Online Learning (iNACOL)
Standards for Quality Online Teaching Instrument

From: [Allison Powell](#)
To: [Dorothy Hirata](#)
Cc: [Kathryn Kennedy](#)
Subject: Re: Requesting Permission to Use iNACOL National Standards for Quality in Online Teaching in My Dissertation Research
Date: Thursday, January 23, 2014 10:23:29 AM

Hi Dorothy,

Yes, the iNACOL National Standards for Quality Online Teaching are published with a Creative Commons license so feel free to use, adapt and adopt them to meet your needs. We just ask that you cite iNACOL in your research. Also, we would love to see your research when it is complete. I am cc'ing our former Director of Research, Kathryn Kennedy, who still leads our Research in Review webinars if you are interested in sharing your results when you have completed the study. Thank you again and please let me know if you have any other questions throughout your study.

Good luck,

Allison

Allison Powell, Ed.D.
Vice President, State and District Services/New Learning Models
International Association for K-12 Online Learning (iNACOL)
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Vienna, VA 22182-4040
apowell@inacol.org
(703) 752-6216 or (888) 956-2265 (toll free)
(703) 752-6201 (fax)

Save the Date!
iNACOL Blended and Online Learning Symposium
November 4-7, 2014 in Palm Springs, CA
<http://www.inacol.org/events/symposium/>

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October 2011

VERSION 2

National Standards for Quality Online Teaching

*i*NACOL

International Association for K-12 Online Learning





VERSION 2

National Standards for Quality Online Teaching

October 2011

iNACOL
International Association for K-12 Online Learning

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Acknowledgements

iNACOL organized a committee of experts with various backgrounds in the field of K-12 online learning to take the lead in refreshing the iNACOL National Standards for Quality Online Courses, Version 2. They are representatives from educational organizations that share an interest in online education and believe that it is important that students have access to the highest quality online teachers.

With their experience and the expertise of the original National Standards for Quality Online Teaching, Barbara Treacy from the Education Development Center (EDC) and Sara Baltunis and Connie Swiderski from the Texas Virtual School Network (TxVSN) chaired this project. iNACOL would like to thank them for their leadership, as well as the involvement of these experienced and knowledgeable leaders in the field of K-12 online learning:

Holly Atwell – Connections Academy

Sara Baltunis – Texas Virtual School Network (TxVSN)

Chris Bell – Leading Edge Certification

Tom Blanford – National Education Association

Maria Boyarko – Electronic Classroom of Tomorrow (ECOT)

Ken Bradford – Louisiana Department of Education

Brian Bridges – California Learning Resource Network (CLRN)

Barbara Champney – Education Collaborative

Cathy Cheely – Consultant

Stephanie Cox – Louisiana Virtual School

Liz Glowa – Consultant

Shani Hartley – Northern Beaches Christian School, Australia (NBCS)

Mark Hawkes – British Columbia Ministry of Education

Bob Hiles – Newport-Mesa Unified School District

Pat Hoge – Connections Academy

Julie Keane – University of North Carolina, Chapel Hill

Jacqueline Kennedy – Learning Forward

Kristin Kipp – Jefferson County Virtual Academy (Colorado)

Tiffany Kisker – Florida Virtual School

Gwen Wallace Nagel – Iowa Online Learning (ILO)

Rick Ogsten – Carpe Diem

Rena Palloff – Crossroads Consulting Group

Liz Pape – Virtual High School Global Consortium

Matlea Parker – Southern Regional Education Board (SREB)

Susan Patrick – iNACOL

David Pelizzari – K12, Inc.

Cory Plough – Odyssey Charter Schools

Allison Powell – iNACOL

Keith Pratt – Crossroads Consulting Group

Kerry Rice – Boise State University

Teresa Scavulli – K12, Inc.

Kelly Schwirzke – Computer Using Educators

Kay Shattuck – Quality Matters

Connie Swiderski – Texas Virtual School Network (TxVSN)

Barbara Treacy – Education Development Center (EDC)

Matthew Wicks – iNACOL

National Standards for Quality Online Teaching

First version was originally published in 2008.

Introduction

The mission of the International Association for K-12 Online Learning (iNACOL) is to ensure all students have access to a world-class education and quality online learning opportunities that prepare them for a lifetime of success. *National Standards for Quality Online Teaching* is designed to provide states, districts, online programs, and other organizations with a set of quality guidelines for online teaching.

The original initiative in Version 1 of the standards began with a thorough literature review of the existing online teaching quality standards, then conducted a cross-reference of standards, followed by a survey completed by representatives of the iNACOL network to ensure the efficacy of the standards adopted. As a result of the research review, iNACOL chose to fully endorse the work of the Southern Regional Education Board (SREB) *Standards for Quality Online Teaching and Online Teaching Evaluation for State Virtual Schools* as a comprehensive set of criteria. The standards as identified by SREB were already in use by sixteen SREB states; they proved to be the most comprehensive among those reviewed and included guidelines set forth in the other criteria from the literature review.

iNACOL organized a team of experts consisting of online teachers, professional developers, instructional designers, researchers, course developers, and administrators to review these new standards and the new literature on the topic. They determined that there was a need to refresh Version 1 of the iNACOL standards. The same process was used in developing Version 2 of the standards, in addition to having Version 1 as a starting point in the development of the new version.

