

CONNECTING CLASSROOM PRACTICE TO CONCEPTS  
OF CULTURALLY RESPONSIVE TEACHING:  
VIDEO ANALYSIS IN AN ONLINE TEACHER EDUCATION COURSE

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## ABSTRACT

Video has been shown to be an effective tool for synthesizing theory and connecting theory to practice in meaningful ways. This design-based research study examined how localized video of a practicing teacher impacted pre-service teachers' ability to learn culturally responsive teaching (CRT) methods and targeted strategies in an online teacher education course. By observing and coding video segments, pre-service teachers' mitigated course content with what they already knew. The study was framed by previous work on the use of video in teacher development, applied research on "noticing" to the inclusion of localized video of a practicing teacher for facilitating discourse with experienced teachers, and applied situated learning by using video as a conduit for developing teacher identity and communities of practice. The study offers iterative details of instructional design across three semesters of use in an online "Introduction to Teaching" course. Pre-service teachers first received text-based content on culturally responsive teaching and classroom practices, then viewed video of a practicing teacher. The students identified and coded CRT methods and interrelated course topics in practice as they reviewed the video. A modified CORDTRA analysis of pre-service video-coding results suggested that pre-service teachers identified complex topics and competencies according to their own levels of teaching experience, and improved their understanding of core concepts over time. This study situates variances in "noticing" among students with differing levels of teaching experience as an entryway to a community of practice. The study supports previous work on the social construction of language in teacher education and research on video analysis indicating that background knowledge, and experience is foundational in noticing nuanced strategies and identifying practice. The results of this study support the potential of video as a contextualized artifact for pre-service teachers to mitigate complex competencies in a socially constructed way. Recommendations for future research include viewing the integration of technology in education from the theoretical lens of labor theory as useful in identifying real-world philosophical, economic, and practical implications the innovation will have on teacher educators, teachers and students.



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# CHAPTER 1: INTRODUCTION

## Background

Due to current market-driven reform efforts, traditional teacher education programs in higher education are increasingly competing with alternative for-profit (Smith & Pandolfo, 2011) and fast-track programs (Cody, 2012; L. Darling-Hammond, 2009; Veltri, 2010) designed to support accelerated teacher certification and quicker placements in classrooms. In spite of the evidence that experienced teachers are more effective than inexperienced teachers (L. Darling-Hammond, 1999; Rice, 2003), and that less preparation means higher turnover for teachers (Boyd, Lankford, Loeb, & Wyckoff, 2010), corporate sponsored reform efforts continue to challenge traditional licensure in teacher education by suggesting they either drastically reduce programs or by proposing to bypass traditional certification programs altogether (“How to Become a Teacher,” n.d.; Romney for President, 2012; Sass, 2011).

In response to calls for reform, teacher certification programs at public universities are working toward integrating technology and distance education to increase access and enrollment while connecting theory to practice in practical and meaningful ways. Video has been shown to be an effective tool for establishing norms and synthesizing theory (Brophy, 2004; Coles, 2010). The use of video targeting specific strategies in teacher education, such as culturally responsive teaching taught by a licensed, practicing teacher could be one way to expose pre-service teachers to noticing the nuances of complex skills, while reinforcing the concepts and content required in teacher education (Bacevich, 2010; Beitzel & Derry, 2009; Beitzel, 2004; S.J. Derry, Hmelo-Silver, Nagarajan, Chernobilsky, & Beitzel, 2006; Eiteljorg, 2007; C.E. Hmelo-Silver, Derry, Bitterman, & Hatrak, 2009; Starker, 2008; Thomas, 2008). This design-based research study explored three interrelated issues, framed within the context of teacher education: 1) the contradictory position of teaching more competencies in less time; 2) how video of a licensed, practicing teacher influences the “agency” of pre-service teachers’ understandings of

culturally responsive methods; and 3) the differences in how experience levels in teaching influence the extraction of targeted strategies from video.

### **Increasing Competencies**

The typical length of a traditional teacher education program, including one semester of student teaching with a licensed teacher, is 48 months. Post-baccalaureate programs are shorter, ranging from 18-24 months. Traditional programs serve as a selective gateway to classrooms by directly addressing ethics and dispositions while requiring pre-service teachers to complete sequential courses integrating theory, content, and methods. Gradual entrance to classrooms happens at structured intervals, only after pre-service teachers' have passed required courses and completed documentation. Once in the classroom, they are observed and evaluated by both their mentor teachers and university liaisons until they are licensed. Traditional preparation and licensing programs are strongly correlated with teacher retention as better-prepared teachers tend to stay in the profession longer (Boe, Cook, & Sunderland, 2008). Under qualified or unprepared teachers have higher attrition rates, high teacher turnover has economic consequences and harms student achievement (Ronfeldt, Lankford, Loeb, & Wyckoff, 2011). But as the workload and competencies required of practicing teachers continues to increase, teacher educators are faced with the challenge of covering more content in a shorter timeframe (Boe, Cook, & Sunderland, 2008).

### **Cultural Issues for Teacher Education in Hawai'i: Traditional and Alternative**

In 2000-2001, state approved teacher preparation programs statewide produced less than half of the 1,500 new teachers needed annually in Hawai'i (Hitz, 2002). In response, the Hawai'i Department of Education actively recruits out of state teachers, and in 2007 guaranteed positions for Teach for America candidates with the goal of placing 55 teachers per year, or 200 teachers in four years in high need areas (Hamamoto, 2007). Teach for America is a national, alternative certification program that recruits students who have completed a bachelor's degree program but have no background in teacher education. In keeping with their mission of placing new teachers in high-poverty communities, the majority of Teach for America candidates are certified in one year and placed in predominantly Native Hawaiian communities (Hoover, 2010). Teach for



America candidates, in partnership with Kamehameha Schools, participate in an orientation to Hawaiian culture and place-based education by participating in the Kahua Program.

Hawai'i is home to one of the largest populations of indigenous students attending public schools. Native Hawaiian students comprise the largest ethnic group in the State's K-12 schools at 28% (Hawai'i Department of Education, Office of Human Resources/Personnel Management Branch, State of Hawai'i, 2010, Hawai'i Department of Education, 2012, "Hawai'i DOE Employment Report," n.d., Office of Human Resources/Personnel Management Branch, 2009), and a large percentage of indigenous students come from families that experience elevated levels of poverty (Naya, 2007; Okamura, 2008). Native Hawaiian students attending public schools score 10 points behind state averages on standardized tests (S. M. Kana'iaupuni, Malone, & Ishibashi, 2005) and are disproportionately represented in special education (Kamehameha Schools, 2009).

In Hawai'i's diverse climate, culturally responsive teaching has direct implications on positive student outcomes (S. M. Kana'iaupuni et al., 2005). There is a considerable body of research that supports the effectiveness of culturally compatible interventions in increasing learner outcomes (Garcia & Ortiz, 2006; Hynds et al., 2011, 2011; Klingner & Edwards, 2006; Ogata, 2006). In predominantly indigenous communities, there can be an additional challenge when a cultural disconnect exists between the community and the school, in addition to the challenges of poverty. Nationally, there continues to be significant disparity in the availability of resources for teachers who are teaching in affluent and high-poverty schools, and students living in low-income communities are disproportionately taught by under qualified teachers (Kozol, 2005; McLaughlin & Talbert, 2003; Scafidi, Sjoquist, & Stinebrickner, 2007). Higher drop-out rates, and lower test scores are also correlated with children living in poverty (Orfield & Lee, 2005; Ravitch, 2010).

### **Development of a Culturally Responsive Teaching Curriculum**

Engaging culturally and linguistically diverse students using technology is a complex job requiring multiple interdependent skills (L. Darling-Hammond, 2009; Lahann & Reagan, 2011; Mishra & Koehler, 2006). In order to meet the diverse needs of

all of its students, the Department of Education is actively supporting grant projects related to culturally responsive teaching under the U.S. Department of Education Native Hawaiian Education Program. In 2009, a developmental grant project was funded by the Native Hawaiian Education Program to develop and implement evidence-based instructional strategies and culturally responsive teaching methods aligned with Native Hawaiian values which were to be delivered through the Response to Intervention (RTI) process (“About the Project,” n.d.). The grantee was the Center for Disability Studies at the University of Hawai’i Mānoa and the project was titled the "Culturally Responsive Response to Intervention Project" (CRRTI). The grant provided professional development and in-class technical assistance and instructional support to over 125 public school teachers in predominantly Native Hawaiian school districts. As part of a “developmental” grant, project staff worked in collaboration with participating teachers who provided feedback on workshop topics and materials.

The CRRTI grant provided in-service trainings in the form of three four-hour Saturday morning workshops per semester, and project materials aligned evidence-based teaching strategies with Native Hawaiian values/culture within a Response to Intervention (RTI) framework. RTI is a national initiative that integrates assessment and intervention strategies within a tiered prevention system. The initiative provides structured instructional variation and intensity as a way to respond to the diverse needs of learners. With the RTI process, schools identify students at risk of failing, adjust instructional interventions according to the student’s response, and monitor student progress. These steps are preventive pre-referral strategies addressing instructional issues before a student is referred to special education services.

The overarching goal of the CRRTI grant project was to improve reading and mathematics outcomes of Native Hawaiian students through the teacher implementation of culturally responsive teaching methods and active learning strategies designed to increase student engagement. Participating teachers who attended the Saturday morning workshops learned about culturally responsive teaching methods, practical strategies for increasing student engagement, and historical contextual content. The participating teachers then received in-class consultations, observations, and /or instructional and curriculum support.

After several iterations, in 2011 the project developers produced a teacher handbook (Culturally Responsive Response to Intervention Teacher Handbook, 2012) and various types of curriculum, including several short videos of a practicing public school teacher using the strategies the teacher learned in the professional development workshops. This video was submitted for professional development credits.

### **Use of the CRRTI Handbook and Video in Teacher Education**

Given the unique geography of Hawai'i, online learning and distance education is a practical vehicle for providing equitable access to teacher education in remote areas. In 2005, the "Introduction to Teaching" course was the first online course designed and delivered to statewide cohorts enrolled in a statewide post-baccalaureate program in secondary education at the University of Hawai'i Mānoa. The course was open to candidates across Hawai'i who did not have access to licensure programs. Between 2005 and 2009, I taught 30 sections of this course.

As a research specialist on the grant project and practicing secondary teacher educator, I first began using the CRRTI handbook and videos in my online "Introduction to Teaching" course for pre-service teachers as an activity and reflection assignment. It was a common occurrence in my class to have pre-service teachers with varied levels of teaching experience enrolled in the introductory course. Some of the more experienced pre-service teachers were classified as emergency hires and were already full-time teachers, while others were full or part-time educational assistants working towards licensure. There were also novice pre-service teachers who had little or no exposure to teaching in Hawai'i public schools.

I began redesigning my introductory online course with the goal of using the culturally responsive teaching techniques demonstrated in the videos to reinforce the concepts in the handbook, supplemental readings and class discussions. However, I noted that for some pre-service teachers, this was their first exposure to Hawai'i classrooms before they entered the classroom as student teachers. This study was the result of the grant work done developing materials with practicing teachers, and subsequent iterations of implementation with pre-service teachers in an online course.

## Statement of the Problem

Communicating complex competencies, such as culturally responsive teaching to pre-service teachers, some of whom are already teaching and others with little or no exposure to the classroom, can be a challenging task for teacher educators. The implication here is that lack of preparation places both pre-service teachers and students at risk of cultural misunderstandings, which can have an affect on student achievement. The use of video provides snapshots of complex teaching practices and allows teacher educators the opportunity for assessment of pre-service teachers' understandings of targeted competencies before they are placed in classrooms (Starker, 2008).

Such use of video in learning is also supported by schema-elaboration theory, and its links to agency and teacher efficacy. A schema is an organized thought process or framework that is employed in connecting new ideas with previous knowledge. Schema-elaboration interacts with new knowledge according to experience levels or agency. When applying the schema-elaboration hypothesis to the use of video, schema can be scaffolded by first accessing prior knowledge, then text, then reinforcing text with video (Beitzel & Derry, 2009; Beitzel, 2004). Further, indexical hypothesis (Glenberg & Robertson, 1999) frames background knowledge within perceptual knowledge and makes the clear distinction between expert and novice perceptions, in that experts "utilize a more abstract and derived" representations" (p. 2). This implies that experience provides the platform for more nuanced perceptions, but all learners apply existing schema in analysis of new information such as video. These hypotheses are appropriate in this study because they support a learning sequencing in applying video in the classroom, and also the specific issues related to investigating how pre-service teachers extract complex topics from text and video according to their respective experience levels.

Examining how the use of video impacts pre-service teachers' abilities to identify and analyze culturally responsive methods and student engagement addresses the complexities of teaching and teacher education in tangible ways. Further, studying the effectiveness of using video of experienced local teachers with pre-service teachers taking an online course contextualizes practice, localizes strategies, and provides an avenue for pre-service teachers to begin to recognize and conceptualize the complexities

of culturally responsive teaching, as well as the simultaneous competencies required of teachers.

### **Purpose and Significance**

Framed within the current challenges in teacher education, the purpose of this design-based study was to examine how video impacts pre-service teachers' ability to learn culturally responsive teaching methods and targeted strategies in an online course.

The project:

- 1) Delivered “Culturally Responsive Response to Intervention” workshop PPT and text-based materials to pre-service teachers enrolled in an online introduction to teaching class;
- 2) then, applied the treatment videos of targeted strategies;
- 3) using pre/post surveys to measure growth and assess any differences in pre-service teachers ability to describe or identify the targeted strategies;
- 4) and recorded synchronous class sessions and complete discourse analysis on student discussions about strategies.

This study examined the integration of CRRTI materials in an online course for pre-service teachers in a distance education program. Text-based and culturally congruent materials and methods combined with current research on the use of video artifacts in teacher training served as the context for exploring how pre-service teachers' mitigated course content with what they already knew as proposed by schema-elaboration theory. The hypothesis was that the video artifact of an experienced, licensed teacher in a localized context could lead to increased “agency” of pre-service teachers enrolled in the course, which would then lead to the improved performance of the students they serve.

### **Summary of Methodology**

The setting for this design-based research was an introductory online course for secondary pre-service teachers. The study employed the design based research model summarized from two previous iterations, then examined the efficacy of the researcher's third implementation of the intervention addressing how video of a licensed teacher in a localized context reinforced the text-based content.

To address the research goals, several methods were used to collect and analyze data. Pre/post treatment surveys provided quantitative data, and comparative CORDTRA analysis of student-coded video surveys was employed to provide a visual comparison of novice and experienced pre-service teachers' extraction and decomposition of course topics. CORDTRA analysis is the application of the "Chronologically Oriented Representations of Discourse and Tool-related Activity" developed by Hmelo-Silver (2003) and is described in more detail in Chapter 3. Finally, a CORDTRA analysis of a course dialogue during a synchronous session provided further visual representation of pre-service teachers engagement of topics without text or video prompts.

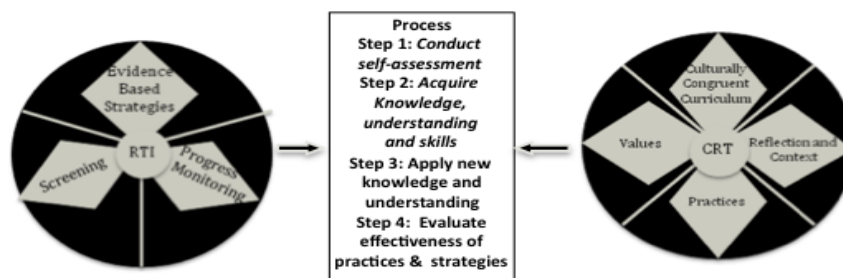
### **Research Questions**

Piloting the text and video curriculum in two previous iterations provided the baseline of experiences for instructional revisions and contributed to the development of the research questions. A comparison of text-based assessment measures with video-based assessment measures and discourse analysis techniques framed the following research questions for this study:

- 1) How does video impact learning of culturally responsive methods for pre-service teachers?
- 2) How does novice versus experienced teachers extract strategies from video?

### **Theoretical Framework**

The framework for this design-based research combined constructivist ideals about cultural relevance (Vygotskiĭ, 1978); more specifically, this study focused on how learning is activated using hypothetical assumptions on the use of video in teacher education (Derry et al., 2010) and constructivist techno-pedagogy on how video addresses reference points for mastery within varied experience or entry levels (Derry, 1996; C.E. Hmelo-Silver, Derry, et al., 2009; Van Es & Sherin, 2002).



**Figure 1. Culturally Response to Intervention Framework**

Project staff, working with practicing teachers developed the Culturally Responsive Response to Intervention (CRRTI) content and professional development model (Fig. 1) that produced the content used in this study. Schema elaboration hypothesis (Derry, 1996), rooted in Schwartz & Bransford's (as cited in Beitzel & Derry, 2009) knowledge differentiation hypothesis, provided the framework for how students construct different perceptions using the same artifact according to their respective experience levels. Finally, the study applied CORDTRA (Hmelo-Silver, 2003) for a comparative analysis of the video surveys as well as a snapshot of synchronous discourse and engagement.

### **Role of the Researcher**

As is common in design-based research the participants worked in collaboration with the researcher. I am a licensed teacher and practicing teacher educator who was the instructor and designer of the course in this research. In addition, I was one of the staff researchers who worked on developing project materials and provided in-class instructional support to the public school teachers participating in the CRRTI grant project. For several semesters, I developed working relationships with practicing teachers and videotaped a licensed teacher for a professional development portfolio, then integrated the text content and video artifact in my online course with pre-service teachers.

The issue of addressing bias in positive outcomes is critical. In order to address selection bias, deviation from trends in results were included and direct quotes from pre-service teacher's responses were used. Student-coded video surveys functioned as the data, as well as additional inter-raters in coding. All documents, assignments, journals, videos, assessments, surveys, and data will be kept on file, as well as in the online course management system for necessary review (Saldana, 2009). In addition, all course sessions were recorded as an additional form of documentation.

Because I am a licensed teacher with secondary experience, experienced pre-service teachers tend to view me as a peer, and may expect that I would infer what they meant when describing pedagogy or culturally responsive techniques. The choice of the research topic as culturally responsive teaching and use of a constructivist theoretical framework expresses bias and preference of educational practice and theory. However, in qualitative research, the researcher's bias is minimized when the research "reveals more about the subject than the researcher" (Mehra, 2002).

### **Limitations**

The enrollment for the three iterations of the online course serving as the context for this study ranged from eight to twenty-five students, which makes the data difficult to generalize across populations. Because the students are pre-service teachers, the researcher will not be able to obtain evidence of pre-service teacher transference of practice to public school classrooms, or document evidence related to secondary student engagement or academic growth. However, it is assumed that findings related to the identification of methods and strategies would transfer to classroom practice.

In order to address compliance bias, explicit statements for non-coercion were in consents and all students received the same assessments, content, and treatment. Because the research participants were pre-service teachers enrolled in the course I was teaching, an explicit statement of non-coercion was included on the consent form. In order to reduce any appearance of coercion, the consent form included an explicit statement that participating would not affect students' grades in any way.



## Definition of Key Terms

The key terms in this research were related to the grant research project from which the content and video intervention evolved and were applied to course topics that were converted to course topic codes during the analysis. They are clustered here similarly to the materials used in the course and taken from the *Culturally Responsive Response to Intervention Teacher Handbook* (2012) assigned to pre-service teachers.

Response to Intervention (RTI): A framework that integrates assessment and evidence-based interventions within a tiered approach. Students who are nonresponsive to evidence-based strategies receive increasingly more intensive instructional support.

Culturally Responsive Response to Intervention (CRRTI): A tiered approach that acknowledges each child's life experiences and background, and how that background knowledge may facilitate learning.

Culturally Responsive Teaching (CRT): A teacher who is culturally responsive makes connections with their students as individuals while understanding the socio-political contexts that influence student-teacher interactions and teacher practices. In the grant project, subtopics fell within this heading.

Culturally Congruent Curriculum: The integration of localized resources, materials, and information that builds on the background knowledge, skills, and cultures students bring to help facilitate the teaching and learning process.

Community Building: The practice of structured activities designed to build a mutually trusting environment between teacher and student, and student to student.

Teacher as Facilitator: Instruction that requires students to become active participants in their learning.

Graphic Organizers: Visual representation of concepts or topics.

Group work: Structured activities with specific group roles designed to increase student engagement (also culturally responsive).

Screening: Screening tools are grade appropriate, brief, and conducted with all students at least three times per year (beginning, middle, and end) and identify those who may be at-risk for poor learning outcomes.

CORDTRA: An process for coding content that applies the Chronologically Oriented Representations of Discourse and Tool-related Activity developed by Hmelo-

Silver (2003), used both by students in coding the video and by the researcher in analyzing course discussions.

## Summary

The following chapters outline the relevant literature related to teacher education, complexities of interrelated competencies, and current research on the use of video in teacher education. Chapter 3 provides a summary of methods, outlines the participatory methods and details CORDTRA analysis as well as the procedures, data sources and overview of methods. Chapter 4 unpacks the phases of design-based research, including project and course details, and provides the rationale and intervention decisions at each phase. Chapter 5 focuses on the third iteration of the design-based research approach which is the primary data source for this study, coding scheme, and presents the results of the analysis. Chapter 6 offers the discussion of the research questions along with instructional, technological, and societal implications.

## CHAPTER 2: FOUNDATION OF THE RESEARCH

This literature review provides context to the research study by reviewing the current issues in teacher education, including how educational reform influences programmatic challenges and measurement of teacher competencies, current research on novice and experienced teachers, the integration of technology in teacher education programs, and emerging themes in literature on the use of video in teacher education. This literature review also clarifies culturally responsive teaching and key terminology, identifies the pedagogical framework, and positions this research as a contribution to teacher education.

The way teachers are prepared and evaluated is undergoing radical changes (Darling-Hammond, 2009; National Center for Education Information, 2005; Ravitch, 2010). Darling-Hammond (2009) suggests that the current political climate in teacher education is the “modern day equivalent of the fall of Rome” (p. 35). In “Teacher Education and the American Future,” (Darling-Hammond, 2009) the reform climate for teacher education is largely driven by ideology rather than informed research or material realities. As market-driven economic and testing regimes influence educational policy and teacher education programs across the United States, some see this as an attack on public education within a neoliberal framework (Darling-Hammond, 2009; Harvey, 2005; Ravitch, 2010).

In spite of the evidence that teachers become more effective after three to five years of experience (Rice, 2003), and that less preparation means higher turnover and instability for teachers and students as well as lower student test scores (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008; Rice, 2003), reform efforts provide alternatives to faster completion by either drastically reducing programs or proposing to eliminate certification programs altogether. There has been an increase in alternative, for-profit, and online licensing programs, such as the American Board for Certification of Teacher Excellence (backed by the National Council on Teacher Quality) licensing teachers for \$1,995 in as little as eight months (“How to Become a Teacher,” n.d.).

Some blame teacher unions, not poverty, for struggling public schools. Others have argued that teaching does not require specialized knowledge or even courses in education (Romney for President, 2012). It has also been suggested without substantiated research that value-added teacher evaluations and the elimination of tenure will improve student learning (Students First, 2012). However, there is research linking alternative licensing programs with increased teacher attrition rates, while traditional teacher programs and fully licensed teachers result in lower attrition and stronger student outcomes (Darling-Hammond, 2005).

One critique of the research surrounding teacher education and student outcomes is that there is a gap of analysis of labor patterns or the relationship between the current occupational conditions of teachers and attrition (Boyd et al., 2008a; Boyd, Lankford, Loeb, & Wyckoff, 2003; Rice, 2003). Teacher competencies in traditional programs have emphasized content knowledge, pedagogy, and dispositions, and now educational technology and techno-pedagogy (Mishra & Koehler, 2006).

### **Traditional Programs and Competencies Overview**

There is significant research on effective practices in preparing future teachers (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008b; L. Darling-Hammond, 1999, 2009; G. Gay, 2009; Gold, 2001; R. M. Ingersoll, 1999; Starker, 2008). As part of the accreditation process, traditional teacher education programs regularly participate in internal and external program reviews and there is evidence that nationally accredited programs influence teacher quality (Allen, 2003). Extensive traditional teacher preparation programs are strongly correlated with positive teacher outcomes and a critical component in the preparation of highly-qualified teachers and teacher retention; better-prepared teachers stay in the profession longer (Allen, 2003; L. Darling-Hammond, 2009; Harvey, 2005; Ravitch, 2010). Teachers are more effective on raising student achievement if they are licensed or certified in the field they teach (Boe et al., 2008), have some teaching experience (Boe et al., 2008), and collaborate with their colleagues (Berry, Daughtrey, & Wieder, 2009). Over the last twenty years, improvements in high-quality traditional teacher education programs include: monitoring the benchmarks of student licensure (such as the stages of student teaching), streamlining student teaching

with capstone assignments, integrating the curriculum of local districts, and requiring a final portfolio-based summative assessment in the form of an action research project or teacher work sample (Boe et al., 2008).

Quality field experiences during student teaching provide pedagogy and guided opportunities to practice noticing and applying content knowledge, pedagogy, and dispositions required of teachers (Van Es & Sherin, 2002). One aspect in the development of teacher identity is the application of theory-based scaffolding techniques beginning with learning to “notice” nuanced communication techniques and complex skills (Van Es & Sherin, 2002). However, in order to “notice”, pre-service teachers must be able to “distinguish practice” and have the literacy skills to identify what they notice, what is referred to as a “grammar of practice” (Grossman, 2011). This “decomposition of practice” (Grossman, 2011) in concert with content addresses the critique of teacher education in that programs can frontload pre-service teachers with courses, then ask them to apply content at the end, and emphasizes the importance of cultural curriculum throughout teacher education (M. Lin, Lake, & Rice, 2008). Without the grammar of practice grounding the observation, novice pre-service teachers (and other observers) could miss the pre-preparation details, subtle management techniques, and multiple interrelated competencies a teacher is enacting. Clearly, articulating competencies is necessary in describing, and decomposing practice and identifying the occupational conditions and workloads in teaching and teacher education (Hofer & Grandgenett, 2012).

### **Articulating Competencies: TPACK**

Technology in teacher education is a complex issue (Borko, Whitcomb, & Liston, 2008). Technology can, and has, helped colleges of education overcome previous outreach barriers, particularly in licensing teachers in remote locations. Because technologies are continually changing, the instability of technology, as well as the unfixed nature of the knowledge required in using them, places additional demands on teacher educators to keep up with the constant stream of new technologies. Due to the constantly changing nature and development of new technology, a gap exists in researching the effectiveness of new tools on teaching and learning. Therefore,

positioning educational technologies as artifacts within their social applications of teaching and learning, and providing a grammar of practice by identifying specific techno-pedagogical competencies, teacher educators are more able to make “the work of practitioners at the center of professional study” in a community of practice (Grossman, 2011; Lave, 1991).

Technology is a broad and constantly changing skill-set required of teachers and teachers must be able to select the appropriate techno-pedagogical strategies to effectively engage students in the content. Teachers must also understand how media literacy influences student development, impart the critical consumption of media, and how technology and media intersect with learning styles, exceptionalities and enhance learning.

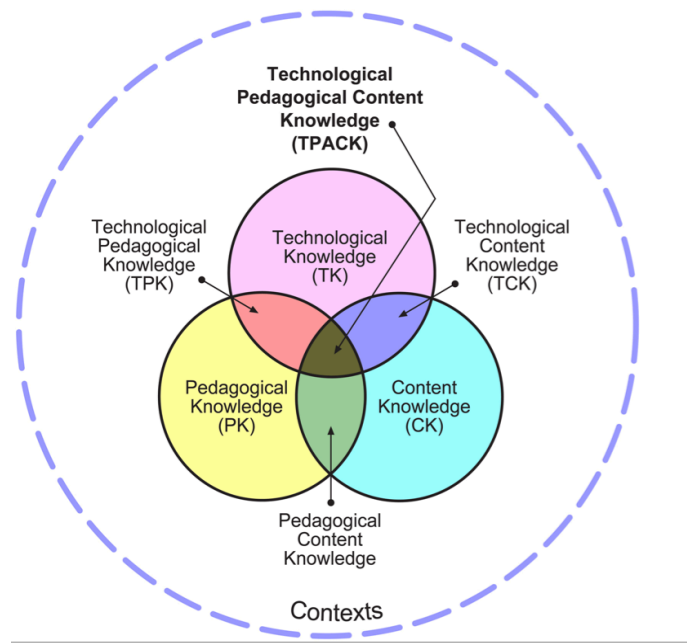
There is a critical need for teacher educators, teachers, and pre-service teachers to identify and articulate the occupational realities when technology and competencies intersect, while understanding and communicating how technological resources and strategies can engage students and enhance student learning (Moore & Readence, 1984). The Technological Pedagogical Content Knowledge (Figure 3) is a collaboratively developed framework of scholars and researchers seeking to conceptualize and clarify the competencies that evolve from the intersection between pedagogy and technology. Investments in new and interactive technologies in education require both the technical and pedagogical skills to use them. According to the National Educational Technology Standards teachers should be competent in designing digital assessments, modeling digital work creatively, promoting digital citizenry, as well as inspiring student learning (Jacobsen, Clifford, & Friesen, 2002; Lebec & Luft, 2007; Voithofer, 2007; Wentworth, Waddoups, & Earle, 2004).

The TPACK Handbook identifies competencies necessary for integrating technology in ways that activate students’ prior knowledge and engage students. The Technological Pedagogical and Content Knowledge framework (Rodriguez, 2010) has articulated this complexity by explicitly identifying the overlapping skill-sets required of teachers using technology which teachers often demonstrate synergistically. The first skill-set a teacher must have is to be an expert in his or her content area. In order to teach a specific discipline, public school teachers must pass a standardized test that shows

competency in the breadth of content for their chosen discipline. The next skill-set a teacher must have is an understanding of the art and science of teaching, as well as an orientation to the democratic purpose of the educational system. Educational theory, landmark cases in the history of education, and educational psychology serve as the contextual foundation for understanding the role of public education in society as well as teaching methods, culturally responsive strategies, assessment techniques, and forms of delivery to meet the unique and specific needs of a diverse body of students.

Another skill-set is administrative competence. Teachers must know how to effectively organize and manage their classrooms, and have an understanding of school, state, and federal policies that inform their work. In addition, teachers must also have an understanding of what social services and infrastructures are in place to support public school students most in need.

Finally, and critically, all teachers must have the appropriate disposition required to effectively work with the children, adolescents, parents and guardians, the community and other stakeholders. Having the appropriate disposition not only requires an understanding of the community you are teaching in, a developed understanding of child and adolescent development, it also requires maturity, tremendous patience, kindness, and empathy. Teacher standards include demonstration of expertise in technology (Mishra & Koehler, 2006; Technology, 2008) as well as commitment to the profession, students and the community (Hawai'i Teacher Standards Board Code of Ethics, n.d.).



**Figure . TPACK Framework (Helm, 2006, source <http://tpack.org>)**

As teacher education addresses the changing and evolving competencies programmatically, the TPACK model articulates expertise and provides an occupational overview of the multi-modal skill sets required when teaching with technology. Upon the application of technological theory to the model, one critique is that the model superimposes the ideals of technological determinism (McLuhan, 1964) over traditional educational competencies, and positions technology as central to teaching and learning. Technological determinism is viewed as overly techno-centric because it frames technology as politically neutral, tends to favor free-market ideas of capitalism, and is oppositional to socially constructed solutions and applications of technology (Winner, 1978). According to Grzyb (1981) technology can also be used to either enhance competencies or deskill workers. In teacher education, the TPACK model articulates the impact technology has on teacher training, and the mushrooming skill-based competencies resulting from the integration of technologies. However, the TPACK model positions pedagogy and technology as equal, and allows room for articulating socially constructed pedagogically grounded in teacher created solutions. As teacher educators develop methods for teaching how to respond to the dynamic and changing skill sets of learners, the modeling of technology use in teaching as well as hands-on use by pre-



service teachers in courses and practicums is offered as one research-based solution (Koh & Divaharan, 2011).

### **Situated Learning, Initiating Pre-Service Teachers to Practice**

Situated learning, as it applies to pre-service teachers is the stage of initiation to a community of practice. A key component of situated learning is that it is socially constructed with varying levels of engagement and participation. Social anthropologist Jean Lave states that apprenticeships address the discontinuity between worker identity (or agency) and Marxist ideas about worker alienation through meaningful identification with community membership. Initially members participate via a process of “peripheral participation” within “communities of practice,” which is identified as one that blends traditional apprenticeship models with cognitive theories of learning (p. 64). However, Lave also states that institutional attempts to manipulate communities of practice for commoditized activity reduce the likelihood of legitimate peripheral participation and displaces mastery. Autonomous conditions for engagement facilitate mastery, conversely heavily controlled and formalized environments reduce mastery and authentic community engagement (Grzyb, 1981). In other words, social relations and social inclusion are critical in sharing skills, knowledge, and achieving mastery. Disconnecting mastery from context results in alienation.

Lave describes “agency” and the changing identities between “newcomers” and “oldtimers” as a reciprocal process. She identifies a structure in which newcomers are ideally provided with an initial and comprehensive “view of the whole” (p.72), comprehensive goals are explicit along with opportunities for graduated practice (Bell, 2004). The use of video in modeling mastery and identification of skills provides the “view of the whole” as outlined by Lave (1991).

The cohort type relationships pre-service teachers can develop, as an online community of practice, can be a bonding as they come to the realization that their classmates will be their future colleagues. The bonding of pre-service teachers during licensure can be one of the most rewarding and long-lasting professional relationships teachers will have.

## **Novice and Experienced Pre-service Teachers**

There are a number of studies that have examined differences in the ways novice and experienced teachers interpret instructional events. A developed understanding translates to developed practice, and this is achieved through experience (Van Es & Sherin, 2002). When teachers are able to understand a specific practice within a theoretical spectrum, the teacher is enabled to develop nuanced skills and make more informed decisions about the value of the practice, which then influences the likelihood of them applying the practice. The more teachers are able to conceptualize the practice within a theoretical construct, the more likely they are to apply it.

Alger (2009) describes how teachers' instructional repertoires for metaphor correlated with their respective experience levels. The shift from student-centered to teacher-centered metaphors occurred not because of previous learning experiences, but from “direct experience in the classroom” (p. 748). Due to large class sizes, and unprepared students, experienced teachers actual practices differed from the practices they aspired to. Experienced teachers viewed their roles as less engaged with the community and issues outside of their classrooms, and preferred to deal directly with their students' individual issues instructionally via differentiated teaching and a caring disposition.

Experienced teachers are able to contextualize theory to practice and apply pragmatic perspectives to a higher degree than novice teachers when analyzing video (Brophy, 2004). Novice teachers' analysis of classroom teaching was less nuanced and more generalized, and lacked critical reflection. In contrast, experienced teachers provided more detailed critiques of the content, methods, and provided more interpretive detail, producing two times more interpretive comments than their novice counterparts. Without having context of practice for reference, video allows for periphery participation and assists novice or amateur teachers developing “professional vision” and deconstructs practice (Grossman, 2011).

## **Video in Teacher Education**

The use of video in teacher training could be one way to validate the complex skills required of teachers, expose pre-service teachers to the classroom, while

reinforcing the concepts, and content required in teacher education (Borko et al., 2008; Borko, Koellner, Jacobs, & Seago, 2010; Brophy, 2004; Colestock & Sherin, 2009; Janik & Seidel, 2009). Since the 1960's video has been used to train teachers (Bacevich, 2010; Beitzel, 2004; Brophy, 2004; Derry et al., 2006; Sharon J. Derry et al., 2010; Eiteljorg, 2007). For example, video clubs (Prince, 2004) are groups of content specific teachers who meet and analyze a teaching video artifact together. In these earlier studies, hypermedia provided the same artifact to allow multiple perspectives of analysis, and video analysis tools provide a layered palette for teachers to analyze and work in.

Video serves multiple purposes in teacher education (Technology, 2008). Video can serve as common artifact pre-service teachers can study in depth (Brophy, 2004). Video allows pre-service teachers to “decompose,” “notice” what is noteworthy, or connect practice to broader principles. A video record of practice is a video being recorded as teaching occurs. In other words, it is not produced, staged, or scripted, but occurs naturally. Pre-service teachers and teacher educators then view, review, and discuss the layers of teaching as it occurs (Hatch & Grossman, 2008).

Video is metacognitive, because by viewing the artifact pre-service teachers can develop a critical awareness of their own understandings of the complexities and immediacy of teaching (Bacevich, 2010; Kersting, Givvin, Sotelo, & Stigler, 2009; P. J. Rich & Hannafin, 2008; Sherin & van Es, 2005). Video has shown to be complimentary to field-based practice and the self-efficacy of pre-service teachers by deepening their understandings and application of teaching concepts (Romano, Maxfield, & Rycik, 2012).

Video provides access to classrooms without disrupting the learning environment (Rich & Hannafin, 2008). It has been described as a “virtual observation” by providing some classroom context for pre-service teachers before working directly with students. Rather than interpreting text individually and independently, video provides visual commonality even though the videos are interpreted by independent schema. As the use of video has been explored in teacher training, researchers in the learning sciences identified four challenges and provided guidance in: 1) selection; 2) analysis; 3) type of technology used; and, 4) ethics (Rich & Hannafin, 2008). The recommendation is that video analysis be grounded in theory-driven questions. Derry states that when addressing

the various technologies related to video, the researcher needs to be mindful of standardized technologies in order to share research.

Video could be used to model scripted teaching, or it could be used so pre-service teachers can construct learning on their own. Video could be used to evaluate teachers, or it could be used to support teachers as a reflective professional development tool. One thing for certain, video is transparent. Using video of teaching with an informed audience validates the synchronistic complexities of teaching.

While video has been a powerful tool in teacher education, the context it is presented in can influence the design and delivery of online teacher education (Fishman, 2003). Fishman (2003) elaborated on specific contexts in which video has been applied in teacher education. The contexts were identified as Strategic Teaching Frameworks (STF); Multimedia and Teaching through Hypermedia (MATH); Casebook of Project Practices (CaPPS); and the Inquiry Learning Forum (ILF). Video is presented as a pragmatic solution to dealing with scheduling issues related to peer observations, but within the context of teacher education, the video artifact as content serves as a tool for both micro and macro level analysis. For example, Strategic Teaching Frameworks (Chaney-Cullen & Duffy, 1999) was a non-networked environment using a single lesson taught by various teachers which were segmented into sections, whereas Lampert & Ball using Multimedia and Teaching through Hypermedia (Lampert & Ball, 1998) made videos of their own teaching over the span of one year so that students could understand how specific time periods related to the broader context. This environment was also non-networked. Fischer identifies concept-focused environments as environments based in the ideas that represent it. The commonality of all of the video concepts that Fisher described was focused on some aspect of teacher reflection with situated cognition as the theoretical framework.

Research on video in teacher education most often focuses on the mentor teacher, however another recent study (Derry et al., 2010) looked at the development of “practice-based” curriculum for teacher education programs. Pre-service teachers recorded their own teaching during their student teaching practicums. Then, the researcher recorded pre-service teachers’ discourse about their videos, which was then analyzed. The researcher

observed topics and categories of content emerge from their critical reasoning. The result was curriculum enacted by the pre-service teachers.

Positive outcomes are associated with text preceding video. In a comparison of three methods of delivery (Bacevich, 2010) pre-service teachers were assigned to receive either multimedia anchored instruction, analog video instruction, or teacher directed lecture and text based instruction on the knowledge skills and beliefs of pre-service teachers. The findings were that pre-service teachers exposed to multimedia-anchored instruction had higher learning outcomes than students who received text-based instruction on functional behavioral assessments. In addition, the multimedia-anchored instruction group scored slightly higher than the group that received analog video instruction. However, the students who received multimedia instruction had higher confidence levels about their preparedness to complete the task and also reported that they found the multimedia based instruction the most interesting. In another text/video contrast study (Thomas, 2008), students who received the video-cases following the text-based content demonstrated better recall than the students who did not receive the video content.

Video also creates empathy and humanizes topics, and can be particularly influential in multi-cultural settings. One study looked at the difference between videos on personal background knowledge and general background knowledge and how they can influence relationships and cultural understanding (Lin & Bransford, 2010b). In this interesting study, a professor attempted to improve strained relationships with her students who had developed negative attitudes towards her, largely due to cultural communication issues and differences at the onset of the course (Beitzel, 2004). She created several background videos, one was generalized and the other personal. The general background knowledge video provided broad cultural information about the history of language and political events of the professor's home country. The personal background knowledge video included personal information about her experiences as a child during China's cultural revolution. The participants who viewed the personal background knowledge video demonstrated more empathy and interest in the professor than the general introduction background video did. The use in understanding the cultural

background of their professor on a more personal level helped the students to be able to dispel stereotypes and biases they had about Chinese culture.

One controversial concern is the misapplication of video from professional development to teacher evaluation (Dillon, 2010) as video-taping teachers is another component of teacher evaluation under consideration in several states. Facing opposition from the teachers union, state sponsored bills seek to replace traditional principal or peer evaluations observations with video (Dillon, 2010). Rather than viewing video as a “snapshot” of practice, parents, instructional coaches, and administrative staff would view the videos outside of the classroom context and rate teachers based on their videotaped performance. However, advocates for teachers and students’ rights to privacy are opposing the initiatives to install video cameras in every classroom (Khadaroo, 2011). The National Education Association is also an outspoken critic of this proposal to use video in teacher evaluation.

### **Video Coding in Teacher Education**

In a pilot study (Dillon, 2010), teacher educators were finding that the pre-service teachers were unprepared to address specific competencies in videos of practice so pre-service teachers analyzed video recordings of their own teaching. Video was introduced, and pre-service teachers were directed to “tag” specific behaviors using video analysis software. The software assisted pre-service teachers understand the documentation process, and provided the college of education with an opportunity to document best practices. They integrated a point-and-click system, which allowed the video to be “tagged” when a specific method was being demonstrated. Additional written comments could be inserted with each tag. As a result, teacher educators noted a significant change in the level of engagement and discourse in pre-service teachers, as well as more developed sense of ownership, efficacy, or “agency.”

### **Culturally Responsive Teaching (CRT)**

Racial disproportionality in special education is a long-standing problem (Artiles, Kozleski, Trent, Osher, & Ortiz, 2010). Poverty has been a traditional justification in literature as has been the incongruent cultural expectations between teachers and students (Barbarin, Downer, Odom, & Head, 2010; Gregory, Skiba, & Noguera, 2010; Jorgensen

(Zevenbergen), Grootenboer, Niesche, & Lerman, 2010; S. Nieto, 2000). When students find contexts at school different from their own, this disconnect can impact student outcomes in the classroom (Barbarin et al., 2010; Delpit, 2006; Gregory et al., 2010; Nieto, 2000). In response, sometimes educators can wrongly take an additive approach of culture and language diversity to curriculum and instruction, where culture is segmented, taught or integrated in isolation, or represented in a superficial way (Nieto & Bode, 2011). However, culturally responsive teaching viewed as a pedagogy that integrates the teaching strategies necessary to teach culturally and linguistically diverse students (Gay, 2010; Nieto & Bode, 2011).

Culturally responsive teaching is placed within the framework of multicultural education. And a key component of culturally responsive teaching is establishing positive mutually respectful relationships with students, and making content relevant to students lives (Ladson-Billings, 1995). Multiple principles of practice are placed within the pedagogy such as the communication of high expectations, active learning strategies, regular community building, and viewing student background knowledge as an intellectual resource (The Education Alliance at Brown University, n.d.).

Culturally congruent curriculum is one way a teacher can tie students' background knowledge to the curriculum, thus making the content more relatable. There is a considerable body of research that supports the effectiveness of culturally responsive teaching in improving learner outcomes (Reyhner, Sakiestewa, & Lockard, 2011). Culturally responsive teaching (CRT) has shown to be an effective "pre-referral" strategy as an instructional intervention for struggling students (Hynds et al., 2011; Klingner & Edwards, 2006; Ogata, 2006; Savage et al., 2011).

By taking into account the student's economic, socio-cultural, and linguistic, racial/ethnic, and other relevant background, culturally responsive teaching and evidence-based strategies are demonstrated to improve educational outcomes for culturally and linguistically diverse students. The inclusion of the culturally congruent curriculum is critical because students' experiences in school may vastly differ from their family and community experiences (Garcia & Ortiz, 2006). Research has shown that 10th grade students in Hawaiian Charter Schools which provide culturally based indigenous education were 50% more likely to score in the 'proficient' level for reading than were

Native Hawaiian students in conventional public schools (Nieto & Bode, 2011; Rhodes, Ochoa, & Ortiz, 2005).

### **Culturally Responsive Teaching in Teacher Education**

One of the central areas of concern in recent policy making has been ensuring all children are achieving in school. Research has shown that poverty is the single greatest determinant of low-test scores in addition to students who are English Language Learner and homeless (Liu, Jones, & Sadler, 2010; Sleeter, Torres, & Laughlin, 2004) . Children living in poverty are twice as likely to repeat a grade, be expelled or suspended, or drop out of high school. Minority students are overrepresented in special education on a national level. However, minority representation is disproportionately high for *judgmental* diagnoses such as emotional-behavioral issues, mild retardation, and learning disabilities while representation is proportional for nonjudgmental diagnoses (“How to Become a Teacher,” n.d.; Johnson, Lessem, Bergquist, Carmichael, & Whitten, 2006) .

#### **CRT: Hawai'i Context**

Socio-economic data confirms that Native Hawaiians are socioeconomically disadvantaged, with the lowest mean income of all major ethnic groups in the state (O'Connor & Fernandez, 2006). Hawai'i is one of the most ethnically diverse states in the United States. The upper socioeconomic strata is predominantly Chinese Americans, Whites, and Japanese Americans, while Samoans, Filipino Americans, and Native Hawaiians make up a two-tiered system of poverty at the bottom, including Micronesians and Marshallese, with a clear correlation between income status and educational attainment (Okamura, 2008). The population of Native Hawaiians is expected to double by the year 2050. As previously stated, on standardized tests, Native Hawaiian public school students score 10 points behind state averages (Kana'iaupuni, Malone, & Ishibashi, 2005; Naya, 2007; Okamura, 2008) and Native Hawaiian students are disproportionately represented in Special Education.

One in five Native Hawaiian students (18.5%) are receiving Special Education services, as compared to non-Hawaiian students (10.9%). While Native Hawaiian students represent 27% of the student public school population, they represent 38% of those students receiving special education (Kana'iaupuni, Ledward, & Jensen, 2010). 7



percent of the approximately 71,000 school age Native Hawaiian children attend Kamehameha Schools, a private college preparatory school founded by the will of Bernice Pauahi Bishop, the great-granddaughter of Kamehameha. Admission to Kamehameha Schools is highly competitive and partially based on test scores, report cards, and interviews (“KS Admissions Office,” n.d.).

### **Culturally Responsive Field-Based Support**

In an effort to decrease attrition, increase retention, and support development in culturally responsive teaching, the state of Hawai'i in partnership with Kamehameha Schools launched a place-based induction program in 2008 (Kahumoku & Kekahio, 2010). According to the Hawai'i Department of Education, Annual Employment Report (Kana'iaupuni et al., 2005), 69.5% of newly employed teachers had no previous teaching experience, 19.8% were non-residents and the 25.8% of the newly employed teachers were placed in predominantly Native Hawaiian communities. The induction program supports new teachers by orienting and contextualizing them to diversity of Hawai'i and the school/community where they teach. This program explicitly integrates Native Hawaiian values and aligns culturally responsive teaching with curriculum development, instruction, and assessment. In addition the, program provides a community mentor to assist the teacher. The main goals of the program are to increase retention of new teachers, and to implement indigenous, place-based best practices, which benefits all students.

A study done after the program was first piloted suggested an increase in the retention rate of participating new teachers (Kahumoku & Kekahio, 2010). Teach for America advertises certification in Hawai'i in one year, and requires all of its corp members to participate in the induction program. According to their website, 148 corp members will be placed in public schools and work with more than 13,500 Hawai'i public school students (Baldemor, 2012). The Harold K.L. Castle Foundation is the largest state contributor to Teach for America, as the President and CEO of the Castle Foundation also serves as the Regional Board Chair for TFA in Hawai'i (“Teach for America: Boards,” n.d.)

Various models of program design address the complexity of teaching through apprenticeship models and creating communities of practice via cohort models. There is evidence that place-based teaching improves student learning (Kana'iaupuni et al., 2010).

However, the influence of accelerated teacher prep programs could also influence the breadth and depth of pre-service teachers' orientation to and understanding of place. Highlighting the importance of time dedicated to place-based and culturally responsive curriculum, research on developing multi-cultural awareness in pre-service teachers suggests that contextualization, instructional modeling, and cultural-based field experiences promote positive beliefs about diversity (Galloway & Ruebel, 2012). Additionally, multicultural education courses addressing specific cultural stereotypes also positively influenced pre-service teacher attitudes (Akiba, 2011).

### **Culturally Congruent Curriculum**

Culturally congruent curriculum builds on students' prior experiences, and views them as an intellectual resource (Nieto & Bode, 2011). Ideally, culturally congruent curriculum reinforces cultural knowledge, allows students and teachers opportunities to learn from each other, thus building a mutually respectful climate and benefits all students (Schonleber, 2007). The integration of culturally congruent curriculum establishes a relationship across diverse systems of knowledge, and in doing so serves to situate local knowledge in an academic and a global context (Wright & De Morales, 2002). Ideally, culturally congruent curriculum empowers local context in institutional settings, but takes it a step further by establishing local-to-global connections. This step reduces cultural isolation, and makes global commonalities relevant to students' daily lives. By making socio-cultural connections, and seeing commonalities in human nature, students can think critically by recognizing patterns in social commonalities, and use that information not as a means for naturalizing inequality, but as a means for making informed judgments about social inequalities.