Over the past three years, iNACOL has received feedback from organizations using these standards for the development of professional development and evaluation of online teachers. In this new version of the standards, the indicators have been divided between what the online teachers should know and understand and what the online teachers should be able to do for evaluation purposes.

These guidelines should be implemented and monitored by each district or organization, as they reserve the right to apply the guidelines according to the best interest of the population for which they serve.

The National Standards for Quality Online Teaching are identified on the following pages:

Rating Scale

- 0 Absent—component is missing
- 1 Unsatisfactory—needs significant improvement
- 2 Somewhat satisfactory—needs targeted improvements
- 3 Satisfactory—discretionary improvement needed
- 4 Very satisfactory—no improvement needed

Standard A

The online teacher knows the primary concepts and structures of effective online instruction and is able to create learning experiences to enable student success.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the current best practices and strategies for online teaching and learning and their implementation in online education.	The online teacher is able to apply the current best practices and strategies in online teaching to create rich and meaningful experiences for students.	
The online teacher knows and understands the role of online learning in preparing students for the global community they live in, both now and in the future.	The online teacher is able to build learner capacity for collaboration in face-to-face, blended, and online environments and encourages students to participate as global citizens.	
The online teacher knows and understands the instructional delivery continuum (e.g., fully online to blended to face-to-face).	[This indicator can only be evaluated in the context of instructor(s) having the ability to modify the course.] The online teacher is able to construct flexible, digital, and interactive learning experiences that are useful in a variety of delivery modes.	
The online teacher knows and understands the need for continuing to update academic knowledge, pedagogy, and skills.	The online teacher is able to meet the state’s professional teaching standards or has academic credentials in the field in which he or she is teaching.	
The online teacher knows and understands the subject area and age group they are teaching.	The online teacher is able to provide evidence of credentials in the field of study to be taught.	
The online teacher knows and understands the professional responsibility to contribute to the effectiveness, vitality, and self-renewal of the teaching profession, as well as to their online school and community.		

Standard B

The online teacher understands and is able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the use of an array of grade-appropriate online tools for communication, productivity, collaboration, analysis, presentation, research, and content delivery.	The online teacher is able to select and use a variety of online tools for communication, productivity, collaboration, analysis, presentation, research, and online content delivery as appropriate to the content area and student needs.	
The online teacher knows and understands the use of emerging technologies in a variety of mediums for teaching and learning, based on student needs.	The online teacher is able to effectively use and incorporate subject-specific and developmentally appropriate technologies, tools, and resources.	
The online teacher knows and understands the importance of interaction in an online course and the role of varied communication tools in supporting interaction.	The online teacher is able to use communication technologies in a variety of mediums and contexts for teaching and learning.	
The online teacher knows and understands basic troubleshooting skills and the responsibility to address basic technical issues online students may have.	The online teacher is able to apply troubleshooting skills (e.g., change passwords, download plug-ins, etc.).	
The online teacher knows and understands the need to continuously update their knowledge and skills for using the evolving technology tools that support online learning.	The online teacher is able to identify and explore new tools and test their applicability to their content areas and students.	

Standard C

The online teacher plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the techniques and applications of online instructional strategies, based on current research and practice (e.g., discussion, student-directed learning, collaborative learning, lecture, project-based learning, forum, small group work).	The online teacher is able to use student-centered instructional strategies that are connected to real-world applications to engage students in learning (e.g., peer-based learning, inquiry-based activities, collaborative learning, discussion groups, self-directed learning, case studies, small group work, and guided design).	
The online teacher knows and understands the process for facilitating, monitoring, and establishing expectations for appropriate interaction among students.	The online teacher is able to facilitate and monitor appropriate interaction among students.	
The online teacher knows and understands the techniques for developing a community among the participants.	The online teacher is able to apply effective facilitation skills by creating a relationship of trust; establish consistent and reliable expectations; and support and encourage independence and creativity that promotes the development of a sense of community among the participants.	
The online teacher knows and understands the process for facilitating and monitoring online instruction groups that are goal-oriented, focused, project-based, and inquiry-oriented to promote learning through group interaction.	The online teacher is able to facilitate and monitor online instruction groups to promote learning through higher-order thinking and group interaction.	
The online teacher knows and understands techniques to adjust communications to diverse perspectives.	The online teacher is able to respond appropriately to the diverse backgrounds and learning needs of the students.	
The online teacher knows and understands differentiated instruction based on students' learning styles.	The online teacher is able to use differentiated strategies in conveying ideas and information, and is able to assist students in assimilating information to gain understanding and knowledge.	

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands techniques to create an environment that will engage, welcome, and reach each individual learner.	The online teacher is able to apply strategies for engagement in online learning environments, e.g., asking questions to stimulate discussion.	
The online teacher knows and understands the participation in an online course from a student-centered approach.	The online teacher is able to apply experiences as an online student and/or group to demonstrate the development and implementation of successful strategies for online teaching environments and to anticipate challenges and problems in the online classroom.	
The online teacher knows and understands the need to establish and maintain ongoing and frequent teacher-student interaction, student-student interaction, teacher-parent interaction, and teacher-mentor interaction.	The online teacher is able to provide a variety of ongoing and frequent teacher-student interaction, student-student interaction, and teacher-parent interaction, and teacher-mentor interaction opportunities.	