Pre-service teachers who receive courses in multicultural education or culturally responsive teaching during their preparation are better prepared to work with culturally and linguistically diverse students and less likely to view students from a cultural deficit perspective (Tran, 1994). Courses in teacher education usually provide fragmented content in educational theory, education foundations, and adolescent development courses. In addition, courses in multicultural education provide pre-service teachers with the opportunity to engage in understanding and addressing the context of the socio-political issues of their students, address existing stereotypes, and identify biases in their

community (Lin et al., 2008). However, in the classroom, teachers experience these concepts in interrelated and complex ways. When teacher education students begin teaching, they can have difficulties relating the instructional implications of these course topics when they are presented independently (Gay, 2009, 2010; Irvine, 2003).

Emphasizing effective strategies such as active learning (Hoban, 2005) and graphic organizers (Prince, 2004) within the framework of culturally responsive methods (Sleeter, 2011) is one way teachers educators can effectively prepare teachers to ensure that all students have equal opportunities to learn and succeed in school.

### Summary

As teachers and teacher preparation programs navigate underfunded programs and overcrowded classrooms, the integration of video in teacher training is one way to validate the complex skill-sets required of teachers. Because video is effective in communicating non-verbal information and synchronizing occupational practices, it is especially helpful in identifying and modeling culturally responsive teaching practices and evidence-based strategies before pre-service teachers work directly with students.

The complexity of teaching and the use of video in teacher education suggest that one way to integrate culturally responsive teaching and evidence-based strategies in teacher education could be by following text-based curriculum with targeted locally-produced, culturally relevant video observations, while providing tools for video analysis allowing pre-service teachers to identify the activities and principles that demonstrate expertise. In order to establish the immediacy of the issue, this chapter first looked at issues, challenges, and time constraints impacting teacher education and current theories about the use of video in teacher training. In the next chapter, these variables are outlined in the research design and methodology for this study.

## **CHAPTER 3: RESEARCH METHODS**

This design-based research examined the influence of locally relevant video content on pre-service teachers' understandings of culturally responsive teaching and active learning strategies. In this chapter I discuss how this was accomplished. First, I provide an overview and rationale for using this method. Then, I establish the contextual background by describing the participants, context of the online class, and content of the course. Next, I describe the methods for data collection and data analysis including an outline of the procedures I used visualizing the data and validating the results. Finally, I address the ethical principles foundational to the research goal. It should be noted that while the iterative process of design-based research guided the study, the focus of the data collected and analyzed in this report was from Phase 3 in the cycle.

### **Design-based Research Overview**

In the previous chapters, I provided a background on the working conditions in teacher education as context for this study. Evidence suggests there is a correlation between teacher training, teacher attrition rates, and student achievement (Boe et al., 2008; Boyd et al., 2008a; Ronfeldt et al., 2011); however, education reform driven by free-market ideology is influencing teacher education programs by reducing the timeframe for preparing teachers (Darling-Hammond, 2009; Darling-Hammond, 2005; Ravitch, 2010). I also provided an overview of the research methods and theoretical constructs framing the instructional design of an online course for pre-service teachers.

In this section, I provide a more detailed description of design-based research (DBR) (Brown, 1992), describing why this was a method of inquiry capable of handling diverse methodologies and theories (Bell, 2004) and explaining why this method was appropriate for framing iterations of teaching. I will briefly position the theories framing this study within a continuum of educational theory, then provide detailed information on the introduction to teaching course and the culturally responsive response intervention project curriculum which served as the content and context for this study. As an integral component of DBR, I also address how theory related to situated learning and socio-

technologic frameworks interacted with the instructional design. Finally, I unpack the three phases of design-based research as it applied to this inquiry.

On one end of the instructional design spectrum are theories of learning, which identify behaviorism and stimulus-response as evidence of learning. Behaviorist theories, such as information processing, state that meaning is made through individualized symbol processing of a fixed body of knowledge. Instructional design systems, with behaviorist ancestry, result in a more prescriptive design which front-loads the design work and then assesses the design's effectiveness after implementation (Wang & Hannafin, 2005). On the other end of the spectrum are post-modern, reconstructionist, and humanistic theories, which view knowledge and reality as subjective driven by multiple meta-narratives and worldviews. Emerging problem-oriented activities reposition the instructor from teacher to facilitator, or "task managers." Somewhere in the middle, constructivist and pragmatic theories of design emerge such as Merrill's Component Display Model (Dabbagh, 2011), which blend reflection with situated learning, schema theory with social interaction, and views knowledge being not entirely subjective to external knowledge but socially constructed. These designs subsume the work of Lev Vygotsky, which states that learners actively construct knowledge through interaction and reflection, and that the evolution of knowledge is a creative and interactive process.

Design-based research is a method of inquiry that evolved directly from the development and desire for data-driven methods for classroom-based inquiry, which is action research. By integrating local context, theories of learning, and principles of instructional design, DBR blends and extends action-based research. Both action research and design-based research are rooted in the notion of praxis, human activity, and that human interaction and empirical realities create and extend theory. The process of praxis involves collaboration between researchers and participants in the identification of practical real-world problems, and then uses that information to enact change or frame practice, and extend or develop new theories. Action research reflects these ideals by being a teacher-involved and localized method, resulting in immediate instructional modifications based upon student response (McNiff & Whitehead, 2009). Contextual information, teacher reflection, and student data are used to drive instructional

interventions. In action-based research, evaluation and instructional modifications are immediate. Design-based research (DBR) integrates action-based research; however, design-based extends the empirical, contextualizes the intervention in theory, then considers how that will contribute to more generalizable knowledge (Collective, 2003).

Anderson & Shattuck (2012) completed a Google search on DBR, which resulted in over 1,940 articles. They then reviewed the top five DBR articles with the most citations from 2002-2011, resulting in a total of 47 articles. In their analysis of DBR, they discovered a shift from articles about DBR to empirical studies indicating the transition from definition to application, as well as an increasing acceptance of the method by the global community. By extending action research and combining interventions with theoretical analysis, they stated that DBR provides a “best practice” (as cited in Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009) for the application and entryway of multiple epistemologies.

Brown (1992) presented DBR in response to the “synergistic,” iterative, and complex nature of classrooms and teaching. Because topics in teacher training are often addressed independently, competencies can appear fragmented or compartmentalized. In order to validate practice, research must be grounded in generalizable theories and rely on multiple forms of data. In her seminal paper, she also described the function of video in design-based research as a method for documenting conceptual change as well as providing a common basis for discourse and reflections (Brown, 1992).

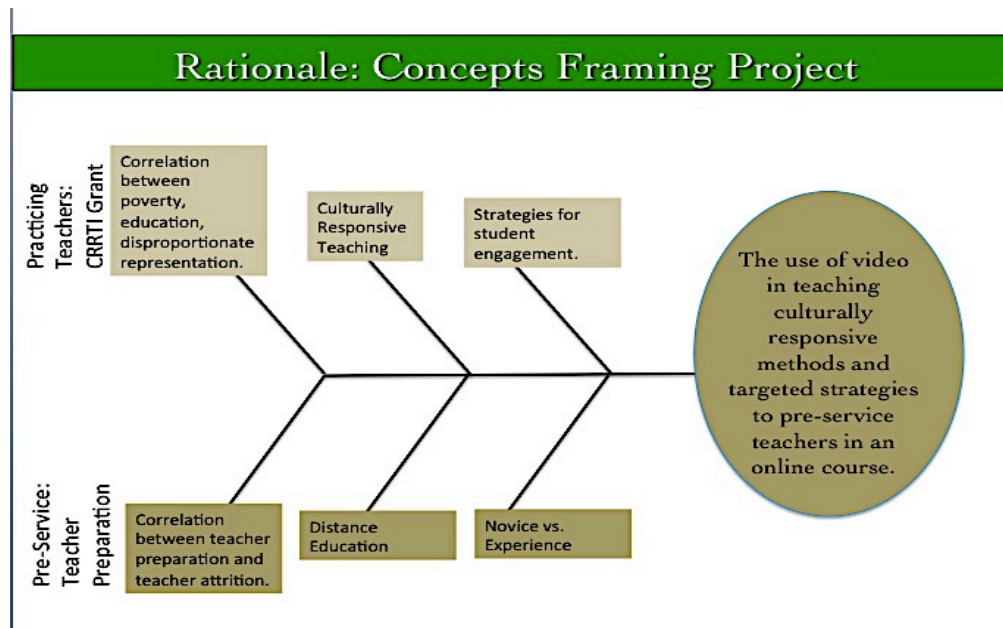
When design-based research is applied to technology-enhanced learning environments (TELEs) multiple methodologies are blended, scaffolded, and extended during the research process (Wang & Hannafin, 2005). DBR structure provides the framework for contributing to understandings about how design frameworks, methodologies, or domain theories are developed. Foundational characteristics within DBR include the collaboration between the researcher and participants, and the use of theories to contextualize the research. Scaffolded iterations are informed by multiple resources and stakeholders, and are inclusive of the perspectives of various stakeholders. However, unlike Instructional Design Systems (IDS), emphasis is on learner responses to instruction and design is flexible, resulting in sequential iterations throughout, rather than

evaluative at the end of the process. A variety of measures ensure validity with a focus on pragmatic innovations inclusive of the perspectives of teachers.

### **Design-based Research and Local Context**

The content and context for this study evolved from the merging of two separate interrelated stages of curriculum development and instructional design at different stages of teaching pre-service teachers and practicing teachers. The curriculum was developed in partnership with practicing and licensed public school secondary teachers consulting with project staff funded by a Department of Education, Native Hawaiian grant project on culturally responsive teaching methods. Over 200 teachers were screened, but approximately 50 teachers participated in the Saturday morning, four-hour professional development workshops provided by the project. The Saturday workshops occurred during four separate workshop cycles (one per semester) over the course of two academic years. Participating teachers were recruited at the beginning of each semester so as to complete a full cycle of workshops. The participating teachers had an average of 13 years of experience and contributed immediate feedback on the content and delivery of the materials as they applied the content with the high school students in their classrooms. The resulting text content was the *Culturally Responsive Response to Intervention Teacher Handbook* (2012).

The context of the study is an online course for pre-service teachers, which used the teacher handbook (developed in collaboration with experienced teachers), as part of the course content with pre-service teachers. The intervention is two video lessons featuring one of the experienced teachers applying targeted strategies and culturally responsive methods. Figure 1 represents the broad concepts and populations that frame this study.



**Figure 2. Context and concepts framing research**

One approach of design-based research is retrospective analysis which identifies “*meta-representational competence*” (Wang & Hannafin, 2005), or background knowledge as an important consideration in critiquing the design and providing reflective feedback. Theory is applied to a retrospective analysis of data and previous instructional events as a way of framing current research. As a teacher and researcher my initial motive for applying the video intervention to the online course design for pre-service teachers was to address issues related to the effectiveness of the culturally responsive text-based curriculum and integrate the principles of action-based research. However, as I applied more of a theoretical and historical examination looking at the application of video modeling, agency, and elaboration schema, the phases of the instructional design fit the theory-driven iterative mold of design-based research. Therefore, Chapter 4 contains a retrospective analysis in describing previous iterations that occurred in the online course as the foundation for informing the design of the course, and subsequent inquiry. However, in Chapter 5, I will only be reporting on data gathered during the 3<sup>rd</sup> iteration.

One debate surrounding design-based research is related to setting boundaries within the landscape and “breadth of intellectual traditions” (Bell, 2004). Bell argues that the application of “partisan” conventions and critique at the cost of understanding



complex educational phenomena serves to only continue “wasteful paradigm wars” (p.250). He suggests that one way to structure theoretical advancement is by organizing “manifold families of theoretically framed design-based research” (p.250) including cognitive anthropology design-based research as a specific lineage of inquiry. Cognitive anthropology design-based research shifts the perspective from researcher to participants as participatory in the design and continuation of the intervention. He states,

An alternative to this strong theory driven (etic) orientation of the inquirer’s perspective is a folk (emic) research orientation that investigates the manifested meaning of an intervention from the point of view of the participants of the research as interpreted through their activity and their accounts (p. 6).

This approach is appropriate because pre-service teachers provided feedback and contributed to the instructional delivery, as well as assisting in some of the decisions regarding the design during the iterative phases.

## **Research Design**

One critique of research in educational technology is that it has been labeled as pseudoscience due to its disconnect in contributing to socially beneficial change (Galloway & Ruebel, 2012). However, design-based research evolved out of the desire to express practical solutions to practical problems in teaching and learning, and identifies solutions that can be replicated. When design-based research is applied to instructional design it focuses on pragmatic issues in teaching and learning, and adheres to core ethical values in research in socially responsible ways. In design-based research, problems are identified and analyzed, informed solutions are collaboratively developed, solutions are tested and applied iteratively, and principles of design then tested.

Using the phases of design guidelines (Reeves, Herrington, & Oliver, 2005), the researcher applied the phases of design-based research to this study. Design-based research method was appropriate for this online "Introduction to Teaching" course because it evolved from practical solutions to practical problems, and was contextualized in the necessity of teaching pre-service teachers culturally responsive methods in order to meet the culturally and linguistically diverse needs of their adolescent students in Hawai'i.

During Phase I, practical problems are identified and analyzed. The initial problem analyzed in the grant-funded research was the disproportionate representation of Native Hawaiian students in Special Education and proposed Culturally Responsive Teaching as one way to address this. The interrelated problem in the online course for pre-service teachers was the challenge of communicating specific culturally responsive teaching practices in a contextualized way. Cultural practitioners, community members, scholars, teacher educators, teachers and pre-service teachers were consulted during the development of the text-based content. During the grant project, secondary students were consulted as well in that they completed pre/post surveys providing feedback on the culturally responsive and active learning strategies their teachers were enacting in class. The research questions evolved from two iterations of applying the text-based and video content in sequentially different ways with pre-service teachers enrolled in an online Introduction to Teaching class over two semesters.

In Phase II, instructional design is grounded in ideas about social learning (Vygotskiĭ, 1978), and situated learning in communities of practice (Brown, Collins, & Duguid, 1989; Lave, 1991; Lave & Wenger, 1991; Vygotskiĭ, 1978). Both the instructional design and content was grounded in ideas about culturally responsive teaching (Cajete, 1994; Gay, 2010; Jr & Wildcat, 2001; S. Kana'iaupuni et al., 2010; Smith, 1999; Wright & De Morales, 2002). Finally, addressing how pre-service teachers at varying experience levels respond to the content, integrates indexical and schema elaboration theory (Derry, 1996; Glenberg & Robertson, 1999). The schema-elaboration hypothesis delineated the underpinnings of differentiated perceptions of culturally responsive teaching and the application of evidence-based strategies according to teaching experience. The indexical hypothesis provided a rationale for codes, or tags as these are most often referred to envisioning content in in video context, and how pre-service teachers apply the concepts learned in class to a real-life video of a practicing teacher.

**Table 1. Phases of Design-Based Research Aligned with the Study**

Phase of design-based research (Reeves, 2006)	Element: The topics/elements that need to be described in the research	Teacher Education, Culturally Responsive Teaching, Situated Learning, Video
PHASE I: Analysis of practical problems by researchers and practitioners in collaboration	Statement of problem	This design-based study examined how video impacts pre-service teachers' ability to learn culturally responsive teaching methods and targeted strategies in an online course.
	Consultation with researchers and practitioners	Consulted with stakeholders, participants, and other researchers on two separate projects. 1) Culturally Responsive Response to Intervention Project: Practicing Teachers; 2) ITE401: Pre-service Teachers
	Research questions	1) How does video impact learning of culturally responsive methods for pre-service teachers?  2) How do novice vs. experienced teachers extract strategies from video?
	Literature review	Teacher Education, Situated Learning, Communities of Practice and current themes emerging from using video in teacher education.
PHASE 2: Development of solutions informed by existing design principles and technological innovations	Theoretical framework	Social constructivist and pragmatic theories of socio-technologic frameworks, labor and education; indexical and schema elaboration hypothesis
	Development of draft principles to guide the design of the intervention	(see Research Design Overview)

	Description of proposed intervention	Video of local public school teacher. Use of Video Surveys.
PHASE 3: Iterative cycles of testing and refinement of solutions in practice	Implementation of intervention (First iteration)	As a result of application with practicing teachers in the Culturally Responsive Response to Intervention Grant Project, the materials were piloted with pre-service teachers in 2011.
	Participants Data collection Data analysis Implementation of intervention	Pre-Service Secondary Teachers Pre/Post Surveys Post-text

This research was constructed from the socio-economic realities created as teacher educators are challenged to prepare teachers with complex skill sets in a shorter time. For pragmatic reasons, this proposed study used mixed-methods so as to apply both inductive and deductive logic to the problem (Creswell, 1994, 2009). Specifically, concurrent mixed-methods design (Creswell, 2009) was used because both discourse and survey data were collected concurrently.

This study examined how video impacts pre-service teachers' abilities to identify and describe culturally responsive teaching methods and evidence based strategies across ability levels. The project 1) delivered “Culturally Responsive Response to Intervention” materials to pre-service teachers enrolled in an online introduction to teaching class; 2) assessed the effectiveness of text materials using valid qualitative/quantitative measures; 3) included video of a local teacher enacting targeted strategies; 4) assessed any differences in noticing course topics in the video; 5) recorded synchronous class sessions and completed discourse analysis on student discussions about strategies; and 6) analyzed pre/post survey project of pre-service teacher data and reported findings.

## Research Questions

Piloting the text and video curriculum in an Introduction to Teaching course in two previous iterations provided some framework for the application of theory for pre-service teachers. By comparing text-based assessment measures with video-based assessment measures and using valid discourse analysis techniques, the researcher addressed the following questions:

- 1) How does video impact learning of culturally responsive methods for pre-service teachers?
- 2) How does novice vs. experienced teachers extract strategies from video?

**Table 2. Research Design Overview**

Research Paradigm (Underlying belief system or philosophy)	Perspective (Researcher's point-of-view)	Research Strategies (Collection of methods)	Data Sources	Research Methods (Procedures, tools, techniques used to generate data)
Underlying Philosophy: Pragmatism, "praxis precedes theory." Democracy cannot be defined by a particular end or ideal, but as a process that is always undergoing development and experimentation (Dewey, 1987)  Situated Learning, Communities of Practice and	Purpose is constructed from the socio-economic realities created as teacher educators are challenged to prepare teachers with complex skill sets in a shorter time. (Creswell, 1997).	Design-Based Research (Brown, 1992) Interventions are applied in a natural setting.  Schema-elaboration hypothesis (2009, Beitzel & Derry); Indexical hypothesis (Glenberg & Robertson, 1999)	1) Synchronous course recordings 2) Shared online journals 4) Pre-Survey 5) Video Analysis 1 6) Video Analysis 2 7) Post-Survey	Post-iterative review and redesign Text-based coding analysis Video Survey modified CORDRA analysis Synchronous session CORDTRA analysis

Informal Working Groups (Grzyb, 1981; J. Lave, 1991)				
Constructivism (Vygotsky, 1978)				

## Participants

The primary participants in the project as reported in this study were nine college students enrolled in an online introductory course for secondary pre-service teachers. Four students were experienced pre-service teachers, one was an emergency hire, the other was a teaching assistant, and two were long-term substitute teachers. Five of the pre-service teachers had no prior teaching experience. Two of the pre-service teachers were Native Hawaiian, four of the pre-service teachers were Asian, one was Hispanic, and two were Caucasian. Six of the pre-service teachers were raised in Hawai‘i and three were not. Most of the students were outer island (non-Oahu) students taking an online introductory course because it is a requirement of the secondary teacher education program.

In addition, course materials were developed, and video collected from participating public school teachers in a previously approved project (see Appendix A: University of Hawai‘i, Institutional Review Board, CHS#1664, 1674). All participating teachers in that project signed consent forms (see Appendix H). The video of a licensed teacher enacting strategies learned in the CRRTI project was part of a submission portfolio for professional development credits via a course offered by the Hawai‘i Department of Education and approved (see Appendix C) by the Professional Development & Educational Research Institute (PDERI), the researcher was also the instructor of that course. Although all the students had signed standard HDOE video releases (see Appendix D), the secondary students in the classroom were not videotaped, as it was the researchers intent to focus only on instruction.

Prior to the study, the researcher completed the Collaborative Institutional Training Modules (CITI) on Belmont Report and CITI Introduction as well as the training on Students in Research (Ref# 7626740, see Appendix E). The researcher also received a separate approval from the University of Hawai'i, Institutional Review Board (see Appendix B: CHS #20120) for research involving pre-service teachers. In order to reduce any appearance of coercion, the topic of coercion was explicitly addressed on the consent form (see Appendix F) for the online course students with the additional statement that participating would not affect students' grades in any way. Pre-service teachers could have experienced feelings of discomfort in sharing their thoughts on teaching practices and culture, and loss of privacy, which is common in an online course. All discussions were be carefully facilitated. Students were also informed that they had the right to withdraw their participation at any time, and actions to diminish risk were planned. Finally, contact information for the secondary program chair was shared with them if they had any concerns.

### **Study Setting**

The setting for this research was an introductory online course for secondary pre-service teachers. The course management platforms that provided the text-based content for this research was Laulima, which is an in-house course management platform developed by the University of Hawai'i. The content included weekly synchronous sessions that were recorded virtually and online individual student-instructor shared journals. The researcher (who was the instructor) used the shared journals to interact individually with students.

The course was divided into fifteen modules, including an orientation module. During summer sessions, the modules were combined and collapsed into eight modules, with synchronous sessions meeting twice per week. In order to meet secondary program standards, the course introduced, developed and applied Standard 1: Professional, Moral and Ethical Responsibilities of teaching. The course also introduces Standard 2: The Foundations of Secondary Education; Standard 3: Philosophical Theories of Education; Standard 4: Psychology of Learning; Standard 7: Content of Secondary Education; Standard 10: Educational Technology (including media literacy); and Standard 11:

Professional Communication and Relationships. In addition, the instructor integrates Standard 6: Inclusion, Justice & Equity throughout the course.

Some course discourse took place in the course platform discussion forum, or during synchronous sessions. Each module explicitly stated module topics, learning objectives, and assessments. Most of the assessments, activities, and synchronous class sessions modeled student engagement, active learning and group work. The *CRRTI Handbook* was introduced during the second quarter of the course, and assessed at mid-semester. Immediately following the text-based assessment, the video content was introduced in subsequent modules, with explicit directions and modeling how to code the teacher competencies and course topics being demonstrated in the video. The pre-service teachers were asked to identify course topics enacted in the video, and they were provided with the codes.

As Students used the following codes to identify course topics:

**Table 3. Coding Key**

	Video Survey Codes	Course Topics
1	GRR:Ido	Gradual Release of Responsibility, “I do”
2	GRR:Wedo	Gradual Release of Responsibility, “We do”
3	GRR:You	Gradual Release of Responsibility, “You do”
4	RTI:Form	Response to Intervention, Formative Assessment
5	RTI:Summ	Response to Intervention, Summative Assessment
6	CRT	Culturally Responsive Teaching
7	CRT:CCC	Culturally Congruent Curriculum
8	CRT:CB	Community Based Practices
9	CRT:TF	Teacher as Facilitator
10	CRT:L2G	Local to Global Connections
11	AL:GO	Active Learning, Graphic Organizer
12	AL:GW	Active Learning, Group work
13	Tech	Use of technology
14	Eth	National Education Association Code of Ethics
15	HTS	Hawai‘i Teacher Standards
16	DAA:CM	Diffusing Anger and Aggression, Classroom Management
17	SIOP	Sheltered Instruction Observation Protocol, ESL/ELL Method
18	INTASC	Interstate Teacher Assessment and Support Consortium Standards



The coding of the video by the pre-service teachers was completed independently and heuristically (Saldana, 2009). After the researcher modeled coding of a short clip in a synchronous session, pre-service teachers were asked to code 20 video clips of two 50-minute lessons. Each lesson was broken up into 10 video clips ranging from one to three minutes per clip. Pre-service teachers were asked to identify all course topics observed in each video segment and write them in their online journal using the coding key (Table 3). A sample submission looked like this:

- **Video 3:**

GRR - You do it together  
 CRT:TF  
 CRT:CB  
 CRT:GW  
 HTS, #7  
 INTASC Standards #2

- **Video 4:**

GRR - We/You do it together  
 CRT:CCC  
 CRT:TF  
 CRT:GW  
 HTS - #1, #7  
 INTASC Standards – #2  
 SIOP - sharing objective, explicit vocabulary

- **Video 5:**

GRR - You do it together  
 CRT:TF  
 CRT:GW  
 Diffusion Anger/Aggression - Managing off-task behavior  
 HTS - #1, #7  
 INTASC Standards - #2  
 SIOP - clear agenda, sharing objective

After all of video-surveys were completed, the researcher entered and color-coded the data on a spreadsheet as represented by the figure below.

	1-GRR:Ido	2-GRR:Wedo	3-GRR:You	4-RTI:Form	5-RTI:Summ	6-CRT:	7-CRT:CCC	8-CRT:CB	9-CRT:TF	10-CRT:L2G	11-AL:GO	12-AL:GW	13-Tech	14-Eth	15-HTS	16-DAA:CM	17-SIOP	18:INTASC
V1C1	2			4											15			
V1C2	2	2		4		6		8	9			12			15	16	17	
V1C3		2				6		8	9			12			15			
V1C4	2					6	7		9			12			15		17	
V1C5	2					6			9			12			15	16	17	
V1C6	2					6			9			12			15			
V1C7	2			4												16	17	
V1C8			3	4		6			9			12			15			
V1C9			3	4		6			9			12				16	17	
V1C10				4	5	6	7		9	10		12				16		

### **Figure 3. Screenshot of Spreadsheet**

Scatter-plots were created using the format of the chronologically-ordered representation of discourse and tool related activity (CORDTRA) to represent pre-service teacher coding of the video surveys. This macro-level analysis was applied in order to present a visual analysis of the topics pre-service teachers noticed during each of the 20 video clips of two 50-minute lessons taught by a practicing teacher. CORDTRA is an analysis technique adapted from the chronologically ordered representation of discourse and features used diagram (CORFDFU) (Luckin et al., 2001). According to Hmelo-Silver (2003) both techniques are adaptable and “at an intermediate level of analysis, as it can allow an examination of discourse and tools over a somewhat extended period of time (hours to days) but it also supports the micro-level analysis” (p.256). The CORDTRA technique was modified from representing a single timeline, to multiple timelines ( Hmelo-Silver, Liu, & Jordan, 2009). As a result, application of the CORDTRA analysis technique provided an overview of individual pre-service teachers’ content coding of the entire lesson. The schema-elaboration hypothesis (Beitzel & Derry, 2009) was then applied as the text preceded the video surveys. The indexical hypothesis (Glenberg & Robertson, 1999) analysis was applied to compare pre-service teachers coding and indexing of content according to pre-determined and self-reported novice/experienced pre-service teacher categories to provide context for understanding the variations.

### **Instrumentation and Procedures**

The table below describes the process and procedures for instrumentation. The synchronous sessions addressing the topics of focus for this research were recorded and coded according to overall topic themes. The CORDTRA analysis tool was then applied to provide a visual representation of class discourse of pre-service teachers discussion of the topics without the video or text-based prompts, the text students entered in the chat bar during course discussion were coded and included as representations in the discourse analysis. During the synchronous session, the instructor integrated “checks for understanding” throughout the online course session as a strategy to measure and increase

student engagement in the content. These topic-related checks for understanding slides provided additional focal points for analysis.

Questions on the pre/post survey instruments (see Appendix F and Appendix G) measured pre-service teachers comfort levels in describing the same topics represented in the visual analysis. The pre-treatment and post-treatment surveys were also similar to the instruments used with practicing teachers on the Culturally Responsive Response to Intervention project. However, the surveys were also modified and adapted to pre-service teachers to be more reflective of course content. In addition, several open-ended questions followed the Likert-scale questions to allow students the opportunity to elaborate further.

**Table 4. Instrumentation Use and Rationale**

Instrument	Description of use	How will data be used?
Online course recordings	Transcribed, coded and entered on Excel spreadsheet for scatterplot analysis.	The CORDTRA (Chronologically-Oriented Representations of Discourse and Tool-Related Activity) provided representation of topic “tags” or keywords.
Video Surveys	Modified CORDTRA applied to video surveys	Modified CORTRA applied to video survey applying Schema-elaboration hypothesis according to teaching experience levels.
Pre-Survey	Likert pre-survey on attitudes and comfort levels.	Pre-treatment baseline of attitudes and comfort levels.
Post-Survey	Post-treatment survey integrating quantitative and qualitative measures.	Post-survey combines attitudes, comfort levels, and comments.

## Treatment

The treatment for this design-based research study was two videos of a practicing public school secondary teacher in Hawai’i segmented into eight two-minute sections. This teacher received the same *Culturally Responsive Response to Intervention Teacher Handbook* and participated in three professional development sessions for a full day on Saturdays. The teacher then received field-based technical assistance, instructional

support, and post-workshop consultations identifying the targeted strategies relevant to the teacher's content and pedagogical goals. The video was produced to document implementation of strategies as part of a teaching portfolio submitted for professional development credits to a course approved by the Professional Development & Educational Research Institute in the Hawai'i Department of Education.

As previously stated, the treatment was two videos of a public school secondary teacher enacting culturally responsive teaching methods using culturally congruent curriculum and active learning strategies. The two individual lessons were segmented into 20 one-to-three minute segments showing various stages of the lesson. One of the principles of design-based research is student collaboration (Wang & Hannafin, 2005). Therefore, student feedback, suggestions, and collaboration was an integral process in the integration of video in the content the pre-service teachers received throughout the iterative process. All pre-service teachers enrolled in the course received the *Culturally Responsive Response to Intervention Handbook* as required reading in the course materials.

### **Data Collection**

Similar data collection procedures and instrumentation were adapted from the previously approved Culturally Responsive Response to Intervention Project (CRRTI). Pre-service teacher participants were informed of the grant project and information about the materials was provided at the beginning of the Introduction to Teaching course. Consent forms were embedded within the surveys and also emailed prior to taking the pre-survey (Wang & Hannafin, 2005). Data collected in this project were pre/post surveys, course recordings of a synchronous session, which was transcribed, in addition to the text-based online student journals. All students received the same content and assessment; there was no control group. Survey data was gathered using password protected online survey tools, and qualitative data was gathered via the synchronous online class recordings. The time commitment for participating in both surveys was about 30 minutes per survey, not including the time to read the course materials, view the videos, or complete the additional writing assignments. Qualitative data were gathered using shared journals, forum board discussions and class recordings.

## **Data Analysis**

### **Data Management**

The data for this project is stored in the Lulima course management site and in the online course file sharing account. In addition, data have been backed up on an external drive. The risk of discomfort and loss of privacy was minimized by ensuring the participants that all information obtained would be coded and no names would be used. Participants were also assured that all information would be kept in a locked file cabinet and only the researcher on this project would have access to the information. All information obtained in the grant project will be expunged at the end of the three-year period. Code identifiers were used for entering data although to match pre-service data according to ability levels, pre-service teachers' names were asked on the surveys. However, individual data on the pre-service teachers will not be disclosed.

### **Initial Analysis**

Quantitative data were collected via pre/post-treatment surveys and text-based assessments. Qualitative data included online course recordings, discussion forums, and online student journal assignments. Data was analyzed according to experience levels while focusing on identification of targeted strategies and the quality of video analysis and deconstructions across levels of teaching experience.

As outlined in the conceptual framework, a teacher's handbook containing content about culturally responsive teaching practices and active learning strategies provided the text-based foundation. After pre-service teachers viewed and tagged the video, the visual delineation of the data was applied using the Chronologically-Oriented Representation for Discourse and Tool-related activity technique, or CORDTRA (Hmelo-Silver, Liu, et al., 2009) which could then be interpreted within the schema elaboration hypothesis and indexical hypothesis (Iarossi, 2006). The schema and indexical hypothesis addressed how knowledge is constructed and envisioned according to background knowledge and levels of experience.

## Validity and Reliability

The qualitative legitimization model negotiates conceptualizations of validity by identifying both external threats to credibility and internal threats to credibility (Leech & Onwuegbuzie, 2007). Internal credibility relates to replication whereas external credibility refers to cross validation. Using the same content and methodology, this research proposal is generalizable enough to be replicated across other cultural contexts and instructional milieus. This research applied thematic codes and topics across research environments, participants, data sources and various types of instrumentation, discourse analysis, text-based materials, and video treatments. Therefore, data could be triangulated across contexts for validation. In structural corroboration, various representations of data support or contradict the interpretation. The representations of data in this project were recordings, quantitative assessments, and qualitative pre-service teacher coding of video. This proposed project would use various representations of both qualitative and quantitative data to visually represent coding and discourse.

Action validity refers to the pragmatic usability of findings. This design-based research included and integrated secondary teacher, secondary student, and pre-service feedback from surveys in two research contexts in addition to measurements of understanding throughout the iterative process. Although localized in context, the handbook for teachers contains materials that are generalizable and pragmatic in applicability across cultural contexts.

Interpretive validity relies on the researcher's interpretation as representative of the perspective of the group that is studied, similar to an insider's perspective. Because the researcher in this project is a practicing teacher educator and licensed teacher with teaching experience in both public and private schools and indigenous environments, pre-service teachers have tended to view the researcher as having an "insider" perspective. Due to the participatory nature of this study, the researcher and instructor does have the insiders perspective related to classroom dynamics, content, and occupational challenges related to teaching. During class dialogue this can be helpful when describing detailed issues involving the immediacy of teaching, differentiated strategies, classroom management, workload and time management issues, and school cultures and politics, which can only be understood by other experienced teachers.

Triangulation uses multiple sources in an attempt to reduce ambiguous inferences. Various methodologies were employed and applied to the same phenomenon. This study will employ methodological triangulation and data analysis techniques representative and appropriate to the population and context. Data analysis “communicates what has been learned to others” (Leech & Onwuegbuzie, 2007). Deductive constant comparison analysis is an analysis that uses predetermined codes. The predetermined codes that come directly from the text-based content and remain consistent throughout the data gathering process. In addition, this study explored novice vs. experienced teachers’ abilities to identify simultaneous practices in video. Therefore, content tags are appropriate in identifying degrees of “noticing” (Leech & Onwuegbuzie, 2007).

Participants could have felt tired from being surveyed, or felt it was irrelevant to course goals and objectives. Students could have felt that non-participation could affect their grade or fear retaliation. It was explained that the research materials implemented in the course content meet secondary departmental standards within the UHM College of Education.

### **Inter-rater Reliability and Validation**

The researcher required an inter-rater familiar with the content, therefore, a former staff member from the CRRTI was invited to participate in coding the same video content identifying project curriculum expressed in the teaching. The inter-rater completed the video-survey and coded the video similarly to the participants and researcher.

### **Summary**

This design-based project explored how the use of video impacted pre-service teachers’ abilities to identify and describe culturally congruent, evidence-based materials and methods in an online course. In addition, this research addressed how pre-service teachers’ mitigated course content with what they already knew. After the content was delivered via readings, pre-service teachers viewed video lessons of a practicing public school teacher enacting targeted strategies and culturally responsive methods. Pre-service teachers then used the “tags,” to complete focused observations identifying course topics being applied simultaneously during the teaching process. The data was triangulated using course discourse, journal entries and pre/post surveys and video surveys.

## CHAPTER 4: DESIGN PROCESS

In the Fall of 2009, the researcher was providing in-class technical assistance and instructional support to practicing secondary teachers participating in a Native Hawaiian Education funded grant project, while simultaneously teaching secondary pre-service teachers in an online course. The teaching/researcher role facilitated mutual development of both the online course content modules and developmental grant project as both were completing iterative cycles of development around the same topics, and the experience provided perspective of teacher efficacy at various stages. This section will describe how experienced teachers and participating pre-service teachers contributed to the design of this study.

### Design Phase I: Analysis of practical problems

**Table 5. Components of Design Phase I**

“Analysis of Practical Problems by researchers and practitioners in collaboration.”(Amiel & Reeves, 2008)			
Context: Practicing Teachers	Problem Addressed		The purpose of the CRRTI grant project is to deliver “in scope and sequence” culturally responsive teaching strategies addressing the needs of Native Hawaiian youth and the disproportionate representation of Native Hawaiian youth receiving Special Education services. (CRRTI Teacher Handbook, 2012)
	Culturally Responsive Response to Intervention (CRRTI) Grant Project	Teacher Collaboration: Teacher Handbook Professional Development Content	Content developed in collaboration and with feedback from practicing teachers, students, school personnel, teacher educators, project researchers, and secondary students.  Video of teacher applying professional development content with students.



Context: Pre-Service Teachers enrolled in an online course	Problem Addressed		Complex topics and strategies such as culturally responsive teaching, and evidence based strategies presented in fragmented or linear sequence, disconnected from realities of the classroom environment.
	Introduction to Teaching Course	Pre-service teacher collaboration:  Feedback on video module	Delivery of course content derived from grant project (which met secondary program standards), was continually revised with feedback from pre-service teachers with varied teaching experience enrolled in the course.

### **Description of CRRTI Project**

The Culturally Responsive Response to Intervention (CRRTI) project was a developmental grant project funded by the Department of Education Native Hawaiian Program from 2008 – 2011. The project sought to address the disproportionate representation of Native Hawaiian students receiving Special Education services by collaboratively developing culturally responsive pre-referral strategies with teachers, cultural practitioners, teacher educators and other stakeholders within the Response to Intervention framework. Response to Intervention is a national initiative that provides structured tiers of assessment with evidence-based instructional interventions. The intensity of the intervention is adjusted at each tier, depending on student response.

The step-by-step project developed tools and content based upon previous activities and data. From 2009–2011, project staff provided three, four-hour professional development sessions (on Saturdays) per semester for a total of approximately eighteen professional development sessions. Participant teachers were recruited to participate in the project for one semester; however, several of the teachers participated in the project for more than one semester cycle. After each session, project staff completed individual consultations with each teacher, and then followed up with in-class technical assistance targeting the strategies addressed in the professional development and consultation. The technical assistance cycle ended with an observation to document teachers' integration of the strategy they indicated they were interested in at the consultation.

## **Overview of CRRTI Project Context and Participants**

The grant project worked in one urban high school, one urban middle school, and one rural public charter school in predominantly Native Hawaiian communities.

Approximately 200 teachers and 500 students were screened, resulting in an average of 10-20 participating teachers each semester. The majority of the participating teachers came from an urban high school in a socio-economically diverse community where half of the student population self-identified as Native Hawaiian, 25% Japanese, and 10% White. During the project, the urban high school was undergoing restructuring as a result of economically disadvantaged and special education subgroups not meeting reading and math proficiency objectives as established by NCLB.

The Culturally Responsive Response to Intervention project also developed a parallel professional development course approved by the Hawai'i Department of Education Office of Human Resources in which participating teachers documented additional reflection, gathered student data, and documented the results of intervention integration in various ways. Nine participating teachers enrolled in the additional for-credit course and completed in-depth portfolios of their work, which were approved by the Hawai'i Department of Education Office of Human Resources. The participating teachers were then able to earn professional development credits that were applied for reclassification purposes.

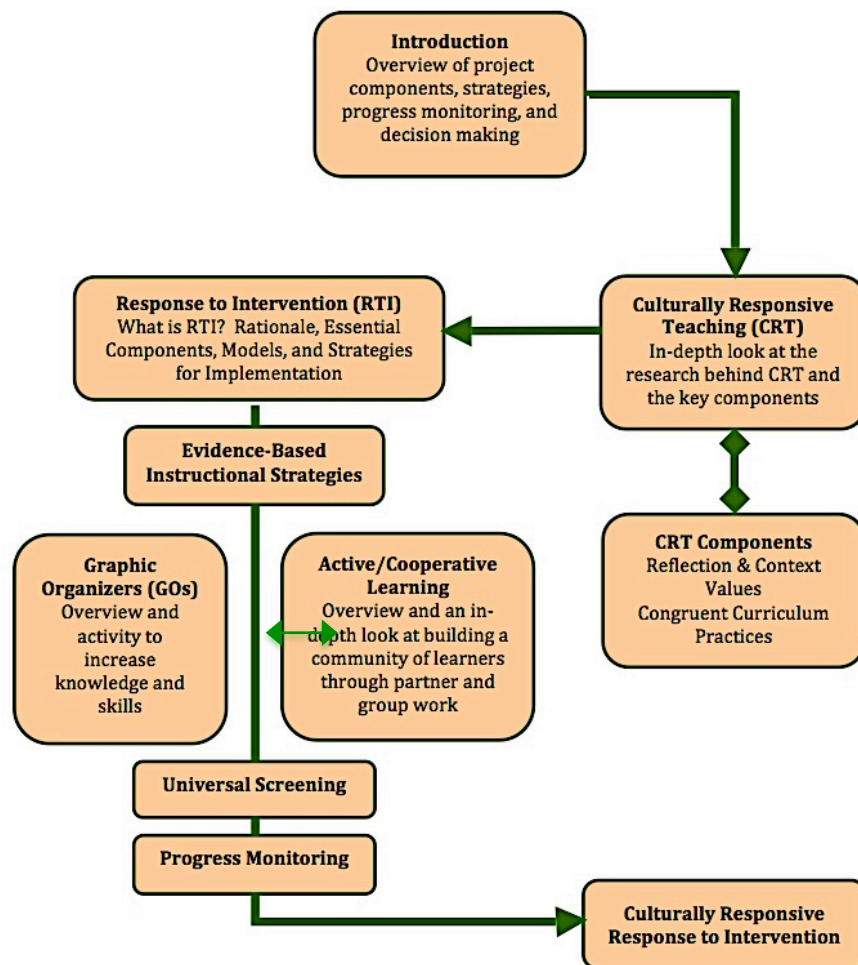
## **Description of Professional Development for Participating Teachers**

The professional development content, grounded in theories related to active learning, culturally responsive teaching, and scaffolded instruction, went through multiple iterations, and was collaborative and inclusive of the perspectives of practicing secondary teachers, curriculum developers, cultural practitioners, and teacher educators in the form of focus groups, as well as secondary student surveys. At each stage in the grant project, pre/post surveys were distributed to secondary students at the beginning and at the end of each semester along with their teachers who participated in the project identifying the integration of targeted strategies, such as active learning, and culturally congruent curriculum. The participating teachers also completed pre/post surveys before and after each of the three four-hour professional development sessions and participated in lunchtime focus groups giving regular feedback related to the content, strategies, and

in-class instructional assistance they received after each professional development session. While the professional development curriculum maintained consistent themes, feedback from practicing teachers addressed pragmatic concerns such as class size, and effective methods with diverse learners, thus modifying the sequence and delivery methods after each of the iterations, as well as the cycle of consultations and technical assistance. The qualitative data collected from the project were analyzed using open coding (Saldana, 2009) for the purposes of evaluating project themes, the professional development sessions, and project materials.

This study focused on the effect of the text-based curriculum and integration of video on pre-service teachers. However, it seems important to note that the workshop curriculum itself also evolved from the work of practicing teachers.

## Description of Culturally Responsive Response to Intervention Teacher Handbook



**Figure 4. Text-based content overview**

Project staff developed the *Teacher CRRTI Handbook*, again with feedback from teachers and teacher educators at the University of Hawai'i. It was designed to assist teachers in implementing culturally responsive teaching methods within the RTI framework and targeted several specific, evidence-based strategies. At the end of each workshop, the handbook was revisited, edited and revised to reflect teacher feedback and refinements in content. The handbook provided background information, academic articles, references, and served as a textbook for professional development sessions as

well as the PDE3 course some teachers chose to take for the teacher professional development credit program.

Practicing teachers expressed the practical need for specific strategies framed within secondary content. As a result, project staff collected content-specific samples of student developed graphic organizers in science, math, language arts, and history. In addition, in collaboration with teachers, project staff reviewed the participating teachers' curriculum, and provided specific examples of graphic organizers relevant to their work. The graphic organizers were also aligned with Robert Marzano's taxonomic levels. Prior to Hawai'i's adoption of the common core standards, content standards and objectives were aligned with Marzano's taxonomic levels. Therefore, the handbook provided concrete examples of graphic organizers at Level I: Retrieval; Level II: Comprehension; Level III: Analysis; and Level IV: Knowledge Utilizations. The handbook provided an overview of these graphic organizers as well as different content-specific examples using related secondary level content.

The researcher began using the *Handbook* as a supplemental material with pre-service teachers enrolled in an online course when focusing on specific and targeted strategies. The handbook was assigned as required reading in the course, with follow-up lectures and course discussions.

### **Description of Online Course for Pre-service Teachers**

The Introduction to Teaching course, which was the context for this study, was a course requirement for all pre-service teachers enrolled in the field-based secondary teacher education program at the time of the study. The purpose of this course was to provide pre-service teachers with general context to the elements of secondary teaching and to provide an orientation to teaching practices, the organizational structures of Hawai'i Department of Education and the UH Mānoa College of Education Secondary Program. The course explored current issues in teaching, provides an overview of professional competencies, ethical standards, and reinforces the importance of reflection in teaching and learning. Pre-service teachers were introduced to standards based methodologies and teaching strategies while building the philosophical foundations for their work.

Developed in 2005, the Introduction to Teaching course was the first online course offered to neighbor island students by the secondary program and is taught in both hybrid and traditional face-to-face formats. The online course had undergone multiple iterations, as the university changed course management systems. In collaboration with the researcher as subject matter expert, in 2009, the College of Education's Distance Education Course Design and Consulting Group (DCDC) redesigned the course and media design as part of their systems approach. The university designed course management system houses topic and time based modules, supplementary materials, discussion boards, chat rooms and other instructional tools and materials. Weekly online synchronous sessions are held using real-time web conferencing software.

The fifteen course modules were also revised every semester as current issues and topics in education change. For example, course content changes occurred as Hawai'i transitioned from Hawai'i State content standards and benchmarks to National Common Core standards, and assisted pre-service teachers in interpreting how Race to the Top and No Child Left Behind directly affected teaching. Pre-service teachers were also introduced to the Teacher Work Sample, which was the action-research project that functions as the exit requirement for the program. The influence of media and technology on adolescent development, and media literacy deconstruction techniques were also addressed in the course. Pre-service teachers were also given the option to submit YouTube video assignments on specific topics as part of the field-based component of the course. This study focused on the application of CRRTI content within a specific module addressing the topic of culturally responsive teaching and introducing evidence-based strategies to pre-service teachers, and used video of an experienced teacher using the methods with students in a secondary classroom.

Pre-service teachers enrolled in the course had varying degrees of experience levels. Some enrolled students were "emergency hires" already teaching in Hawai'i public schools or private schools. Other students were working as teaching assistants in Hawai'i public schools and seeking licensure while others have no prior teaching experience.

## Conclusion

In Design Phase I, analyses of issues were addressed in collaboration with participants and researchers. The Culturally Responsive Response to Intervention research project collaborated with practicing teachers, teacher educators, and other stakeholders in designing professional development materials that met their complex needs. In the Introduction to Teaching course, pre-service teachers collaborated with and provided feedback to the teacher educator as video was integrated into a specific module of the course design. These separate but interrelated stages of teaching came together in the online course environment in a mutually beneficial way. The practicing teacher was able to view the integration of professional development strategies and methods, then the pre-service teachers were able to view how text-based content, delivered in a linear and fragmented way could come together in complex ways during the teaching process. Far from prescriptive, the video illustrated the immediacy and complexities in teaching connected to the realities of a classroom environment. This included the opportunity to observe how to manage large class sizes, navigate complex topics, and manipulate technology.

Video provided exposure to the complexities of teaching to pre-service teachers prior to the practicum phase. The delivery of module content (derived from project), which met secondary program standards, was also continually revised with feedback from pre-service teachers enrolled in the course.

## Design Phase II: Development of Solutions

<i>"Development of solutions informed by existing design principles and technological innovations." (Amiel &amp; Reeves, 2008)</i>	
Theoretical framework: Addressed in literature review	Social constructivist and pragmatic theories of socio-technologic frameworks and education; indexical and schema elaboration hypothesis
Development of draft principles to guide the design of the intervention	Situated learning and communities of practice
Description of proposed intervention	Video of local public school teacher

**Table 6. Components of Design Phase II**

### **Instructional Design Rationale**

Research on preceding video with text showed favorable recall results (Beitzel, 2004). Therefore, the *Culturally Responsive Response to Intervention Handbook* was one of the required readings in the online course. The concepts and strategies embedded in the handbook were also reinforced during online lectures and synchronous class discussions.

### **Overview of the Video Artifact Used in the Introduction to Teaching Course**

Both video lessons used in this study were recorded in a secondary social studies classroom in an urban high school on O`ahu. The average class size was 30 students, the five largest ethnic groups were, 47% of students self-identified as Native Hawaiian, 15% Japanese, 11% White, 7.5% Filipino, and 3.5% Hispanic. Native Hawaiian students are overrepresented in Special Education in Hawai'i, and in this district. Pre-referral strategies addressed at the professional development sessions included culturally responsive teaching and evidence-based strategies within an RTI framework.