Standard D

The online teacher promotes student success through clear expectations, prompt responses, and regular feedback.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands techniques to maintain strong and regular communication with students, using a variety of tools.	The online teacher is able to use effective communication skills with students.	
The online teacher knows and understands techniques for using appropriate communications in support of student engagement through prompt and regular feedback, and setting and communicating high expectations.	The online teacher is able to provide prompt feedback, communicate high expectations, and respect diverse talents and learning styles.	

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the need to create and explain objectives, concepts, and learning outcomes in a clearly written, concise format and to explain the course organization to students.	The online teacher is able to provide clear definitions of objectives, concepts, and learning outcomes and the course organization to students.	
The online teacher knows and understands the need to define the terms of class interaction for both teacher and students.	The online teacher is able to establish and provide clear expectations of class interaction for both teacher and students.	
The online teacher knows and understands the need to define the assessment criteria for the course.	The online teacher is able to provide a clear explanation of the assessment criteria for the course to students.	
The online teacher knows and understands the need to provide clear expectations for teacher response time to student queries.	The online teacher is able to provide a clear explanation of the expectations of teacher response time to student queries.	
The online teacher knows and understands the need to establish criteria for appropriate online behavior for both teacher and students.	The online teacher is able to establish and implement criteria for appropriate online behavior for both teacher and students.	
The online teacher knows and understands the need for timely, constructive, personalized feedback to students about assignments and questions.	The online teacher is able to use student data to inform instruction, guide and monitor students' management of their time, monitor learner progress with available tools, and develop an intervention plan for unsuccessful learners.	
The online teacher knows and understands a variety of methods and tools to reach and engage students who are struggling.	The online teacher is able to use a variety of methods and tools to reach and engage students who are struggling.	
The online teacher knows and understands the process for aligning teacher and student expectations for the course, in general.	The online teacher is able to orient students to teacher's instructional methods and goals and invite students to provide feedback on their perceptions of how they are learning in a course.	

Standard E

The online teacher models, guides, and encourages legal, ethical, and safe behavior related to technology use.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the responsibilities of digital citizenship and techniques to facilitate student investigations of the legal and ethical issues related to technology and society.	The online teacher is able to establish standards for student behavior that are designed to ensure academic integrity and appropriate use of the Internet and online written communication; teach students that copyright laws are created for a reason.	
The online teacher knows and understands how the use of technology may lead to instances of academic dishonesty.	The online teacher is able to identify the risks and intervene in incidents of academic dishonesty for students.	
The online teacher knows and understands resources and techniques for implementing Acceptable Use Policies (AUP).	The online teacher is able to model and comply with intellectual property policies and fair use standards and reinforce their use with students.	
The online teacher knows and understands techniques for recognizing and addressing the inappropriate use of electronically accessed data or information.	The online teacher is able to provide resources for students related to intellectual property and plagiarism.	
The online teacher knows and understands privacy standards about other students and their posting and performance that are outlined in FERPA or other similar guidelines.	The online teacher is able to incorporate and comply with FERPA or other similar guidelines in AUP and course design and communicate privacy guidelines to students.	



Standard F

The online teacher is cognizant of the diversity of student academic needs and incorporates accommodations into the online environment.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands legal mandates stipulated by the Americans with Disabilities Act (ADA), the Individuals with Disabilities Education Act (IDEA), the Assistive Technology Act, and Section 508 or other similar guidelines/requirements for accessibility.	The online teacher is able to monitor student progress and apply activities and tools that are relevant to the needs of all students, including those with learning or physical disabilities, in collaboration with appropriate staff or resources.	
The online teacher knows and understands that students have varied talents and skills and make appropriate accommodations designed to include all students.	The online teacher is able to address learning styles, needs for accommodations, and create multiple paths to address diverse learning styles and abilities.	
The online teacher knows and understands appropriate tools and technologies to make accommodations to meet student needs.	The online teacher is able to use appropriate tools and technologies to make accommodations to meet student needs.	
The online teacher knows and understands how adaptive/assistive technologies are used to help people who have disabilities gain access to information that might otherwise be inaccessible.	The online teacher is able to apply adaptive and assistive technologies in the online classroom where appropriate in the instruction to meet student needs.	
The online teacher knows and understands options to expand student thinking, address styles of learning, and provide avenues for enrichment or intervention.	The online teacher is able to identify students who are struggling with various learning obstacles, such as ELL or literacy issues, and apply appropriate strategies to support student thinking, address styles of learning, and provide avenues for enrichment or intervention when needed.	
The online teacher knows and understands the process for connecting with local support personnel to verify student's IEP requirements or 504 accommodations needed for student success.	The online teacher is able to communicate with the appropriate school staff regarding specific accommodations, modifications, or needs as listed in a student's IEP or 504 accommodations, and work in collaboration with others to address student needs.	
The online teacher knows and understands the diversity of student learning needs, languages, and backgrounds.	The online teacher is able to demonstrate awareness of different learning preferences, diversity, and universal design principles.	



Standard G

The online teacher demonstrates competencies in creating and implementing assessments in online learning environments in ways that ensure validity and reliability of the instruments and procedures.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
<p>The online teacher knows and understands adequate and appropriate assessment instruments to measure online learning that reflect sufficient content validity (i.e., that adequately cover the content they are designed to measure), reliability, and consistency over time.</p>	<p>The online teacher is able to create and implement assessments in online learning environments in ways that ensure validity and reliability of the instruments and procedures.</p>	
<p>The online teacher knows and understands the implementation of online assessment measures and materials in ways that ensure instrument validity and reliability.</p>	<p>The online teacher is able to develop and deliver assessments, projects, and assignments that meet standards-based learning goals and assess learning progress by measuring student achievement of learning goals.</p>	
<p>The online teacher knows and understands multiple strategies for ensuring the security of online student assessments, academic integrity, and assessment data.</p>	<p>The online teacher is able to implement a variety of assessments that ensure the security of student assessment data and accurate measures of student ability.</p>	



Standard H

The online teacher develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of the learning goals.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the reach of authentic assessments (i.e., the opportunity to demonstrate understanding of acquired knowledge and skills, as opposed to testing isolated skills or retained facts) are part of the evaluation process.	The online teacher is able to apply authentic assessments as part of the evaluation process, assess student knowledge in a forum beyond traditional assessments, and monitor academic integrity with assessments.	
The online teacher knows and understands the process of continuous evaluation of students to include formative and summative assessments and student feedback, including polls and surveys that reflect student learning progress throughout the course.	The online teacher is able to create or select and implement a variety of formative and summative assessments that assess student learning progress and utilize student feedback to improve the online learning experience.	
The online teacher knows and understands the relationships between the assignments, assessments, and standards-based learning goals.	The online teacher is able to create, select, and organize the appropriate assignments and assessments, and align curricular content with associated and standards-based learning goals.	



Standard I

The online teacher demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands techniques to plan individualized instruction incorporating student data.	The online teacher is able to use student data to plan instruction.	
The online teacher knows and understands how data is used to modify the content, instruction, and assessment to meet student needs.	The online teacher is able to use observational data (e.g., tracking data in electronic courses, Web logs, e-mail) to monitor course progress and effectiveness.	
The online teacher knows and understands how instruction is based on assessment data.	The online teacher is able to customize instruction, based on assessment data, in order to personalize the learning experience per student needs and performance.	
The online teacher knows and understands the importance of self-reflection or assessment of teaching effectiveness.	The online teacher is able to create opportunities for self-reflection or assessment of teaching effectiveness within the online environment (e.g., classroom assessment techniques, teacher evaluations, teacher-peer reviews).	
The online teacher knows and understands varied assessment strategies that address levels of ability through a variety of alternative interventions.	The online teacher is able to address levels of ability through a variety of alternative interventions.	
The online teacher knows and understands the use of effective learning strategies data for an individual student to formulate detail-specific changes in future instruction, based on assessment results and research study (data-driven and research-based).	The online teacher is able to evaluate instructional strategies to determine their accuracy and usefulness for presenting specific ideas and concepts.	
The online teacher knows and understands the process for maintaining records of relevant communications.		



Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands effective time management strategies.	The online teacher is able to provide consistent feedback and course materials in a timely manner, and use online tool functionality to improve instructional efficiency.	
The online teacher knows and understands online course management tasks.	The online teacher is able to track student enrollments, communication logs, attendance records, etc.	
The online teacher knows and understands ways for teacher and students to assess student readiness for course content and method of delivery.	The online teacher is able to employ ways to assess student readiness for course content and method of delivery.	
The online teacher knows and understands that student success (e.g., grade, level of participation, mastery of content, completion percentage) is an important measure of teaching and course success.	The online teacher is able to employ ways for students to effectively evaluate and assess their own readiness for course content and method of delivery.	
The online teacher knows and understands the importance of student self-assessment.	The online teacher is able to create opportunities for student self-assessment within courses.	
The online teacher knows and understands the role of student empowerment in online learning.	The online teacher is able to empower students to independently define short- and long-term learning goals and monitor their personal progress.	



Standard J

The online teacher interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students' success.

Teacher Knowledge and Understanding	Teacher Abilities	Rating
The online teacher knows and understands the need for professional activity and collaboration beyond school (e.g., professional learning communities) to update academic skills and knowledge and collaborate with other educators.	The online teacher is able to engage in professional development activities and collaboration beyond school.	
The online teacher knows and understands the need to coordinate learning experiences with with other adults involved in providing support to the student (e.g., parents, local school contacts, mentors) to support student learning.	The online teacher is able to provide ongoing communication with parents or guardians concerning student learning.	



Instructional Design

The following section outlines standards for instructional design skills for the online teacher of record, where applicable. These standards are considered optional, as instructional design does not always fall under online teaching responsibilities.

Standard K

The online teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment.