CRTTI project staff provided technical assistance and worked directly in classrooms with secondary teachers during the time when the Hawai'i Board of Education imposed mandatory furlough days on Hawai'i public students and teachers as a way to deal with budgetary cutbacks. For almost two years, public school students lost 17 instructional days per year at a rate of two Fridays a month, thus resulting in the catch phrase "furlough Fridays." Parents, teachers, and students protested the state-mandated loss of instructional days and held rallies and sit-ins at the state capitol. However, due to the block schedules at the high school and other state holidays, teachers noted that there were some weeks when they were able to meet with students only once or twice per week for 40 or 80 minute classes.

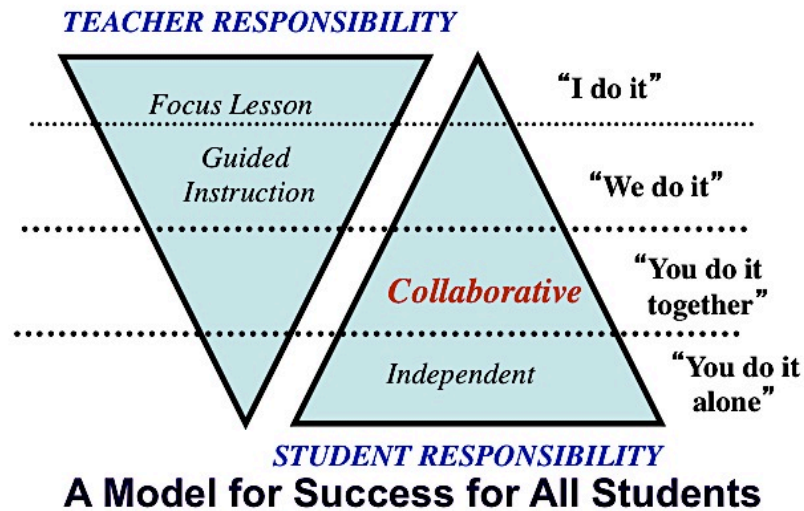
In response to teacher requests and feedback, project staff began working with teachers in identifying and refining instructional processes by briefly reviewing the course content from the last class, then allowing for active learning activities which would simultaneously keep students engaged while providing teachers with the



opportunity to cover more content in a shorter amount of time. As a result, project staff focused on pragmatic strategies such as structured agendas, jigsaw activities, and “low tech” checks for understanding in formative assessment. These activities were framed within culturally responsive teaching methods, by explicitly integrating local relevance with content standards. Examples of “low-tech” checks for understanding included thumbs-up, thumbs-down, finger or color card responses, give-and get activities, specific group roles, and structured think-pair-share activities.

After each professional development session, project staff met with individual teachers and completed a semi-structured consultation where the participating teacher would identify comfort levels related to the topics addressed at the previous professional development, then identify a specific strategy for refinement and implementation. During the consultation, project staff would collaboratively work with teachers to devise a plan for integrating the identified strategy in their instruction and provided them technical assistance, including instructional feedback, design suggestions, culturally congruent tie-ins and/or curriculum support addressing the strategy.

After several semesters of close collaboration with teachers, a secondary social studies teacher working towards national licensure and completing professional development credits indicated an interest in using video to document the implementation of active learning and culturally responsive strategies at various stages of the lesson. This teacher had approximately three years of teaching experience, and had also earned professional development credits by taking the Culturally Responsive Response to Intervention course that had been taught by project staff and approved by the Hawai'i Department of Education's Professional Development and Educational Research Institute.



**Figure 5. Gradual Release of Responsibility**

In both of the video lessons used in this study, the Gradual Release of Responsibility (GRR) instructional process was used to design the lesson. At a previous professional development session, project staff presented the Gradual Release of Responsibility visual model (Fisher & Frey, 2008; Frey & Fisher, 2005) as a way of assisting teachers in integrating active learning. Staff then collaborated with teachers in designing their own lessons and activities using the GRR process. The researcher then recorded two lessons of the teacher as a focal point and edited the lessons to highlight each transition point in the lesson. Although, the standard student video release at the school included permission to record students, students were not recorded, however some audio was captured. The focus of the video was on the teacher at each transition stage of the lesson, including the verbal directions, the written agenda, and the sequence of the lesson activity.

### **Description of Video 1: Active Learning**

The first video lesson focused on the following general topics: active learning, culturally responsive teaching, formative assessment, and student engagement; and the following specific strategies: a “give and get” activity, mixed groupings, and using thumbs up/thumbs down as checks for understanding. These targeted strategies had been addressed at the previous professional development. At the consultation, the teacher

selected specific targeted strategies for demonstration at the next observation. The lesson was recorded, then the researcher edited the 50 minute lesson down to 10 clips, with text slides inserted at each stage of transition during the activity. This video clip was then used in the online class with pre-service teachers, to model how to identify the strategies embedded in video clips.

In Step 1, the social studies teacher distributed content specific index cards with a vocabulary term, or person in history to the approximately 30 secondary students in class. The teacher created an activity sheet with all of the corresponding terms. The students had previously completed a formative assessment as classwork, and the teacher was concerned that there were too many missing terms and content incompleteness from the formative evaluation. In Step 2, the teacher gave explicit directions to the students asking them to locate the content terms in their content packets, and to respond with a “thumbs up” if they understood the terms on their index cards. Over 80 % of the students responded positively, and the teacher explicitly stated that back to them. Then, the teacher instructed students to stand up and find the corresponding partner with the matching term in class. After the students located their partners, the teacher asked the pairs to collaboratively create a complete sentence using both of the terms next to the terms on their activity sheets. In Step 3, the teacher asked the paired students to return to their assigned seats, then to “give and get” additional responses on their activity sheet from their semester partners who normally sit next to them. This was the second paired group the students worked in. In Step 4, the teacher asked the students to “give and get” additional responses by working in groups of four, as the classroom was organized with an even number of rows and seats so they could do this easily. In Step 5, the teacher taught the students how to select one “scout” from each group of four, then visit other groups and retrieve corresponding answers as a “recognizance” mission. Finally, in Step 6, the teacher asked the students to respond to the question, *“Why are we doing this?”* During the post-observation reflection, the teacher noted an immediate increase in classwork completion. In addition, the teacher indicated that beginning with Step 6 would explicitly establish the purpose and objective early on and would help with rearrangement of that step next time this activity was done with students. The teacher also explained to the students that reviewing content collaboratively reinforced the readings that the

students had completed the week prior. The teacher and several students can be heard making reference to the activity as important in community building, specifically using the phrase “*pili*” which is a Native Hawaiian term and value related to connectedness reviewed throughout the professional development sessions.

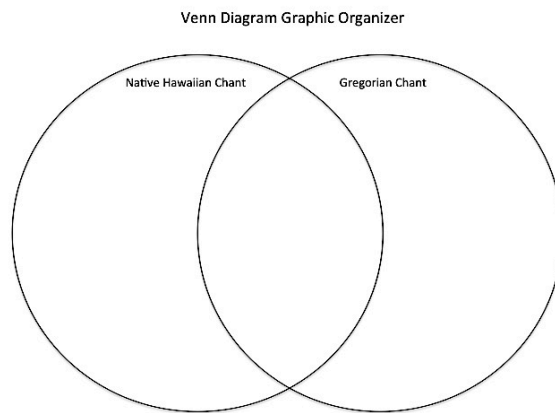
### **Description of Video 2: Culturally Congruent Curriculum**

The second video lesson focused on the following general topics: culturally responsive teaching and active learning; and the following targeted strategies: graphic organizers, pair-share activity, and culturally congruent curriculum with local-to-global connections. After completing a Saturday professional development session on those topics, at the consultation, the teacher indicated an interest in integrating culturally congruent curriculum aligned with specific lesson objectives on the Dark Ages. The teacher had planned to use audio of Gregorian chants as a way to introduce the lesson, and was looking for a way to connect that activity with a local context. The teacher had noted that although several Native Hawaiian and “local” male students in class had excellent attendance, several of them noticeably would not contribute during class lecture discussions. Therefore, the teacher was looking for a way to engage all students in a culturally responsive way.

During the consultation, the teacher and researcher identified ways to establish commonality between the Gregorian chants and Native Hawaiian chants (*mele*). In addition, while exploring the local-to-global connections, Tibetan chants, African chants, Lakota chants, Icelandic chants, and other multiple global cultural expressions using chant were identified on YouTube. The teacher decided to select two other samples of chanting as a way to introduce the unit, and make it relevant to the local context.

In the first clip of the second lesson, the teacher began class by reviewing what they had done the previous week. Beginning with a brief review of previous content had been identified as good practice in the workshop. However, as stated above, students had lost 17 instructional days and teachers were looking for a way to reduce fragmentation of concepts in a difficult situation. The teacher asked students to think of two concepts that they learned in the previous class and to verbally share them with their partner, and take turns -this was timed at one minute. In this clip, the teacher simultaneously directed students who were not talking, or unsure of who to talk to and provided additional

guidance. After the brief partner share, the teacher then went to the board, read key vocabulary and asked students to repeat the vocabulary. The teacher also explicitly stated the lesson objective, which was written on the board, by reading it aloud to the students. The class was an 11<sup>th</sup> grade World History class, content standards and objectives were addressing Pre-Modern 1500 CE, specifically examining the relationship between cultural traditions and the larger societies in the case of Confucianism in China, Buddhism in Asia, Christianity in Europe, Hinduism in India, and Islam in the Muslim worlds. After explicitly stating the lesson objective, the teacher asked the students to open their composition books and draw a Venn diagram, which she had projected on the screen located at the front of the classroom. The length of the first clip of this lesson is 1:45 seconds.



**Figure 6. Lesson 2 Graphic Organizer**

The second clip began with the teacher giving the students ten seconds to draw their own Venn diagram as the teacher circulates around the room checking their work. The projected graphic organizer was labeled, “Venn Diagram Graphic Organizer,” and the teacher had it copied on a transparency, projected to the screen on an overhead projector. The lights were turned off in the room, but natural light was coming in through the windows.

As previously stated, at the professional development session teachers received a framework of graphic organizers aligned with Marzano’s taxonomic levels. Teachers participating in the grant project also read about the benefits of explicitly labeling the graphic organizers and explaining the cognitive activities, and taxonomic levels with

students, so students could begin to self-select the graphic organizers most beneficial for each cognitive task. The teacher explained how often Venn diagrams are used at all levels of education, and how useful they are in comparing concepts. The teacher added that this one would be used to compare similarities and differences between Gregorian chants and Native Hawaiian chants. At 1:40, the teacher began playing the YouTube clip of Gregorian chants to students. The students were casually chatting while the teacher was cueing the audio clip on the computer, but when the music started playing, the teacher projected a slide titled “Music in the Gothic Age.” At 2:08, as the music is playing, the teacher instructed students to, “listen to the music and visualize we are in the cathedral we looked at the other day”, and described the “awe-inspiring architecture, and asked students to close their eyes. For 20 seconds, the students silently listen. The teacher then thanked the students for their attention, and asked students to write a feeling under the Gregorian chant column. The teacher described how monks or people would walk into a cathedral, hear this music, and asked the students to consider and identify what kinds of feelings the aesthetic could evoke. The teacher then asked students to write at least two feelings under the Gregorian chants section of the diagram. The length of the second clip is 3:15.

In the beginning of clip three, the teacher asked students to turn to their partners and share what they wrote. The teacher gave them 15 seconds to share, then asked students to share with the class. Student descriptions were, “respectful”, “togetherness”, “peaceful”, “faith”, “connectedness.” The students also brought up several Native Hawaiian values including *kuleana*: responsibility; and *pili*: connectedness. The length of the third clip is 1:21.

In the beginning of clip four, the teacher instructed students to close their eyes again. The teacher began playing the audio clip of a Native Hawaiian chant, and again, for the 30 seconds of the clip, all of the students are completely silent. While the teacher is switching from the computer, back to the overhead projector, students began sharing in small groups what they wrote about the Native Hawaiian chant they heard. The teacher played another Native Hawaiian chant while passing out readings to students. One handout is a reading on Gregorian chants; another is a reading on Native Hawaiian chants. The title of that reading is “*Mele of Antiquity*.” The teacher dissected the word “antiquity”

with students, by asking them what the word “sounds like,” to which they respond “antique!” The teacher then asked, “What does that mean?” to which the students are heard saying, “old!” The teacher then instructed the students to read through the short articles and add any additional key information to the Venn diagrams in their notebooks. The fourth clip is the longest clip at 3:12.

The fifth clip is the shortest, at 30 seconds simply documenting that during that time the classroom is completely quiet as all of the students are engaged in reading the content while working on their own. The video indicated the teacher was preparing for the next phase of the lesson. It should be noted that the teacher commented about an immediate increase in the completion of classwork during this lesson. In addition, the teacher noted that several students who didn’t normally participate in classroom discussions participated in this lesson and were engaged throughout. It should also be noted that the researcher had also observed this class on previous occasions and noted that some students were disengaged.

In the sixth video clip of this lesson, the teacher began by projecting the Venn diagram back on the screen. The students had completed the Gregorian chants side of the Venn diagram as a class, and the Native Hawaiian chants side on their own. The teacher then indicated that they were to complete the “similarities” section of the Venn as a class. She explained that they were looking for broad similarities while recognizing that they were different and unique in their own ways. A student raised his hand and stated that they both had meaning and hidden meaning unique to the context of the chant. Another student responded that they both had repetitive patterns in sound and in text. Another student responded that they were both reliant upon oral traditions and oral stories that were intergenerational. The students also contributed that elders, or those with status were responsible for teaching or passing on the chants. The sixth clip is 2:02 in length.

The seventh clip began with the teacher playing a short clip of a Sami chant. The Sami are the indigenous people of Scandinavia who were traditionally semi-nomadic known for reindeer herding. The chanter was singing in his native language, the chant lasted for 30 seconds and showed areas of Scandinavia as he sang. The students were given a few moments to revisit their graphic organizers, and the teacher asked them to again share commonalities. Again, the students commented that the chant sounded

“spiritual” and repetitive. It was observed that all chants were done extemporaneously. One student shouted out, “Everybody does it!” The teacher asked for elaboration, then addressed chant as an expression of connectedness to place, or the *aina*. The teacher then directed students to the written definition of humanities class on the board as “How do humans reflect and express upon the human experience?” The teacher then directed them to the following question written on the board, “Can we make a broad statement about the use of chants by humans as a means to express and reflect?” and asked the students to write a response to the question, providing details from class discussion and their graphic organizers. While the other students were writing, the teacher then quietly attended to an individual student in class, repeated the directions, and provided an example. Clip eight is 3:37 in length.

In the final clip, the teacher began by asking the students to “trade papers with your partner, and let them read what you wrote.” For the pairs whose partners were absent from class, the teacher directed them to do a “three-way trade.” The teacher then gave the students a few moments to read each other’s writing. Then the teacher asked the students to write a few words of feedback on the classmates, coining the term “facebook free write” to describe the expectation. The students then traded papers to read the feedback from their classmates. The teacher explicitly stated that the lesson would end with a discussion and reflection. The teacher restated the question to students, “Can we make a broad statement about the use of chants by humans as a means or expression and reflection?” The students responded, “yes” then the teacher asked for reasons why. Students began responding that the chanting form of expression is cross-cultural as well as across time, one student referred to chanting as “old school” (*slang*). The teacher asked what types of things chants express, student responses included spirituality, feelings, genealogy, stories, etc. The teacher commented that chanting could also be used to find meaning, then reiterated that they have happened across time, geography, and cultures. The teacher also acknowledged Native Hawaiian chants as an integral aspect of local Native Hawaiian culture. And that chanting was “still very alive, and very important in Hawai’i, but to other cultures as well.” The teacher also stated, “I noticed some of you guys were kind of laughing and giggling during the non-Hawaiian chanting clips, but it’s important to think about how you would feel if someone was watching a Native Hawaiian



video and giggling about what’s important here in Hawai’i. You’d be really angry, right?” The teacher encouraged the students to be respectful of other cultures, but also open to what other cultures share. The students applauded at the end. The length of clip eight was 4:39. During the post-lesson conference with the staff member (and researcher), the teacher stated, “What was cool about this lesson was that a Native Hawaiian student who always comes to class but had rarely completed classwork, asked for a paper and participated in every stage of this lesson, and turned in a reflection at the end.”

### Design Phase III: Iterative Cycles

**Table 7. Iteration timeline**

<i>“Iterative cycles of testing and refinement of solutions in practice.”(Amiel &amp; Reeves, 2008)</i>	First Iteration Spring 2011 <i>retrospective analysis</i>	2 <sup>nd</sup> Iteration Spring 2012 <i>retrospective analysis</i>	3 <sup>rd</sup> Iteration Summer 2012
Participants	19	7	9

#### Summary of First Iteration

The first iteration of the Introduction to Teaching course using the CRTTI materials took place in during the Spring of 2011. The course followed the traditional sixteen week schedule, and was offered completely online for pre-service teachers enrolled in the statewide post-baccalaureate licensing program. This was the first online course for the majority of the students, and the cohort received an orientation from the distance education department at the College of Education. The cohort was a mix of traditional and non-traditional neighbor island students seeking licensure in secondary education. Five pre-service teachers specialized in math, four in science, six in language arts, and five in social studies. The course met for a total of 16 synchronous online sessions, for 150 minutes per session, including the course orientation. All of the sessions were recorded. In addition, the researcher held online office hours twice per week, which were regularly attended.

Iteration 1: Analysis of Open Comments. During the first iteration, the video was embedded in Module 10 of the online course, within the overarching module topics of

Response to Intervention, Culturally Responsive Teaching, and Culturally Congruent Curriculum. The module also contained some content that was a continuation of the previous module on classroom management. The *Culturally Responsive Response to Intervention Teachers Handbook* was still in development during this time, so prior to this module, the pre-service teachers had completed separate readings and modules on the gradual release of responsibility model, the National Education Association Code of Ethics, and the Hawai'i Teacher Standards, in addition to other standard introductory content. Previous modules had been aligned with the College of Education's conceptual framework, Secondary Education program standards, Hawai'i teacher standards, and INTASC standards.

In the video-survey assignment, students were asked to provide open-ended comments identifying any course topics they observed the teacher doing, and provide some detail. The pre-service teacher's comments were then collated according to each video clip to identify themes or patterns of recognition related to the competencies. The collated comments were then shared back with the practicing teacher in the video, then the teacher was asked to respond back to the pre-service teachers.

The researcher initially considered the level of exposure in this assignment and activity as one-sided, in favor of the pre-service teachers, as the practice of the experienced teacher was exposed and open to critique by pre-service teachers in the online course. However, the practicing teacher in the video was also functioning as a mentor teacher for student teachers' completing their practicum and indicated comfort with this level of exposure, but also indicated an interest in reviewing pre-service teacher feedback, thus creating a two way discourse-of-practice, by providing feedback on their feedback. The arrangement created mediated dialogue between the practicing teacher and pre-service teachers about teaching with the teacher educator facilitating the dialogue. The themes that directly emerged from pre-service teacher comments in this iteration showed clustered connections between course content and theory to practice. Some pre-service teacher comments focused entirely on one selected method or were completely observational; other comments demonstrated knowledge in categorizing methods and connecting specific actions with overarching competencies, ethical behaviors, and theories. Comments have been edited to remove the gender of the teacher.

To illustrate noted differences, Student 1, Video clip 1 entered the following:

Video 1: Gradual Release of Responsibility “I do”

explicit instructions

directing students who appear confused before they need to ask a question

explaining goal for today (a.k.a. objective – written & spoken)

using student knowledge and local culture to compare with a potentially similar yet foreign concept

use of venn diagram

teacher proceeds/transitions quickly to different points

Student 2, provided the following comments for the same video, clustering activities by topics, however with some assumption about the practice (to which the practicing teacher responded later):

*Communication of High Expectations:* The teacher praised students for following what I believe to be an activity that is a daily expectation of them. Later, the teacher communicated set expectations of students for an upcoming assignment. The teacher broke down, step by step, what was needed to complete the assignment.

*Student Centered Instruction:* After students reviewed, the teacher had them collaboratively review.

*Learning Within the Context of Culture:* The teacher introduced an activity that will have them compare a culture they are learning about with one that is closer to home.

*Use of Graphic Organizer:* The teacher introduced a venn diagram that will be used to complete the assignment.

*Classroom Management:* The teacher disengaged unruly students without disrupting the lesson or deviating from it with simple, straightforward instructions without missing a beat.

*Gradual Release of Responsibility:* It is still in the I-Do ‘Input’ phase. The teacher made objectives clear, connected to a previous lesson, built on their background knowledge, and identified all the vocabulary they will need to know.

It should be noted, that other pre-service teacher's had also included the teachers explicit review of vocabulary as an ESL/ELL methodology, more specifically the Sheltered Instruction Observation Protocol, or SIOP model was also a topic covered in the class.

### **Reciprocal Feedback**

As stated previously, the practicing teacher who was in the video reviewed the pre-service teacher's feedback, and provided additional information about the strategy and context, in addition to practical guidance, and specific advice to pre-service teachers. For example, in response to a pre-service teacher noticing the use of humor, the teacher provided the teacher's perspective about how humor interacts with culturally responsive teaching, and shared information about mistakes made and lessons learned while developing as a teacher:

*Thanks for noticing I use humor. Humor is my #1 tool against student disengagement. Although I don't think it is something that you can fake or force, humor is a key to teaching, but not everyone has it. Earlier in my career I sometimes let sarcastic humor get carried away, but I have to remember a few things 1) my students, even those in 12<sup>th</sup> grade are not as knowledgeable about humor as an adult, and 2) they have a hard time culturally picking up on sarcasm as it is not as much a culturally prevalent trait in Japanese and Hawaiian cultures maybe as it is in perhaps Irish or English cultures. Just something else to consider in Culturally Relevant teaching – how do your students read your humor and sarcasm? Does this vary due to cultural backgrounds, especially here in Hawai'i ?*

This teacher response and accompanying questions then generated further discussion with pre-service teachers in the course about considerations of humor in culturally responsive teaching.

After reading a comment from another student related to the Gradual Release of Responsibility model, the practicing teacher's response illustrated the multi-leveled thinking in applying a new method within a lesson sequence:

*You're right we did basically skip the "I Do" and went right to the "We Do" in a teacher-led way. I think I have to do this a lot, but that is because of my personal style and also because I'm teaching Social Studies. The "I Do" works well when I'm teaching a skill – like essay writing or PowerPoint, but with Social Studies content I find we often go straight to the "We Do" – which really helps with engagement, as you can see in the video. They are part of the lesson and my expectations are high that every one of them participates. The partner pair/share helps with this.*

The teacher also elaborated on the previously reported comment from a pre-service teacher about student-praise and authenticity. The pre-service teacher comment was, "She praised her students for following what I believe to be an activity that is a daily expectation of them."

The teacher's response was directed to the whole class, and provided some reflection on the topic of positive reinforcement connected with classroom management:

*Just a general comment, it always amazes me how much students love being praised. I used to think that maybe a grade 12 student wouldn't like be told "good job taking your book out" or "nice job raising your hand" or "everyone look at Dana, she is ready to take her notes" ..but they love it. Then you start hearing "...look at me, I am ready too!" Seniors may be bigger than the rest of the high school but they are still little kids at heart. Always remember that many of your students #1 goal is to please you, their teacher! The smile you get for recognizing their efforts, no matter how small, is worth it. Oh, and one more thing about management – many of you have commented that I engaged unruly students without disrupting the lesson. Yes, true. This is mostly because I don't wait for them to acknowledge me. I just say what I need to and move on. Sometimes I will say, "Bill put your cell phone away" without even looking at Bill. I think some teachers get caught up in ego and wait for the student to acknowledge them, say sorry or change immediately their behavior (ie, put the cell phone away), but I find that if you say it and don't wait, a) the students don't feel as put on the spot and b) the behavior goes away quickly.*

This comment generated more discussion about use of praise, technology in the classroom, diffusing techniques in classroom management, and competencies in establishing mutually respectful relationships with students, and how that influences learning.

### **Summary of Second Iteration**

The second iteration took place in the same class during the Spring of 2012. The course also followed the traditional sixteen-week schedule and was offered completely online for pre-service teachers enrolled in the statewide post-baccalaureate licensing program. This was the first online course for the majority of the students, and the cohort received a personalized and individual orientation from the instructor of the course. The cohort was a mix of traditional and non-traditional neighbor island students seeking licensure in secondary education. Four pre-service teachers specialized in science and four specialized in math. The course met for a total of 16 synchronous online sessions, for 150 minutes per session, including the course orientation. All of the sessions were recorded. In addition, the researcher held online office hours twice per week, which were regularly attended.