Teacher Knowledge and Understanding	Rating
The online teacher knows and understands critical digital literacies and 21st century skills.	
The online teacher knows and understands appropriate use of technologies to enhance learning.	
Teacher Abilities	
The online teacher is able to modify and add content and assessment, using an online Learning Management System (LMS).	
The online teacher is able to create and modify engaging content and appropriate assessments in an online environment.	
The online teacher is able to incorporate multimedia and visual resources into an online module.	
The online teacher is able to use and incorporate subject-specific and developmentally appropriate software in an online learning module.	
The online teacher is able to review materials and Web resources for their alignment with course objectives and state and local standards and for their appropriateness on a continuing basis.	
The online teacher is able to create assignments, projects, and assessments that are aligned with students' different visual, auditory, and hands-on ways of learning.	
The online teacher is able to arrange media and content to help transfer knowledge most effectively in the online environment.	





International Association for K-12 Online Learning (iNACOL). (2011b). *National Standards for Quality Online Teaching, 2nd Version*. Retrieved April 24, 2013, from http://www.inacol.org/cms/wp-content/uploads/2013/02/iNACOL_TeachingStandardsv2.pdf.

The International Association for K-12 Online Learning (iNACOL) National Standards for Quality Online Teaching were initially developed in 2008 (after OITI completed) with revisions over the years. Please proceed to self-asses based upon your OITI experiences with these current iNACOL teachers standards listed below.

To jog your memory, I've provided a quick summary of topics covered in OITI:

- ETEC 415 (Technology for Teachers): Integration of Internet search strategies, awareness of copyright issues for educators, integration of word processing in educational settings, integration of multimedia in educational settings, creating an educational Web site, creating a technology unit plan aligned to standards, researching newer technologies for curriculum integration, awareness of distance learning (DL) technologies.
- ETEC 649 (Development of Online Courses): Development of Web-enhanced curriculum, integration of Blackboard LMS, instructional design for DL, evaluation & assessment of DL, synchronous vs. asynchronous learning, DL technologies, facilitating and engaging online learners, development of DL curriculum, development of e-portfolio.

Estimated time: 45 min.- 1 hour or less

Default Question Block

Standard A: The online teacher knows the primary concepts and structures of effective online instruction and is able to create learning experiences to enable student success.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teachers knows and understands the current best practices and strategies for online teaching and learning and their implementation in online education.	●	●	●	●	●
The online teacher knows and understands the role of online learning in preparing students for the global community they live in, both now and in the future.	●	●	●	●	●
The online teachers knows and understands the instructional delivery continuum (e.g. fully online to blended to face-to-face)	●	●	●	●	●
The online teacher knows and understands the need for continuing to update academic knowledge, pedagogy, and skills.	●	●	●	●	●
The online teacher knows and understands the subject area and age group they are teaching.	●	●	●	●	●
The online teachers knows and understands the professional responsibility to contribute to the effectiveness, vitality, and self-renewal of the	●	●	●	●	●

teaching profession, as well as their online school and community.

How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard A (noted above)?

Standard B: The online teacher understands and is able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the use of an array of grade-appropriate online tools for communication, productivity, collaboration, analysis, presentation, research, and content delivery.	●	●	●	●	●
The online teachers knows and understands the use of emerging technologies in a variety of mediums for teaching and learning, based on student needs.	●	●	●	●	●
The online teacher knows and understands the importance of interaction in an online course and the role of varied communication tools in supporting interaction.	●	●	●	●	●
The online teacher knows and understands basic troubleshooting skills and the responsibility to address basic technical issues online students may have.	●	●	●	●	●
The online teacher knows and understands the need to continuously update their knowledge and skills for using the evolving technology tools that support online learning.	●	●	●	●	●

How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard B (noted above)?

Standard C: The online teacher plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the techniques and applications of online instructional strategies, based on current research and practice (e.g. discussion, student-directed learning, collaborative learning, lecture, project-based learning, forum, small group work).	●	●	●	●	●
The online teacher knows and understands the process for facilitating, monitoring, and establishing expectations for appropriate interaction among students.	●	●	●	●	●
The online teacher knows and understands the techniques for developing a community among the participants.	●	●	●	●	●
The online teacher knows and understands the process for facilitating and monitoring online instruction groups that are goal-oriented, focused, project-based, and inquiry-oriented to promote learning through group interaction.	●	●	●	●	●
The online teacher knows and understands techniques to adjust communications to diverse perspectives.	●	●	●	●	●

Standard C (continued): The online teacher plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands differentiated instruction based on students' learning styles.	●	●	●	●	●
The online teacher knows and understands techniques to create an online environment that will engage, welcome, and reach each individual learner.	●	●	●	●	●
The online teacher knows and understands the participation in an online course from a student-centered approach.	●	●	●	●	●
The online teacher knows and understands the need to					

establish and maintain ongoing and frequent teacher-student interaction, student-student interaction, teacher-parent interaction, and teacher-mentor interaction.



How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard C (noted above)?