### **Focused Observations**

As in the previous iteration, pre-service teachers received the same text-based content and online lectures, and checks for understanding during the synchronous sessions. The practicing teacher was not able to provide written feedback on the pre-service teacher observations during that semester. As in the previous iteration, the instructor modeled “noticing” course content by using a short video clip in a synchronous session. However, in this iteration, the researcher asked students to complete the video surveys, then comment on the instructional purpose of using video to model strategies. The researcher again collated the pre-service teacher responses, but separated them according to self-reported experience levels. Again, the researcher noted a pattern that the inexperienced pre-service teacher observations were mainly informational, whereas the experienced pre-service teachers elaborated more on the targeted strategies. However, there was another experienced pre-service teacher, an emergency hire, who expressed

feeling overwhelmed with classroom management issues and workload, whose reflection and observation resembled those of inexperienced teachers.

Below is a summarized response of Video 1, Clip 1 by an experienced pre-service teacher (substitute teacher):

*Community Building Activity/Pair and Share: The teacher has student's pair up to share what each had learned about previously, then asked one of the students to inform another who had been absent, shows consideration and supports students learning from each other. This is also "You Do/I help" of the Gradual Release of Responsibility. This is possible because of base building the teacher has done previously. Then, the teacher also gives the vocabulary and learning goals very clearly. Finally, the teacher uses an active learning technique with a graphic organizer to organize information in a culturally responsive fashion.*

This response from the experienced pre-service teacher illustrated how the video was perceived in relation to the text-based concepts:

*I am glad we have gotten to pick apart another person's lecture. It allows me to get way more comfortable with the terms laid out in the handbook. Honestly, before we did this, I had no real way to plug in all the terms we had been learning! That is, I had input a bunch of terms but hadn't really understood how one implements them. This teacher glides in and out of different teaching methods quickly and easily, breaking up what could have been a monotonous lesson for teenagers. Instead, they are always on their toes because they are actively enveloped in the teaching/learning process! So good.*

## **Summary**

In both iterations one and two, the researcher noted patterns of interaction and recognition of competencies according to the experience levels of pre-service teachers. However, this was not an absolute as there was an "emergency hire" expressing classroom management and workload issues who did not "notice" the same competencies of classmates with similar experience levels.

## CHAPTER 5: RESULTS

I previously reported on major themes emerging from two iterations of secondary pre-service teachers' analysis of several video surveys of an experienced and licensed secondary teacher using targeted strategies in a secondary classroom. The video surveys were given to pre-service teachers after they completed text-based content readings. In the first iteration, the first cohort provided open-ended analysis of the video clips. Then, as in situated learning in communities of practice (Lave, 1991), the practicing teacher responded to practicing teachers' feedback, which were mediated by the teacher educator to facilitate additional dialogue in synchronous class sessions. This setting provided grounded discourse and context for the concepts pre-service teachers were learning in the course.

In the second iteration, I described the transition from using the video for open-ended comments to recognizing targeted competencies using keywords in scaffolding pre-service teachers *in noticing and interpreting interactions* (Sherin & Van Es, 2005; Van Es & Sherin, 2002). In third iteration described below, I report on combining opened-ended comments with noticing strategies and provide a CORDTRA (C.E. Hmelo-Silver, Liu, et al., 2009) adaptation of the video-survey analysis of competencies, as well as a CORDTRA discourse analysis of a check for understanding completed during a synchronous session.

### Context of the Third Iteration of Introduction to Teaching

This course was an accelerated six-week course offered completely online for pre-service teachers enrolled in the statewide secondary post-baccalaureate licensing program. The course enrollment was mainly neighbor island students seeking licensure in secondary education. The course met for a total of 15 synchronous sessions, including the course orientation in addition to bi-weekly asynchronous discussions.

As stated in Chapter 3, the *Teacher Handbook* was assigned as required readings prior to the video intervention. As in previous iterations, there were formative assessments in the form of checks for understanding during the online lectures and



synchronous sessions. Pre/post survey instruments were given before and after the video surveys. The instruments were similar to the instruments adapted from the grant project and were designed to measure attitudinal changes related to content. As in previous iterations, the researcher described and modeled the video coding process to students during a synchronous session prior to the intervention.

## Participants

The participants in the third iteration were nine pre-service teachers representing specializations in English, Mathematics, Foreign Languages, Social Studies, Special Education, and Art. All nine students enrolled in the course were on O‘ahu.

**Table 8. Experience levels of pre-service teachers in third iteration**

I have never taught.	4
I have some experience teaching in a secondary setting, but have not yet managed my own class.	3
I am currently teaching and managing my own class.	2

### Pre-Investigation (Weeks 1-5).

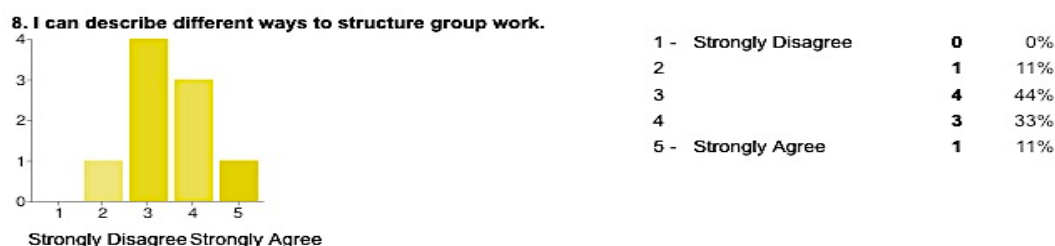
Because this was an accelerated course, the traditional sixteen modules were collapsed and combined into ten. As in previous iterations, students received the *CRTTI Teacher Handbook* the first week, during Module 2, then received follow up lecture and discussions related to the content in the synchronous sessions.

The data collected in this course consisted of pre- and post-treatment surveys, as well as the intervention, which was a student-coded video survey assignment (see Appendix G), referred to during instruction as “tagging” the content. According to Darvish (2008), “tagging is a process of attaching metadata to an object in order to classify it” (p. 8). However, in this study, the pre-service teachers were identifying targeted concepts and strategies using specific codes developed by the instructor and related to course content. In addition to the Culturally Responsive curriculum, there were other concepts, activities and assessments addressed in this course that were aligned with secondary program standards. Descriptions of the data collected in this study are articulated below in the sequential order in which it was collected.

## **Pre/Post Survey Results**

In order to establish a baseline of comfort levels and self-reported mastery, a pre-survey instrument was designed that was an adaptation of the survey instrument practicing teachers completed after their professional development CRTTI workshops. The pre-survey (see Appendix F) was given to the pre-service teachers online, which then automatically populated a spreadsheet with responses. The survey provided a consent statement (see Appendix H). Prior to the Likert questions, pre-service teachers were asked to identify their own teaching experience levels. The directions for completing the survey asked pre-service teachers to select the option that best described their comfort levels related to a specific competency. The five point Likert scale ranged from strongly disagree to strongly agree. Pre-service teachers then self-identified comfort levels of specific topics prior to the video assignment. Sample survey statements included, “I can explain how the social context of the school community has instructional implications,” and, “I can describe specific ways to integrate culturally congruent curriculum in course content.” And, “The video helped me to understand how to integrate culturally congruent curriculum.” The same statements were used in the post-survey (see Appendix G), however, in the post survey additional video-related Likert questions were added in addition to the opportunity for students to complete open-ended statements.

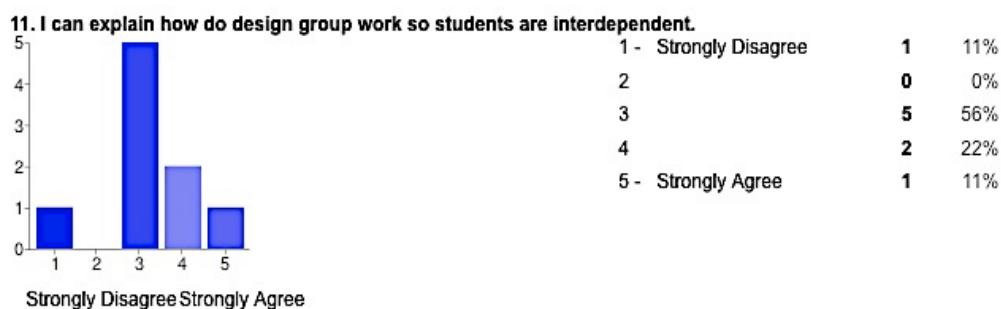
While a t-test of survey questions did indicate growth, due to the small sample size ( $n=9$ ) which makes such a test less valid, only frequencies related to the targeted strategies will be discussed. Before the video-survey intervention, pre-service teachers reported the following comfort levels related to active learning competency, specifically group work.



**Figure 7. Pre-treatment comfort levels in describing group work**

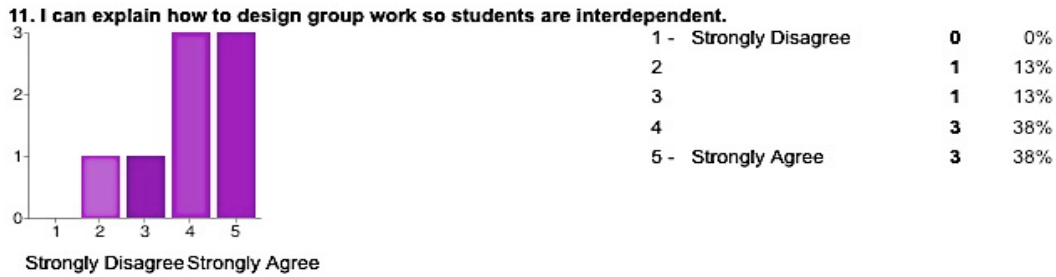
"Describing" is considered to be the cognitive level that precedes the application of content and skills (Marzano & Kendall, 2006). Pre-service teachers self-reported response indicated growth in attitudinal changes related to describing an active learning competency, structuring group work.

Prior to the video-survey intervention, pre-service teachers reported the following comfort levels related to another active learning competency, specifically creating group activities that are interdependent.



**Figure 8. Pre-treatment comfort levels about interdependent group work**

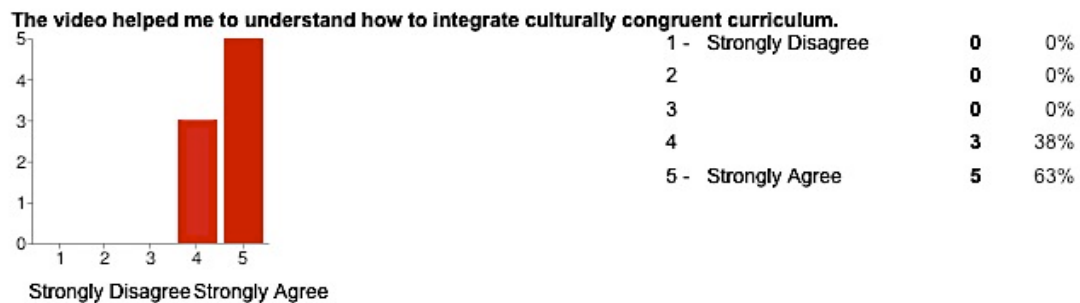
Again, while "explaining" precedes "applying," the ability to explain interdependence in groups is a more advanced skill than explaining what group work is. Pre-service teachers self-reported response indicated growth in attitudinal changes related to describing an active learning competency structuring interdependent group work.



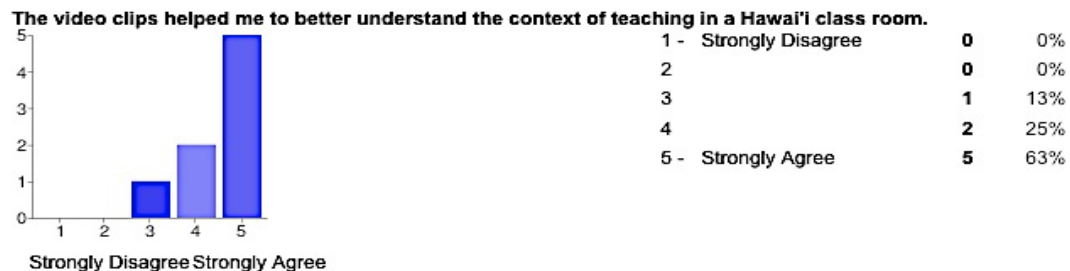
**Figure 9. Post-treatment attitudes about designing interdependent group work**

### Post-survey Questions about Video-survey Treatment

Pre-service teachers were asked to evaluate the use of video to reinforce course concepts in both Likert-scale questions and open-ended questions. Only questions related to culturally responsive teaching are reported below.



**Figure 10. Pre-service teacher assessment of video in culturally congruent curriculum**



**Figure 11. Pre-service teachers assessment of video in contextualizing practice**

As shown in the figures above, the video provided pre-service teachers some localized context and showed examples of the application of targeted strategies within a localized context with a licensed, and experienced teacher. In this sense, it can be suggested that the pre-service teachers “peripheral participation” was an introduction to their initiation into a community of teachers.

### **Open-ended Comments from Students about the Video**

Pre-service teacher comments again reflect what Lave & Wenger ( 1991) refer to as the “peripheral participation” in a community of practice, which “suggests an opening, or a way of gaining access to sources for understanding through growing involvement” that must be “connected to issues of legitimacy” (p. 35). The following excerpt illustrates the indexical hypothesis, and why reference to a physical situation, or coherent combination of ideas is important in understanding text (A. M. Glenberg & Robertson, 1999) [After coding the video,] *“I realized that theory and practice are two totally different things. Once I can see what happens in practice, I can analyze what methods are being utilized or not.”*

The following comment also illustrates one pre-service teachers perceptions of the contrast between text-based content, and video content, *“[The video] connected theory to practice, to see the text integrated into a lesson and in an actual classroom was very helpful. I also learned a lot about classroom management.”* Likewise, this comment also supports the indexical hypothesis which states that, “perceptually rich schema derived from video cases will supply embodied support for comprehending and coding subsequent text through a process of backward reaching indexical referencing (Beitzel & Derry, 2009, p. 341).

### **Identifying Levels of Noticing**

This study adapted and applied a previous “Trajectory of Development in Learning to Notice” hierarchy (Van Es & Sherin, 2002) by applying "levels of noticing" in classifying pre-service teachers self experiences in teaching. Level 1 of the hierarchy is “describe and evaluate; and Level 4 is described as “identifying pedagogical solutions.”

Although the Van Es and Sherin trajectory identified four levels in noticing, because students are applying content codes, only two levels were applied in this analysis.

Pre-service teachers who identified sub-topics, or connected the activity to Teacher Performance Outcomes were identified as Level 2, and those who did not were identified as Level 1. Following the assignment of levels, the researcher compared the self reported work experience of pre-service teachers with the levels of noticing.

In previous iterations, there were examples of “novice” teachers applying Level 2 analysis; however, a general trend in differences in noticing between experienced and novice pre-service teachers was noted and therefore was one area of focus in this iteration of the design study. Examples of novice, level 1 analysis are presented in this study and further described below.

### **Coding Schema for Video Survey**

As was reported in Chapter 3, the coding schema followed content-based structural coding in which students tagged course topics as expressed in the competencies of the licensed and experienced teacher in the video-survey (Saldana, 2009). Course topics and sub-topics resulted in a multi-level coding scheme and topic codes. Pre-service teachers were instructed to enter the topic codes in a shared online journal in chronological order (see Appendix I: video assignment). Then, the CORDTRA technique was used to juxtapose topic codes in chronological order of a 50 minute lesson segmented into 10 clips. Suggestions for creating the CORDTRA scatterplot were followed, with each column on a spreadsheet represented a single code, which were then entered numerically (Hmelo-Silver, Liu, et al., 2009). The eighteen code keys represented topic codes that pre-service teachers noticed while viewing a video of a licensed, experienced and practicing teacher conducting a lesson, after receiving professional development on culturally responsive teaching strategies.

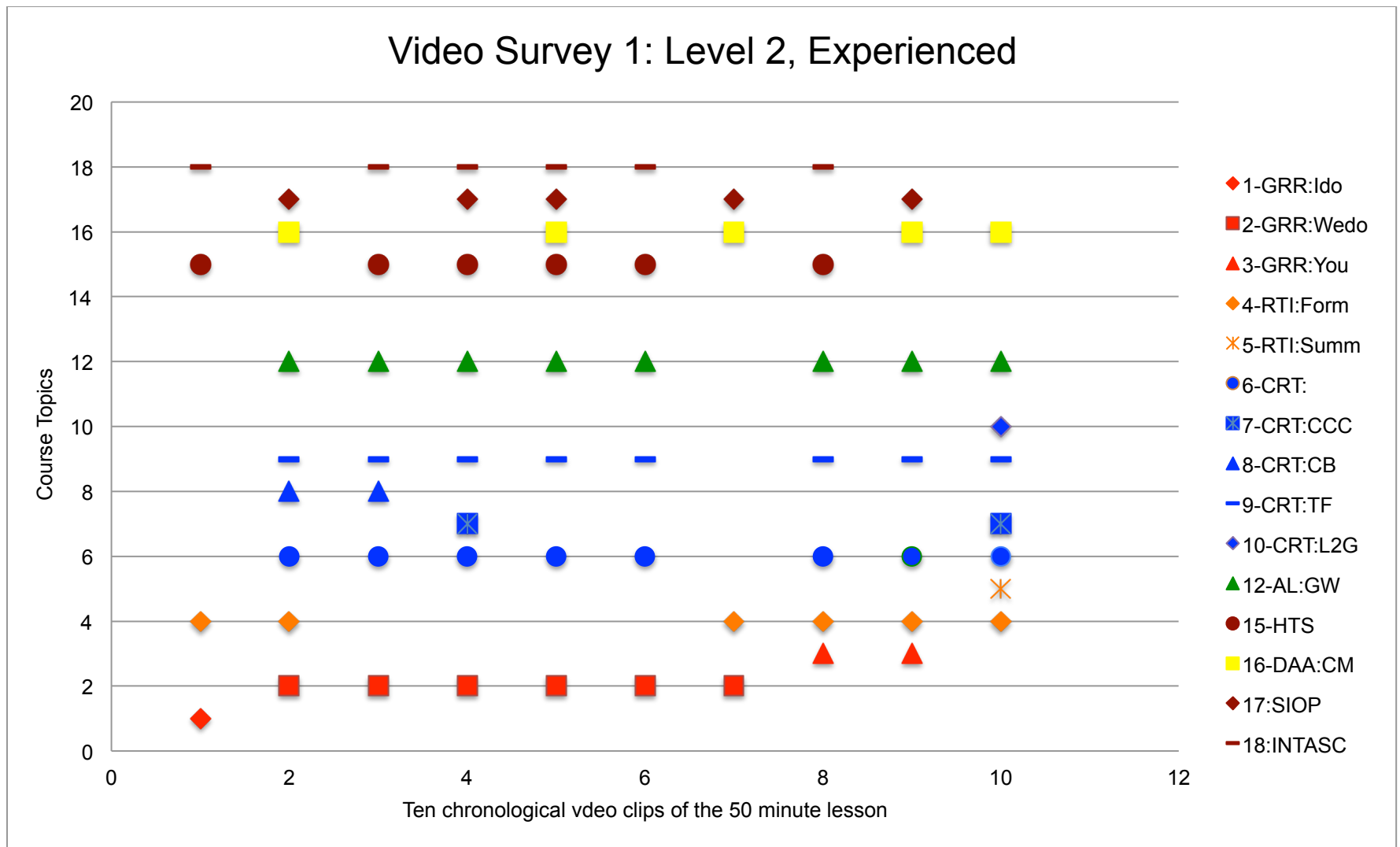
### **Modified CORDTRA of Video Survey 1**

The adapted CORDTRA analysis in Figures 10 and 11 show the difference between novice and experienced pre-service teachers in matching course topics to teacher competencies. The experienced pre-service teacher was an emergency hire and had also worked as a substitute teacher in Hawai‘i public schools. This pre-service teacher observed the licensed teacher’s classroom management five times during the lesson (Figure 10), whereas the novice pre-service teacher identified classroom management

once (Figure 11). In addition, the experienced pre-service teacher identified all three stages of the Gradual Release of Responsibility in sequence. This pre-service teacher identified the specific Hawai'i Teacher Performance Standard 1: Learner Development which addresses meeting learners' needs and designing developmentally appropriate curriculum and activities; and also outlines the knowledge and dispositions necessary to demonstrate that standard. The pre-service teacher also demonstrated a Level 2 analysis by identifying Hawai'i Teacher Performance Standard 7: Planning for Instruction which addresses allowing students multiple ways to demonstrate knowledge, scaffolding content, as well as the knowledge and dispositions required to demonstrate that performance standard. Both pre-service teachers identified Culturally Responsive Teaching methods; however, the novice teacher noticed that skill in a more generalized way whereas the experienced pre-service teacher identified sub-topics of the content in the text-based materials.

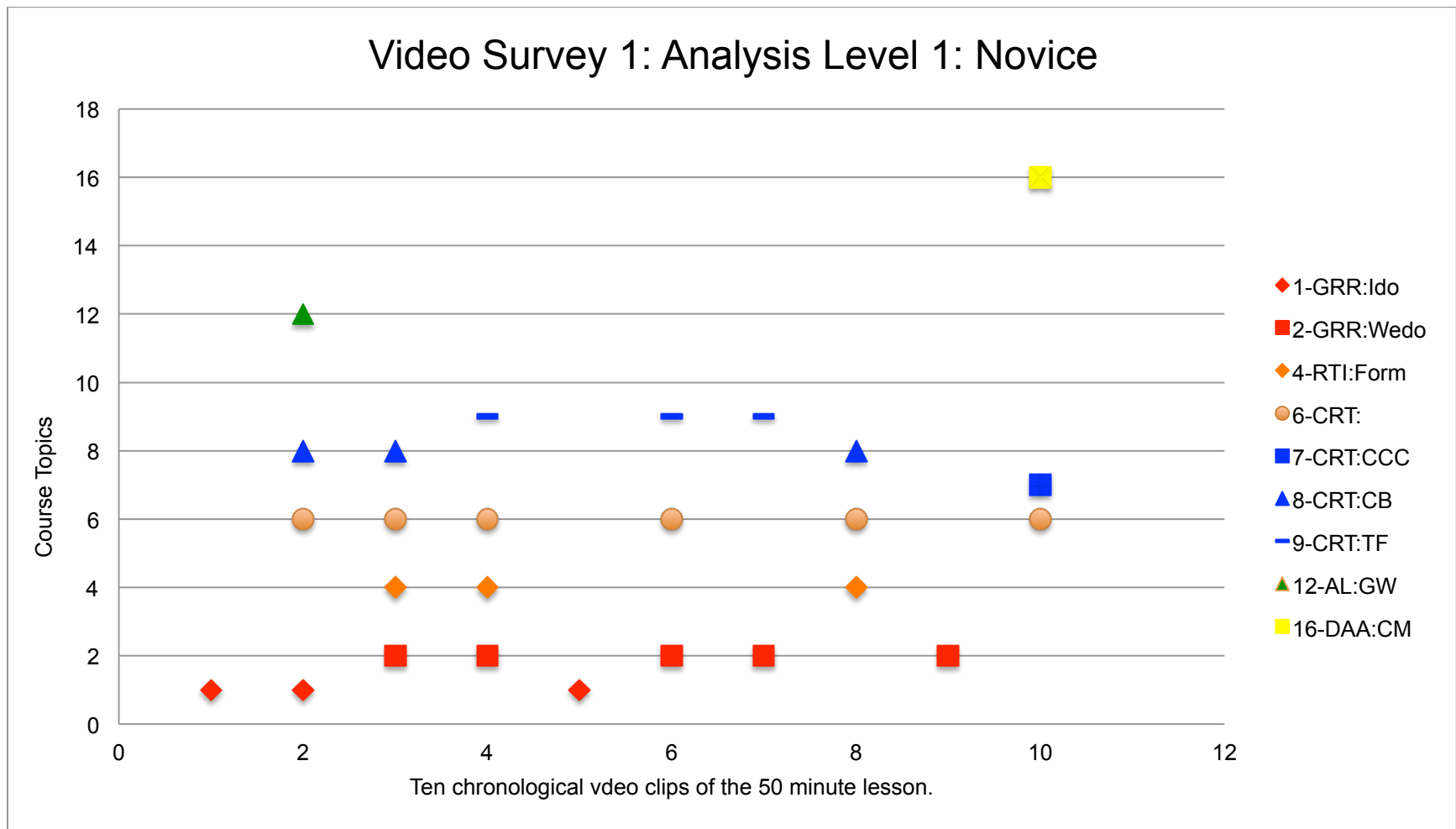
The results are not surprising, as there is a previously established correlation between experience, and "noticing" subtle skills. However, complex competencies, such as culturally responsive teaching can be more difficult to define and articulate. And there was a consistency of pre-service teachers recognizing the competency and subtopics, as they were defined and articulated in the required readings.

In the second video survey (Figures 12 and 13), the same pre-service teacher completed a Level 1 analysis of the second 10 video clip set of another lesson. However this same pre-service teacher began identifying a number of subtopics similar to the more experienced pre-service teacher.