Standard D: The online teacher promotes student success through clear expectations, prompt responses, and regular feedback.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands techniques to maintain strong and regular communication with students, using a variety of tools.	●	●	●	●	●
The online teacher knows and understands techniques for using appropriate communications in support of student engagement through prompt and regular feedback, and setting and communicating high expectations.	●	●	●	●	●
The online teacher knows and understands the need to create and explain objectives, concepts, and learning outcomes in a clearly written, concise format and to explain the course organization to students.	●	●	●	●	●
The online teacher knows and understands the need to define the terms of class interaction for both teacher and students.	●	●	●	●	●
The online teacher knows and understands the need to define the assessment criteria for the course.	●	●	●	●	●

Standard D (continued): The online teacher promotes student success through clear expectations, prompt responses, and regular feedback.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and					

understands the need to provide clear expectations for teacher response time to student queries.	●	●	●	●	●
The online teacher knows and understands the need to establish criteria for appropriate online behavior for both teacher and students.	●	●	●	●	●
The online teacher knows and understands the need for timely, constructive personalized feedback to students about assignments and questions.	●	●	●	●	●
The online teacher knows and understands a variety of methods and tools to reach and engage students who are struggling.	●	●	●	●	●
The online teacher knows and understands the process for aligning teacher and student expectations for the course, in general.	●	●	●	●	●

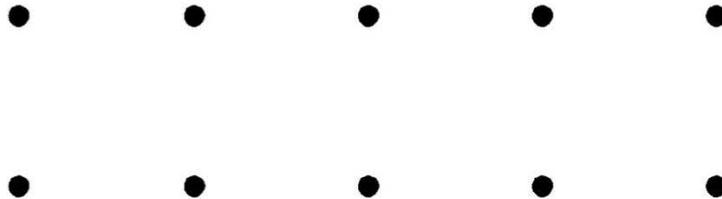
How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard D (noted above)?

Standard E: The online teacher models, guides, and encourages legal, ethical, and safe behavior related to technology use.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the responsibilities of digital citizenship and techniques to facilitate student investigations of the legal and ethical issues related to technology and society.	●	●	●	●	●
The online teacher knows and understands how the use of technology may lead to instances of academic dishonesty.	●	●	●	●	●
The online teacher knows and understands resources and techniques for implementing Acceptable Use Policies (AUP).	●	●	●	●	●
The online teacher knows and understands techniques for					

recognizing and addressing the inappropriate use of electronically accessed data or information.

The online teacher knows and understands privacy standards about other students and their posting an performance that are outlined in FERPA or other similar guidelines.



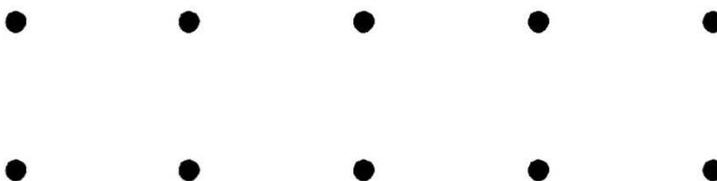
How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard E (noted above)?

Standard F: The online teacher is cognizant of the diversity of student academic needs and incorporates accommodations into the online environment.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands legal mandates stipulated by the Americans with Disabilities Act (ADA), the Individuals with Disabilities Education Act (IDEA), the Assistive Technology Act, and Section 508 or other similar guidelines/requirements for accessibility.	●	●	●	●	●
The online teachers knows and understands the students have varied talents and skills and make appropriate accommodations designed to include all students.	●	●	●	●	●
The online teacher knows and understands appropriate tools and technologies to make accommodations to meet student needs.	●	●	●	●	●
The online teacher knows and understands how adaptive/assistive technologies are used to help people who have disabilities gain access to information that might otherwise be inaccessible.	●	●	●	●	●
The online teacher knows and understands options to expand student thinking, address styles of learning, and provide avenues for enrichment or intervention.	●	●	●	●	●
The online teacher knows and					

The online teacher knows and understands the process for connecting with local support personnel to verify student's IEP requirements or 504 accommodations needed for student success.

The online teacher knows and understands the diversity of student learning needs, languages, and backgrounds.



How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard F (noted above)?

Standard G: The online teacher demonstrates competencies in creating and implementing assessments in an online learning environments in ways that ensure validity and reliability of the instruments and procedures.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands adequate and appropriate assessment instruments to measure online learning that reflect sufficient content validity (i.e. that adequately cover the content they are designed to measure), reliability, and consistency over time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online teacher knows and understands the implementation of online assessment measures and materials in ways that ensure instrument validity and reliability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online teacher knows and understands multiple strategies for ensuring the security of online student assessments, academic integrity, and assessment data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard G (noted above)?

Standard H: The online teacher develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assess learning progress by measuring student achievement of the learning goals.