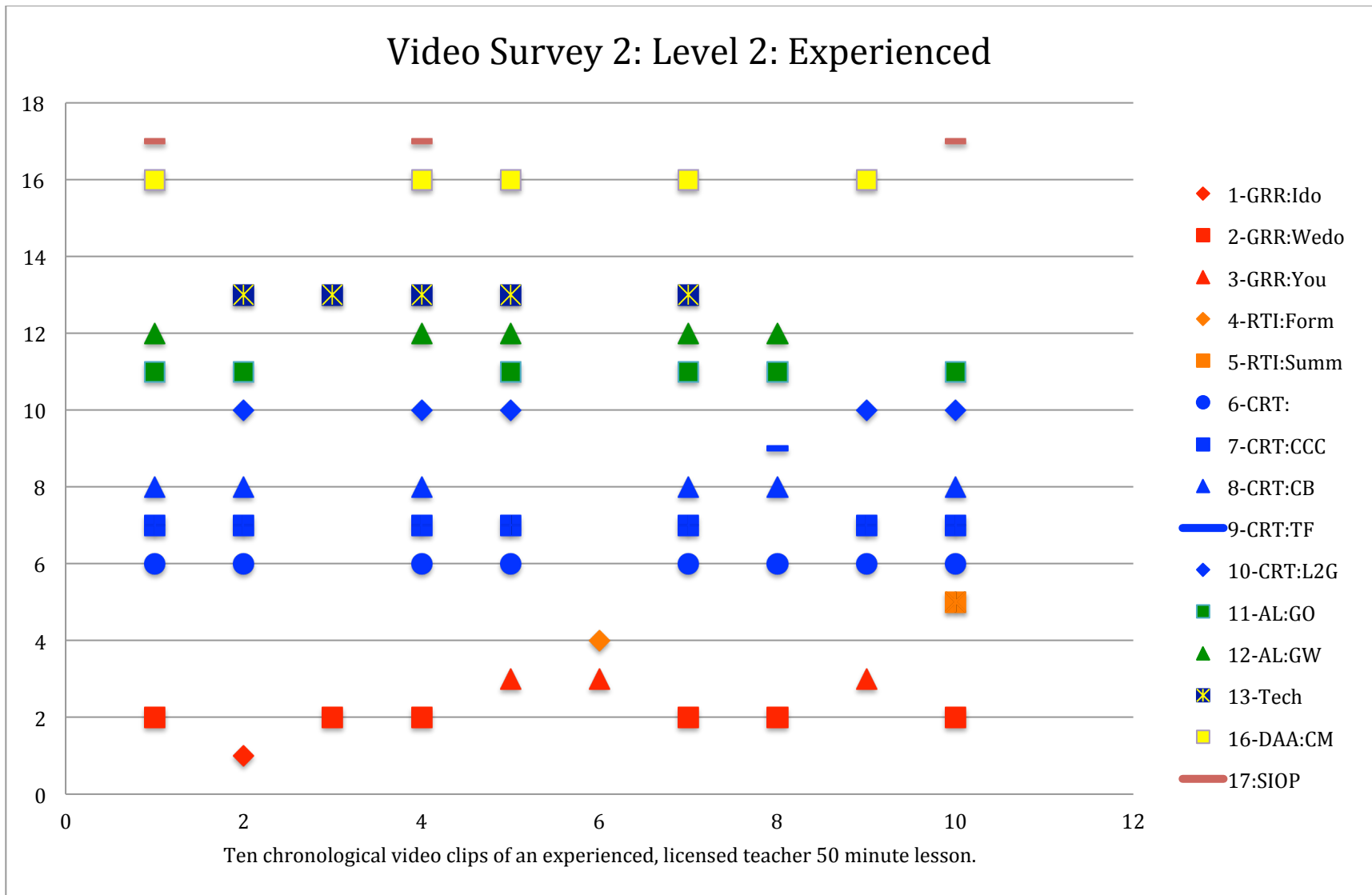


**Figure 12. Adapted CORDTRA Representation of VS1; L2: Experienced Pre-Service Teacher**

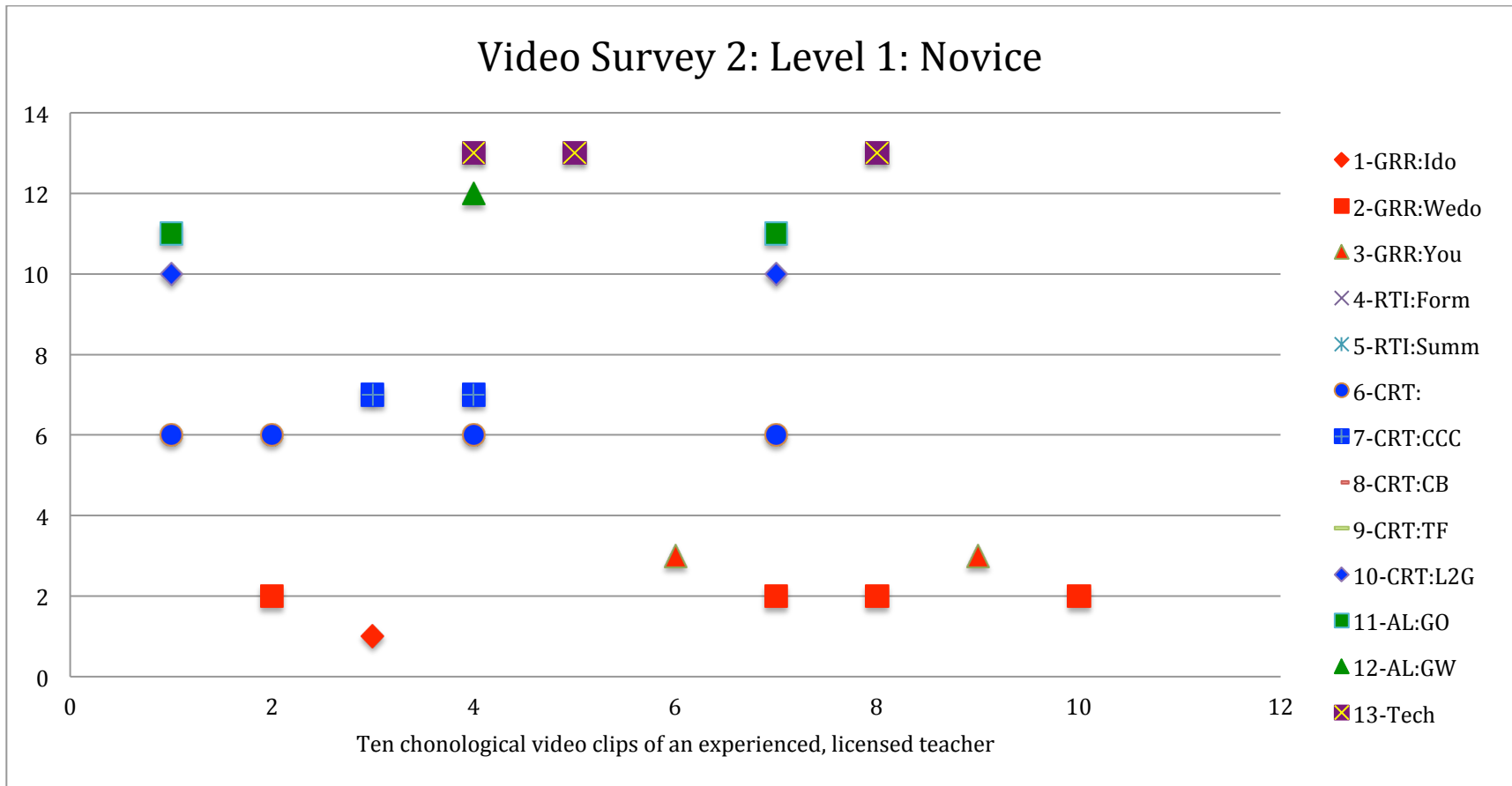




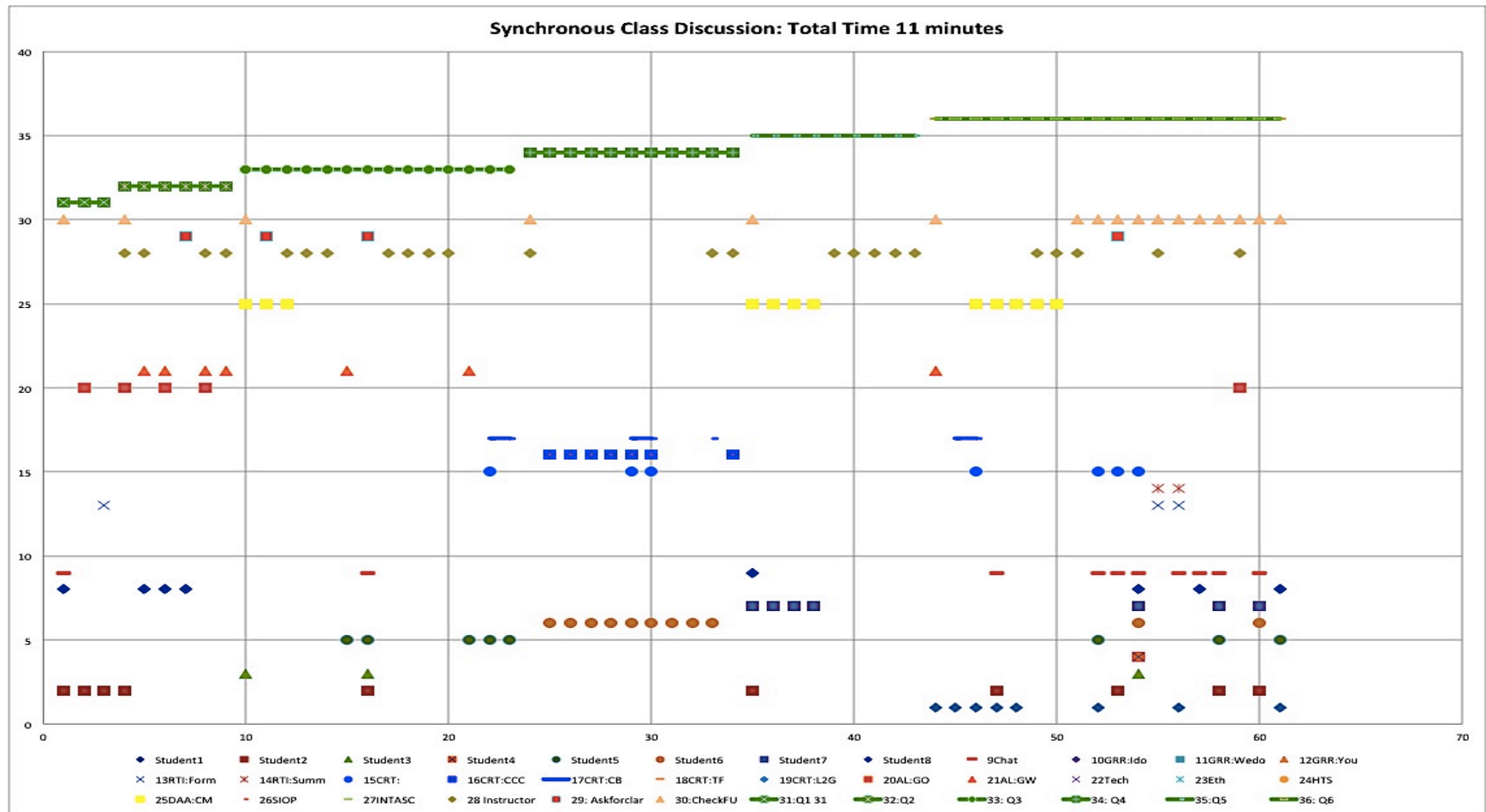
**Figure 13. Adapted CORDTRA Representation, VS1; L1: Novice Pre-Service Teacher**



**Figure 14. Adapted CORDTR Representation, VS2, L2: Experienced Pre-Service Teacher.**

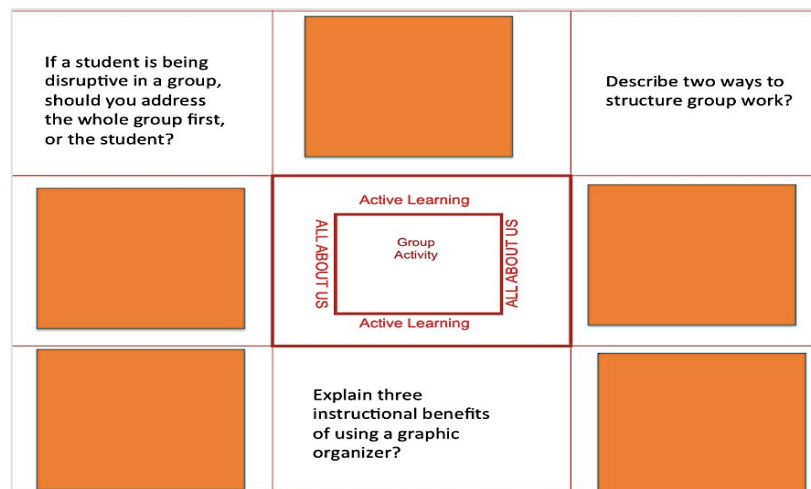


**Figure 15. Adapted CORDTRA Representation, VS 2, L1: Novice**



**Figure 16. CORDTRA Analysis of Synchronous Session Clip**

As a further analysis, the researcher used the same coding as in the student video tagging exercise to examine the class discourse that followed the video assignment. Figure 14 represents a CORDTRA analysis of an online synchronous session. All synchronous sessions in the summer session were recorded. The image represents eleven minutes of class time where the researcher posed six checks for understanding during a class activity. The topic coding in the CORDTRA synchronous session followed the same coding key as the video surveys. However, additional codes were added for the participants, instructor, and questions activity sequence during the 11 minute activity and formative assessment.

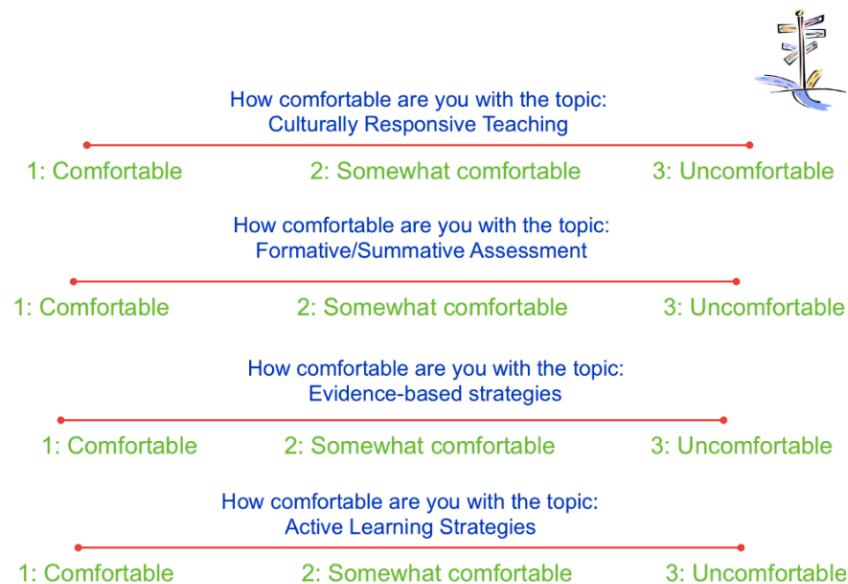


**Figure 17. Screenshot of Class Activity Taking Place During CORDTRA analysis**

During the activity, the pre-service teachers in the online course chose questions from a slide and responded to them. Each section of the slide addressed culturally responsive methods, active learning strategies, and classroom management. The upper region of Figure 15 shows the transition from each question, and the data points at the bottom of the image indicate the time points for each student's response, including the instructor's dialogue. Student 2 contributed the most during the class discourse, commenting on almost every topic. This student, classified as experienced, was also an emergency hire pre-service teacher at the time. In addition, several data points indicate

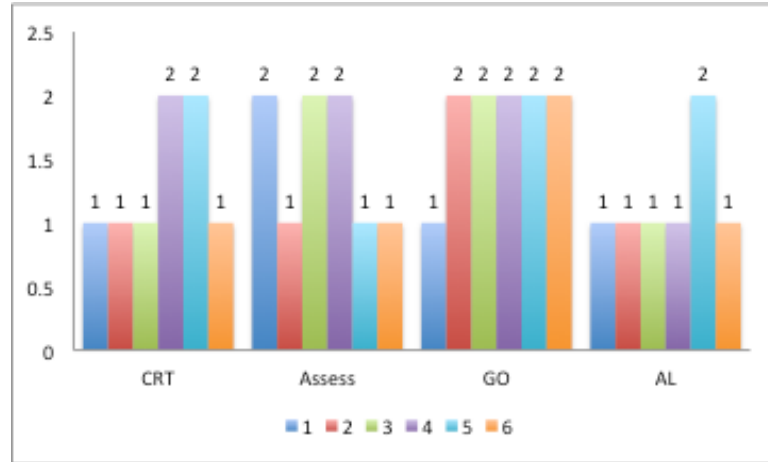
that pre-service teachers were interested in relating the topics to classroom management issues.

The final section of the chart is a visual representation of a quantitative check for understanding on all topics polled during the class session using the questions shown in Figure 18.



**Figure 18. Screenshot of Check for Understanding On All Topics**

During the assessment, students entered numerical values in the chat bar indicating comfort levels. Six students responded to the check for understanding, their chat responses indicated below. Students who entered a “1” indicated they were comfortable with the topics of Culturally Responsive teaching, Assessment, Graphic Organizers, and Active Learning. Pre-service teachers who entered a “2” indicated they were “somewhat comfortable” on the topics as one student who entered a “two” in the chat bar expressed the distinction between discussing topics and enacting them in practice. The chart suggests more students showing greater comfort with assessment and graphic organizers than culturally responsive teaching and active learning.



**Figure 19. Student Response of Final Comfort Level**

### Summary

In Chapter 5, I presented the results of the third iteration of implementing a video of a licensed, experienced teacher to pre-service teachers implementing active learning strategies and culturally responsive methods. I have presented data on video coding and the secondary pre-service teacher outcomes related to the CRRTI content included in the Introduction to Teaching course. In Chapter 6, I will revisit the research questions and reframe the study within the principles of design-based research and addressing practical, technical, and societal outputs.

## CHAPTER 6: DISCUSSION

Phase IV of design-based research is reflective; this stage of the research “implies outputs in the form of both knowledge and products” as it seeks to describe use of technology in socially responsible ways (Herrington, McKenney, Reeves, & Oliver, 2007, p. 7). Therefore, it is a reflective commentary on the process of inquiry by the researcher. The research questions generated by the literature review and iterations of practice are responded to with connections made to the practical, technical, and societal outputs embedded in the findings.

In this chapter I present four sets of findings that developed in this design-based research study. First, I present findings related to the use of video of culturally responsive teaching with pre-service teachers and how experience levels influenced what they observed. Then I report implications for practice on using the CORDTRA tool as both an analytical tool as well as a pedagogical method and the implications for coding, or video tagging. Finally, I present the societal implications for using video in teaching culturally responsive teaching, address occupational issues related to using video of teachers and make recommendations for future research.

In revisiting the research questions, it is helpful to briefly revisit the concepts, instrumentation, and analysis for contextualization. Research Question 1 was grounded in culturally responsive teaching and video in teacher education. Research Question 2 integrated ideas about levels of expertise in noticing practice, Lave and Wenger’s peripheral participation, situated learning and communities of practice, and Glenberg & Robertson’s ideas about envisioning content within artifacts.



**Table 9. Research Questions Aligned With Concepts/Theory**

Research Questions	Concepts/Theory	Instrument(s) Used	Data Collection	Data Analysis
1. How does video impact learning of culturally responsive methods for pre-service teachers?	Culturally Responsive Teaching (Kana'iaupuni, 2007; Savage et al., 2011; Schonleber, 2007; C. E. Sleeter, 2011; J. C. and P. D. M. [eds] Wright, 2002)  Learning to Notice (Sherin & Van Es, 2005; Van Es & Sherin, 2002), Indexical Hypothesis (A. M. Glenberg & Robertson, 1999)	Video Survey	Quantitative	Modified CORDTRA
2. How do novice and experienced teachers extract strategies from video?	Communities of Practice (Wenger, McDermott, & Snyder, 2002).  Situated Learning (J. S. Brown et al., 1989; Jean Lave & Wenger, 1991)  Schema Elaboration (Derry et al., 2010) and	Synchronous Session Recording  Pre/Post Survey	Qualitative  Qualitative Qualitative	CORDTRA (C.E. Hmelo-Silver, Liu, et al., 2009)

### **Summary of Findings: Video and Culturally Responsive Teaching**

This study sought to examine how video impacts pre-service teachers' ability to learn culturally responsive teaching methods and targeted strategies in an online course. By learning culturally responsive methods using text-based materials, and then reflecting on a video of a licensed teacher enacting the text-based strategies, I hypothesized that the pre-service teachers who participated in this study would have an opportunity to better identify and understand how to apply these complex methods and abstract strategies in their own teaching. There was also the likelihood that an increased awareness and feeling

of responsibility, interest, and involvement in seeing culturally responsive teaching and active-learning strategies enacted would be translated in their own practice. This would then lead to decrease in anxiety related to culturally relevant development of materials and perhaps an increase in the agency of pre-service teachers prior to entering classrooms. My analysis concluded that video of a local teacher enacting general strategies in a localized context allowed the pre-service teachers to see the strategies in practice and improved their perceived understanding of culturally responsive teaching, culturally congruent curriculum, and active learning strategies.

Research on developing multi-cultural awareness in pre-service teachers suggests that contextualization, instructional modeling, and cultural-based field experiences promote positive beliefs about diversity (Galloway & Ruebel, 2012). “Decomposition” of practice (Grossman, 2011) allows pre-service teachers to analyze dimensions of practice, and video aids in fostering cultural empathy (Lin & Bransford, 2010b). Learning to “notice” nuanced teaching strategies as they occur, such as culturally responsive teaching, is an entrance to understanding the complexities of teaching and learning, a critical step in developing as a teacher (Sherin & Van Es, 2005). Presenting practices like active learning and cultural responsiveness separately, can tend to place cultural responsiveness as an additive task, rather than an embedded method (Gay, 2010; Nieto & Bode, 2011). Text-based descriptions of teaching can have the same effect.

From a competencies standpoint, the use of video in modeling mastery and identification of skills provides the “view of the whole” as outlined by Lave (1991). For example, in previous iterations, a pre-service teacher commented after watching modeled lesson of culturally congruent curriculum:

*I better understand now how integrating culturally congruent curriculum into the classroom is a process. It's part of how the class works and it continues throughout the school year, not just a single class or lesson.*

Another student stated,

*Honestly, before we did this, I had no real way to plug in all the terms we had been learning! That is, I had input a bunch of terms but hadn't really understood how one implements them.*

This study indicated an increase in their comfort after viewing an example of localized practice of culturally congruent curriculum with local to global connections of the content standards. One student commented, *“I better understand how you can make your class culturally relevant by including Hawaiian values and culture.”* The video survey removed some of the mysteriousness and fear surrounding the topic by showing a practical example enacted in an occupational context.

As indicated from earlier stages of the design study, the CRRTI staff noted varying degrees of comfort and discomfort in discussing the implementation of culturally responsive strategies with practicing secondary teachers. For some secondary teachers, the phrase carried assumptions about cultural proficiencies, authenticity, or appropriation, particularly surrounding issues of localizing practice or integrating Native Hawaiian and local values; this resulted in apprehension and fear in some teachers. Although well-established practices like active learning, community building, and graphic organizers are commonly used to engage students, framing those practices within culturally responsiveness added another dimension and tended to frame cultural responsiveness as an additive task, rather than embedded in practice (Gay, 2010; Nieto & Bode, 2011).

Understandably, given their stage of development in teaching, pre-service teachers indicated apprehension as identified in Figure 17. Apprehension and discomfort in establishing a mutually trusting rapport with students is a common emotion, even among the most experienced teachers, as it requires interpersonal and disposition skills outside of the realm of content-driven boundaries. However, culturally responsive teaching is intimately related to disposition; and developing an appropriate disposition takes time and mentorship. Research clearly shows that teacher development can be strengthened with instructional support in the form of practice-based professional development (Boyd et al., 2008b), mentorship, and ad hoc dialogue naturally occurring in communities of practice.

Prior to the video surveys, the instructor modeled “tagging” of content using a short clip. This was done to model the Gradual Release of Responsibility teaching method with pre-service teachers, and to provide the scaffolding and explicit instructions necessary to perform the tagging task for students in the course. Use of text-based content followed by video survey of localized strategies by a licensed, experienced teacher did

assist pre-service teachers in identifying culturally responsive teaching, culturally congruent curriculum, and active learning strategies (see Figures 13-17). In addition, the CORDTRA discourse analysis (see Figure 17) indicated that pre-service teachers were able to recall information and respond to questions related to culturally responsive teaching without the aid of text or visual prompts.