Somewhat Satisfactory **Satisfactory**

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the reach of authentic assessments (i.e., the opportunity to demonstrate understanding of acquired knowledge and skills, as opposed to testing isolated skills or retained facts) are part of the evaluation process.	●	●	●	●	●
The online teacher knows and understands the process of continuous evaluation of students to include formative and summative assessments and student feedback, including polls and surveys that reflect student learning progress throughout the course.	●	●	●	●	●
The online teacher knows and understands the relationships between the assignments, assessments, and standards-based learning goals.	●	●	●	●	●

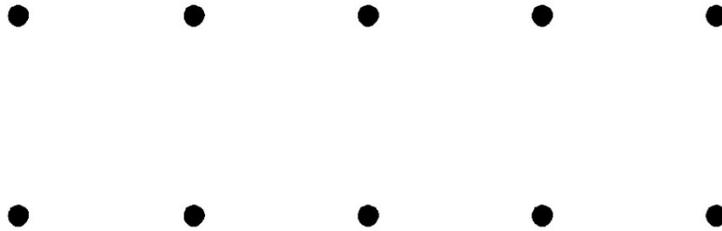
How did your OITI experience(s) impact you as a future online instructor in addressing iNACOL Standard H (noted above)?

Standard I: The online teacher demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands techniques to plan individualized instruction incorporating student data.	●	●	●	●	●
The online teacher knows and understands how data is used to modify the content, instruction, and assessment to meet student needs.	●	●	●	●	●
The online teachers knows and understands how instruction is bases on assessment data.	●	●	●	●	●
The online teacher knows and understands the importance of self-reflection or assessment of teaching effectiveness.	●	●	●	●	●
The online teacher knows and					

understands varied assessment strategies that address levels of ability through a variety of alternative interventions.

The online teacher knows and understands the use of effective learning strategies data for individual student to formulate detail-specific changes in future instruction, based on assessment results and research study (data-driven and research-based).



Standard I (continued): The online teacher demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the process for maintaining records of relevant communications.	●	●	●	●	●
The online teacher knows and understands effective time management strategies.	●	●	●	●	●
The online teacher knows and understands online course management tasks.	●	●	●	●	●
The online teacher knows and understands ways for teacher and students to assess student readiness for course content and method of delivery.	●	●	●	●	●
The online teacher knows and understands that student success (e.g. grade, level of participation, mastery of content, completion percentage) is an important measure of teaching and course success.	●	●	●	●	●
The online teacher knows and understands the importance of student self-assessment.	●	●	●	●	●
The online teacher knows and understands the role of student empowerment in online learning.	●	●	●	●	●

How did your OITL experience(s) impact you as a future online instructor in addressing iNACOL Standard I (noted above)?

Standard J: The online teacher interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students' success.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands the need for professional activity and collaboration beyond school (e.g. professional learning communities) to update academic skills and knowledge and collaborate with other educators.	●	●	●	●	●
The online teacher knows and understands the need to coordinate learning experiences with other adults involved in providing support to the student (e.g. parents, local school contacts, mentors) to support student learning.	●	●	●	●	●

How did your OITL experience(s) impact you as a future online instructor in addressing iNACOL Standard J (noted above)?

Standard K: The online teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment.

	Absent (component is missing)	Unsatisfactory (needs significant improvement)	Somewhat Satisfactory (needs targeted improvement)	Satisfactory (discretionary improvement needed)	Very Satisfactory (no improvement needed)
The online teacher knows and understands critical digital literacies and 21st century skills.	●	●	●	●	●
The online teacher knows and understands appropriate use of technologies to enhance learning.	●	●	●	●	●

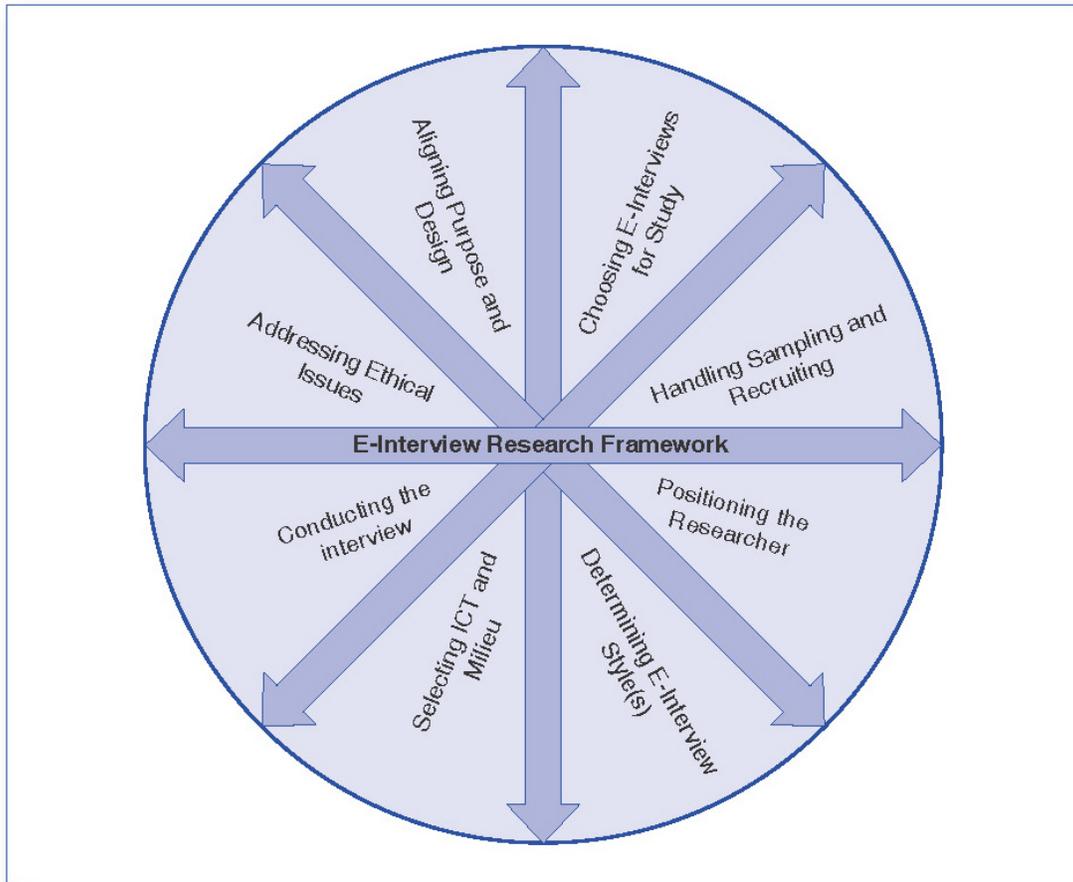
How did your OITL experience(s) impact you as a future online instructor in addressing iNACOL Standard K (noted above)?

Appendix P

Janet Salmon's E-Interview Research Framework

Figure 1.2

The E-Interview Research Framework for understanding e-interview research.



Salmons, J. (2011). *Designing and Conducting Research with Online Interviews*. SAGE Publications. Retrieved January 31, 2013, from http://www.sagepub.com/upm-data/43888_1.pdf.

Permission obtained via email in February 2012.

Appendix Q

Data Collection & Analysis Plan Checklist

Data Collection & Analysis Plan Checklist

Completed	Tasks	Date
<input checked="" type="checkbox"/>	Invite 3 educational technology professionals and provide 3-4 weeks for them to review research instruments	October 2013
<input checked="" type="checkbox"/>	Send participants: <ol style="list-style-type: none"> 1. Agreement to participate form 2. Demographics survey Provide 3-4 weeks for completion	October 2013
<input checked="" type="checkbox"/>	Revise and finalize research instruments based upon educational technology professionals feedback	November 2013
<input checked="" type="checkbox"/>	Familiarize with quantitative data collection tool (Qualtrics)	November 2013
<input checked="" type="checkbox"/>	Recheck and ensure research instruments address/answer research questions	November 2013
<input checked="" type="checkbox"/>	Seek and obtain permission to use survey instruments: <ol style="list-style-type: none"> 1. Technology Pedagogical Content Knowledge (TPACK) 2. International Society for Technology in Education (ISTE) 3. International Association for K-12 Online Learning (iNACOL) 	Prior to use of research instruments
<input checked="" type="checkbox"/>	Reminder emails for agreement to participate form and demographics survey	December 2013
<input checked="" type="checkbox"/>	Create online research instruments (using Qualtrics)	December 2013
<input checked="" type="checkbox"/>	TPACK survey dissemination to participants	December 2013
<input checked="" type="checkbox"/>	TPACK reminder emails to participants who did not complete	January 2014
<input checked="" type="checkbox"/>	ISTE self-assessment dissemination to participants	January 2014
<input checked="" type="checkbox"/>	ISTE reminder emails to participants who did not complete	January 2014
<input checked="" type="checkbox"/>	iNACOL self-assessment dissemination to participants	February 2014
<input checked="" type="checkbox"/>	iNACOL reminder emails to participants who did not complete	February 2014
<input checked="" type="checkbox"/>	Coordinate and schedule face-to-face or online interviews	February 2014

Completed	Tasks	Date
☒	Prepare for face-to-face or online interviews: <ol style="list-style-type: none"> 1. Initial data analysis (average mean for TPACK, ISTE & iNACOL) 2. Complete interview preparation document for participant reference during interview 3. Test audio recording software 4. Ensure audio recording back up is available 5. Test online videoconferencing technology (for online interviews) 6. Send participants interview preparation document, which includes: <ol style="list-style-type: none"> a. Case study research questions b. Summary of topics covered in the OITI c. Individual participant TPACK, ISTE, and iNACOL data from Qualtrics reports d. Blended to online learning spectrum graphic & definitions e. TPACK graphic with individualized results f. Individual summarized ISTE highest and lowest mean scores g. Individual summarized iNACOL highest and lowest mean scores 	February 2014
☒	Conduct face-to-face or online interviews (4) <ul style="list-style-type: none"> • Include reminder to validate and review online survey responses (TPACK, ISTE, iNACOL). 	March 2014
☒	Face-to-face or online interview follow-up: <ol style="list-style-type: none"> 1. Audio recording back up 2. Thank you email to participants 	March 2014
☒	Transcribe interviews by sending to transcription service	March 2014
☒	Finalize transcriptions by double checking prior to importing into qualitative software	April 2014
☒	Begin data analysis	April 2014
☒	Verified coding sample with 2 educational technology professionals	May 2014
☒	Conducted member check of individual data analysis write up (chapter 4) with each case study participant	August 2014