Consistent with recent findings (Rich & Hannafin, 2009), video assisted pre-service teachers in shifting from teacher-centered to student-centered strategies as culturally congruent curriculum communicates local knowledge as an intellectual resource. For example, the following student excerpt illustrated the how video contributed to conceptual indexing of abstract concepts as they are enacted (Borghi, Glenberg, & Kaschak, 2004).

*The videos helped me realize how Culturally Responsive Teaching and Culturally Congruent Curriculum were incorporated into a classroom. Also, the effects that Culturally Congruent Curriculum can have on a classroom [sic], I can see how it would make the student feel more involved and relatable to their content.*

Although the concepts addressed in the text-based content were somewhat generalized, the application and examples of it were localized. Localizing interrelated and complex skills in teaching with pre-service teachers allows opportunities for legitimate peripheral entrance to localized teaching practices through observation, discourse, and critique; and is a step towards the development of their own autonomy, identity, and “agency” before they enter the classroom.

### **Summary of Findings: Teaching Experience and Observing**

This study sought to examine the influence teaching experience levels of pre-service teachers have on noticing teaching skills and competencies of a practicing teacher. The idea was that analyzing the video survey assignments according to experience levels would provide important information about emergency hires, amateur teaching, and teacher observations in general. I also thought that using video in identifying specific skills and strategies would assist pre-service teachers in understanding how specific methods and strategies are positioned within the broader continuum of educational theory.

Video of practicing public school teachers closes the gap between university-based teacher programs and public schools and initiates pre-service teachers to contextualized practice. In addition, video professionalizes the complex nature of teaching and serves to address the “anyone can teach” mentality pervasive in fast-track programs and current educational reform policies dismissive of theory and synchronistic strategies.

In previous iterations of the design, I had noted the distinctions between levels of noticing according to levels of experience were not absolute. While there were examples of novice pre-service teachers who demonstrated Level 2 analysis by identifying topics in ways that matched, or exceeded the experienced pre-service teachers recognition, this was not the trend noted in the three iterations of the treatment. This analysis concluded that experienced pre-service teachers noticed nuance strategies, classroom management, and made broader connections to educational theory, philosophy, and national standards more often than amateur pre-service teachers.

The results of this study correlate with previous work on the relationship between experience and noticing (Krull, Oras, & Sisask, 2007) in that experienced pre-service teachers noticed more details than novices (see Figures 13-16). This study situates noticing between levels of experience as an entryway to a community of practice and applies video of localized practice as an artifact decomposition of practice for pre-service teachers mitigate according to their background knowledge and experience levels. In applying schema-elaboration theory and indexical hypothesis, pre-service teachers recalled and identified theory to localized practice, and interacted with them on the video survey according to their own perceptions and levels of experience.

In a comparison of novice teacher video surveys, this study also suggests that the pre-service teachers’ identification of topic codes (strategies) increased with each post-text video treatment among novice observers (see Figures 14 & 16). Studies addressing the importance of noticing in teacher development reaffirms that noticing prioritizes what is important, noticing connects theory to practice, and noticing requires background knowledge about teaching (Sherin & Van Es, 2005).

In representations of practice, the art and science of teaching is central as emphasis is placed on the “work of practitioners” (Grossman, 2011). Representations of practice could include socially constructed representations (Lave & Wenger, 1991), formal and

informal dialogue with colleagues (Grzyb, 1981) or the formation of communities of practice (Wenger et al., 2002). However, in order for pre-service teachers to identify representations of practice, they must first develop a “perception of practice” (Stevens & Hall, 1998) which requires grounding in the language necessary for communicating and interpreting practice (Grossman, 2011). But “noticing” requires expertise (Sherin & Van Es, 2005), expertise in assisting and directing novices where to focus (Grossman, 2011), and expertise in highly skill-based practices take time to develop. Highly skilled practice requires professional collective autonomy (Furlong, 2005) in which newcomers are ideally provided with an initial and comprehensive “view of the whole” (Lave, 1991) and comprehensive goals are explicit along with opportunities for graduated practice (Bell, 2004). The use of video in modeling mastery and identification of skills provides the “view of the whole” as outlined by Lave (1991).

If having a background in teaching is a pre-requisite for noticing skills and methods that may go unnoticed by an amateur, or appear naturally, this has implications for outside observers in teacher assessment, educational reform, research and teacher training. This study also highlights teaching experience and expertise as a developed skill in “noticing” nuanced representations of practice. This calls into question the practice of the expertise levels of observers in research and assessment observing practice and developing teaching competencies. This also examines the use of technological rationalism by framing teachers as “technicians” implementing prescriptive checklists. As (Grzyb, 1981) states, this technological rationalism has a “decollectivizing” effect, and de-skills the profession by “flattening” the complexities involved in teacher education, professional knowledge, and developed expertise (Furlong, 2005). In addition, disconnecting mastery from context results in alienation, which affects job satisfaction and attrition. A Hawai'i public school teacher (outside of the study) illustrated this in a personal communication,

*...sadly and realistically, NCLB/RTTT keeps driving out good teachers (since they don't want to perpetuate a bad system via damage control) and more and more the ones that stay reflect those - in survival mode...not out of revolutionary pedagogy, but rather reactionary social psychological box-checking (going thru the bureaucratic motions) out of mandate exhaustion. Thus you can see why the students are as*

*alienated by their studies, as the teacher is to their social historical realities...this is where divide meets conquered.*

According to a study analyzing longitudinal data from the National Center for Education Statistics (NCES), the most comprehensive educational data source, the top reasons for teacher attrition are job dissatisfaction, teacher salaries, support from administration, student motivation and discipline, and a the lack of teacher input in decision-making (Ingersoll, 2001).

### **Design Study: Next Phase - Implications for Practice**

This study applied the CORDTRA analytic tool in several ways. Pre-service first teachers tagged, or coded content topics while viewing video clips, then the tags were converted to a CORDTRA scatterplot was a way of presenting visual representation of learning at different experience levels. The CORDTRA analysis tool provides rich visualization of data for analysis *of* teaching and learning, but what I discovered is that it could also be used as a tool *for* teaching and learning as formative assessment.

However, when considering a “fourth iteration” in this design-based research study, the CORDTRA tool could have provided a visual composition of practice that could then be decomposed by students of teaching. Much in the same way teachers review formative assessment results with the entire class for metacognitive purposes, analyzing comparative results with the entire class as part of a class-wide discussion would provide opportunities for seeing a “view of the whole” and assist pre-service teachers in explicitly developing a “grammar of practice.” The scatterplot would then function as a map of chronologically represented strategies that could be used for negotiating, “noticing,” and discussing nuanced application of methods.

The CORDTRA adaptation from a discourse analysis to the visual analysis of sequential video clips of a teacher enacting targeted methods is helpful as teacher educators look for visual representations of practice, interrelated competencies, and high-level skills. The visualization provides opportunities to view the fluid and adaptive nature of practice. For example, when applied to a teacher enacting the Gradual Release of Responsibility model, the tool provides a nice visual representation of scaffolded instruction at each transition of the lesson. Including the CORDTRA tool as another

teaching method positions the discourse of practice as central, and fosters an environment where teacher educators and pre-service teachers could mitigate compositions of practice.

From a situated learning and community of practice point of view, in iteration 1 the video artifact opened up dialogue between pre-service teachers and a practicing teacher around targeted topics, in which the teacher educator facilitated the dialogue. Dialogue was facilitated for several reasons. Because some of the pre-service teachers comments could be taken as a judgment of practice, and likewise with the practicing teacher, I mediated the reciprocal dialogue by asking the pre-service teachers and practicing teachers to write their comments. The practicing teacher was interested in pre-service teacher comments and indicated professional investment in being responsive to their questions, even if they sounded judgmental, because the practicing teacher had the professional maturity and disposition to understand their level of development, and was also open to critique. The video personalized the practicing teacher to pre-service teachers and their questions were framed mainly around classroom management and noticing redirection of students in a direct way. The practicing teacher shared internal thought processes, provided guidance and practical advice, and responded to critique non-defensively after reading their comments, which also included praise and questions.

This study suggests that mutually beneficial informal and mediated dialogue between pre-service teachers and practicing teachers could localize and scaffold competencies, before the formal relationship of mentor/student teacher is established. As previously noted, extracting strategies from localized video of a practicing teacher is more meaningful if the teacher is involved in the dialogue surrounding the clip. In iteration 1, the licensed teacher provided additional guidance and information to the pre-service teachers not evident in the clip. In a sense, the exchange was ad hoc, a foundational principle in communities of practice and informal working groups. Again, practicing teachers do engage with pre-service teachers during the formalized phase of student teaching. However, the student teaching/mentor teacher/university coordinator relationship is more structured, and tends to be filtered by management, as in some programs practicing teachers can only be mentor teachers upon recommendation from administration. Creating informal decompositions of practice, mediated by teacher



educators provides rich opportunities for unfiltered conversations about practice, and the real-world occupational conditions of practicing teachers.

This study also suggests that focused observations, rather than generalized observations of best practices, reinforced specific text-based concepts and theories. The artifact served as a conduit for placing pre-service teachers in local classrooms prior to student teaching practicum, and exposed them to the realities of the immediacy of teaching, as well as the simultaneous demonstration of interrelated concepts, administrative tasks, and dispositions necessary to manage classrooms.

### **New Insights into Using Video in Teacher Education**

Video serves multiple purposes in teacher education (Technology, 2008) and has been shown to be complimentary to field-based practice and the developing self-efficacy of pre-service teachers by deepening their understandings and application of teaching concepts (Romano et al., 2012). Video could be used to model scripted teaching, or it could be used so pre-service teachers can construct learning on their own. Video can be used to showcase best practices in a produced environment, or it can be unproduced and unfiltered snapshot of the realities teaching developing and changing learners. But using video of teaching with an informed audience, in a specific context, for a specific purpose validates the synchronistic complexities of teaching, or what is referred to as developed perception of discipline (Grossman, 2011).

However, video only functions as a “snapshot” artifact of practice, and repositioning the video artifact from a formative tool used for development of practice to a summative tool for contract renewal decontextualizes and removes the artifact from the “agency” that produced it. Mastery, skills and qualifications for observing embedded strategies within the instructional practices of other teachers is correlated with teacher experience. Lave and Wenger identify this as “agents within a mutually constituted agency” (1991).

### **Practical Outputs: Using CORDTRA for Analysis and Method**

Video has been shown to be complimentary to field-based practice by deepening pre-service teachers’ understandings and application of teaching concepts (Romano et al., 2012). By viewing the video artifact pre-service teachers can develop a metacognitive

awareness of the complexities and immediacy of teaching (Bacevich, 2010; Kersting et al., 2009; P. J. Rich & Hannafin, 2008; Sherin & van Es, 2005). Video was presented in this study as a pragmatic solution and pre-cursor in developing a “grammar of practice” (Grossman, 2011) during the pre-student teaching phase of teacher development.

The video artifact, video survey, and modified CORDTRA analysis served as a tool for both micro and macro level analysis for pre-service teachers and an assessment tool of differentiated instruction for the teacher educator. The tool was applied to a course discourse, but it also represented a discourse of practice. The coding schema followed content-based structural coding in which students tagged course topics as the competencies were enacted in the video-survey of a licensed teacher. Using the CORDTRA scatterplot could also have been used as content for viewing a discourse of practice and presented back to the pre-service teachers and used as a content-based discussion topic in the Introduction to Teaching course, or during student teaching practicums. In other words, the research analysis tool could have been used as course content by placing practice as central, as a videotext or mirror of practice. Although using video in teacher education is nothing new; this study suggests that targeting complex methods, such as culturally responsive teaching within a localized context, and structuring focused observations around each clip, scaffolds the content, allow pre-service teachers’ peripheral exposure to the classroom.

### **Technical Output: Noticing in Real-World Video**

Video allows pre-service teachers to “decompose” and “notice” what is noteworthy, or connect practice to broader principles. A video record of practice is a video being recorded as teaching occurs. In other words, it is not produced, staged, or scripted, but occurs naturally. In a pilot study (Dillon, 2010) pre-service teachers analyzed video recordings of their own teaching. And teacher educators noted a significant change in the level of engagement and discourse in pre-service teachers, as well as more developed sense of ownership, efficacy, or “agency. In addition, a recent analysis of video annotation tools (Rich & Hannafin, 2008) illustrated that video annotation tools assist teachers in reflective practice and illustrate the need for analytical frameworks for structuring reflection.

The adapted CORDTRA analysis scatterplot clearly showed differences in noticing eighteen targeted strategies and complex methods between novice and experienced pre-service teachers. In order for teacher educators to respond with targeted instruction, developing nuanced levels of analysis and layers of “tagging” targeted strategies or theoretical underpinnings could be further developed. Further, using a CORDTRA analysis as representation of a short activity during a synchronous session identified participation aligned with specific topics. The tool has the ability to tease out sub-strands of dialogue and present targeted discourse in a visual way. The visual snapshot of discourse and practice functions similarly to video, but frames it as data-points, which are useful in identifying levels of engagement around targeted topics.

### **Societal Output: Video in Mitigating Complex Understandings**

Hawai'i is home to one of the largest populations of indigenous students attending public schools. Native Hawaiian students comprise the largest ethnic group in the State's K-12 schools at 28% (Hawai'i Department of Education, Office of Human Resources/Personnel Management Branch, State of Hawai'i, 2010, Hawai'i Department of Education, 2012, “Hawai'i DOE Employment Report,” n.d., Office of Human Resources/Personnel Management Branch, 2009) Racial disproportionality in special education is a long-standing problem (Artiles et al., 2010). There is disproportional representation of Native Hawaiian students in special education (Kana'iaupuni, Malone, & Ishibashi, 2005; Naya, 2007).

Culturally responsive teaching (CRT) has shown to be an effective “pre-referral” strategy as an instructional intervention for struggling students (Hynds et al., 2011; Klingner & Edwards, 2006; Ogata, 2006; Savage et al., 2011). There is evidence that place-based teaching improves student learning (Kana'iaupuni et al., 2010).

Induction programs for first year teachers emphasizing culturally responsive teaching methods suggested an increase in the retention rate of teachers (Kahumoku & Kekahio, 2010). However, the influence of accelerated teacher prep programs could also influence the breadth and depth of pre-service teachers' orientation to and understanding of place. Communicating complex competencies, such as culturally responsive teaching and culturally congruent curriculum to pre-service teachers, some of whom are already teaching and others with little or no exposure to the classroom, can be a challenging task

for teacher educators. The implication here is that lack of preparation places both pre-service teachers and students at risk of cultural misunderstandings, which can have an affect on student achievement.

It is important to reiterate that case studies, such as those in this study, do not lead to generalizable outcomes but do provide suggestions for future practice. However, this study does suggest that locally produced video surveys serves as a contextualized artifact for pre-service teachers to mitigate complex competencies in a socially constructed way.

### **Recommendations for Future Research**

We are continually struggling to present models that define the competencies of what teaching is for political and economic purposes; scholars and teachers design the TPACK model. The Technological Pedagogical Content Knowledge (Figure 3) is a collaboratively developed framework of scholars and researchers seeking to conceptualize and clarify the competencies that evolve from the intersection between pedagogy and technology. The state standard board refers to Hawai'i Teacher Standards in a localized effort to explicitly articulate competencies. While labor theory can carry implications of political and economic partisanship, Furlong's application of labor theory to teacher education in the UK reported on a reduction of professional autonomy in the transition from the "individual professional formation" of teachers to the application of state controls over the definition of good teaching, learning, and assessment. In addition, viewing the integration of technology in education from the theoretical lens of labor theory is useful in identifying real world philosophical, economic, and occupational limitations and implications the innovation will have on teacher educators, teachers and students.

From a labor perspective, there is a critical need for teacher educators, teachers, and pre-service teachers to identify and articulate the occupational realities when technology and competencies intersect, while understanding and communicating how technological resources and strategies can engage students and enhance student learning (Moore & Readence, 1984). We can see the TPACK model as one framework for expressing a contemporary grammar of practice and another coding index useful in analyzing composition of practice in video.

Recent research shows the need for explicitly modeling pedagogical and subject-based competencies when using TPACK framework in teacher education (Koh & Divaharan, 2011). In addition, the CORDTRA tool provides an effective tool for visualizing indexed topics enacted simultaneously during a video of a lesson. While the TPACK model positions pedagogy and technology as equal, the CORDTRA analysis of a teacher integrating technology could provide a techno-pedagogical visualization for decomposing practice, useful in developing “disciplined perceptions” as well as articulating the occupational skills and conditions of working teachers.

## **Conclusion**

In his beautifully written piece, Mike Rose ( 2001) described the complexities of waitressing framed in cognitive, social, and emotional terms. His conceptual framework drew from cognitive science, practice theory, activity theory, research in psychology and sociology. He described how workers’ skills, and intelligence could be judged according to how their work is socially perceived. He states,

Skill, like intelligence, is a socially constructed notion, and one important strand of labor history and the social history of technology deals with the ways various trades and occupations have attempted to define for political and economic purposes the abilities it takes to do their work (p. 21).

A visual articulation of the occupational realities of teaching from an insiders perspective is needed in national discourse, informed observations of video documentation is one way of doing this. Video analysis is one-way teachers can clearly define their work. The literature review in this study explored research on video and connected video analysis as “compositions of practice” (Grossman, 2011) for pre-service teachers, and the application of labor theory (Furlong, 2005; Grzyb, 1981) to video analysis (Derry, 1996; Hmelo-Silver, Liu, et al., 2009; Van Es & Sherin, 2002). The questions directed by the literature review were related to the use of video in communicating culturally responsive teaching and active learning at various levels of experience.

Themes in this work emerged from discourse, data and relationships between pre-service teachers, teacher educators, researchers, students and practicing teachers, which was time challenging, but extremely rewarding. As teacher educators are tasked with

preparing pre-service teachers to be content experts in their field and fluent in methods in a contextually based way, localized video analysis is one way to scaffold content, confront bias, and provide a low-risk environment for pre-service teachers to reflectively mitigate content, position practice within theory, and analyze their own comfort levels, before they enter the classroom. Captioning, coding, or tagging is one way pre-service teachers can apply segmented content by identifying the synergistic complexities which commonly take place when a teacher introduces a lesson, forms groups, or manages a classroom (Alger, 2009; Bacevich, 2010; Brophy, 2004; Derry et al., 2006; Santagata, 2009; Thomas, 2008).

The purpose of this study was to examine how video could assist teachers pre-service teachers notice the complexities of teaching. Design based research provided the framework to address broader implications, and position the iterations and research questions in theory. Influenced by theories of learning and labor, and empirical work on the importance of noticing, this study may have further complicated using video in observations, but hopefully also provides some practical considerations on methodology, and ethical considerations for its use outside of communities of practice.

## APPENDIX A: CRRTI IRB

### UNIVERSITY OF HAWAII

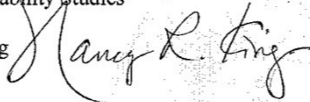
Committee on Human Studies

#### MEMORANDUM

November 7, 2011

TO: Robert Stodden, Ph.D.  
Principal Investigator  
Center on Disability Studies

FROM: Nancy R. King  
Director



SUBJECT: CHS #16674- "Culturally Responsive Response to Intervention Strategies"

Under an expedited review procedure, the research project identified above was approved for one year on November 7, 2011 by the University of Hawaii (UH) Committee on Human Studies (CHS). The application qualified for expedited review under CFR 46.110 and 21 CFR 56.110, Category (8c).

This memorandum is your record of CHS approval of this study. Please maintain it with your study records.

CHS approval for this project will expire on November 6, 2012. If you expect your project to continue beyond this date, you must submit an application for renewal of this CHS approval. CHS approval must be maintained for the entire term of your project.

If, during the course of your project, you intend to make changes to this study, you must obtain CHS approval prior to implementing them. Unanticipated problems that are likely to affect study participants must be promptly reported to the CHS.

You are required to maintain complete records pertaining to the use of humans as participants in your research. This includes all information or materials conveyed to and received from participants as well as signed consent forms, data, analyses, and results. These records must be maintained for at least three years following project completion or termination, and they are subject to inspection and review by CHS and other authorized agencies.

Please notify this office when your project is complete. Upon notification, we will close our files pertaining to your project. Reactivation of CHS approval will require a new CHS application.

Please contact this office if you have any questions or require assistance. We appreciate your cooperation, and wish you success with your research.

1960 East-West Road, Biomedical B104, Honolulu, Hawaii 96822-2303  
Telephone: (808) 956-5007, Facsimile: (808) 956-8683, Website: [www.hawaii.edu/irb](http://www.hawaii.edu/irb)

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## APPENDIX B: RESEARCH IRB



UNIVERSITY  
of HAWAII  
MĀNOA

Office of Research Compliance  
Human Studies Program

May 16, 2012

TO: Leslie Lopez  
Principal Investigator  
Office of Faculty Support and Development

FROM: Ching Yuan Hu, Ph.D.  
Interim Director  
Human Studies Program  
Office of Research Compliance  
University of Hawaii, Manoa

A handwritten signature in black ink, appearing to read "Ching Yuan Hu".

Re: CHS #20120- "Developing Culturally Congruent Curriculum for Teachers: Targeting Evidence-Based Strategies and Culturally Responsive Methods in an Online Distance Teacher Education Course in Hawaii"

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

On May 16, 2012, the University of Hawaii'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 45 CFR 46 (1).

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](mailto: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](mailto:uhirb@hawaii.edu). We wish you success in carrying out your research project.

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

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## APPENDIX C: PDERI COURSE

### Course Details

<b>Course #:</b>	AR152724
<b>Course Title:</b>	Culturally Responsive Response to Intervention
<b>Course Description:</b>	This course is being offered to middle school and high school teachers participating in the Culturally Responsive Response to Intervention (RTI) Project offered by the Center on Disability Studies (CDS) - College of Education at University of Hawai'i Manoa. The RTI is a national initiative that integrates evidence-based interventions within a three-tier framework. With the RTI process, teachers will have relevant data to appropriately identify students who may be at-risk for school failure.
<b>Disclaimer:</b>	
<b>Sponsoring Group:</b>	External Provider
<b>Number of Credits</b>	User Charter School
<b>(Hours for Non-Credit Courses):</b>	3.0 PD Credit \$0.00 \$0.00
	Allow Audit: No
	<a href="#">Show/Hide Fees</a>
	<b>Credit Type Fee Name User Charter School</b>
<b>Flat Fees:</b>	PD Credit: No Fees Applied
	All: No Fees Applied
<b>Course Type:</b>	Online
<b>Course Survey:</b>	Session Evaluation
<b>Category:</b>	Action Research
<b>Course Provider:</b>	Department Sponsored
<b>Prerequisites:</b>	This course is intended for participating middle and high school teachers in the Culturally Responsive Response to Intervention Project.
<b>Notes:</b>	Teachers enrolled in this course will learn how to integrate Hawaiian Cultural values using evidence-based strategies across within the RTI framework.
<b>Allow participant to enroll in multiple sections of same course:</b>	No
<b>Availability:</b>	
<b>Required Demographics:</b>	- No Demographics Set -
<b>Recommended Demographics:</b>	- No Demographics Set -
<b>Restricted Demographics:</b>	- No Demographics Set -

### Sections

	Status	Section	Section #	Instructor(s)	Date	Seats
1.	✓	Active/Cooperative Learning	203318	Leslie Lopez-Medina	January 05, 2010 - June 04, 2010	60
2.	✓	Fall 2010	204398	Leslie Lopez-Medina	August 21, 2010 - January 07, 2011	25
3.	✓	Spring 2011	205204	Leslie Lopez-Medina	January 03, 2011 - June 28, 2011	20

### Additional Information

Syllabus

<b>Specific Objectives:</b>	Teachers enrolled in this course will learn how to integrate Hawaiian Cultural values using evidence-based strategies across within the RTI framework. Additionally, teachers will learn how to use progress monitoring to determine how and when to supplement the core instruction to support students in achieving academic success. By the end of this course, each participant will: 1. Learn about active/cooperative learning that will improve quality teaching and learning; 2. Implement active/cooperative learning within Tier 1 of the RTI process within his/her classrooms; 3. Integrate Native Hawaiian values when using both evidence-based strategies within the RTI process; 4. Collect and analyze data to identify strengths and needs; and 5. Demonstrate the ability to effectively use student data to enhance and supplement core curriculum.
<b>Activities to Achieve Objectives:</b>	Section I: RTI - A Basic Overview Read: H.Duffy. Meeting the needs of significantly struggling learners in high school: A look at approaches to tiered intervention. American Institutes for Research AND D. Fuchs, & L. Fuchs (2006). Introduction to response to intervention: What, why, and how valid is it? Write a reflection on how RTI is linked to quality teaching and learning Section II: Active Learning Read: N.Frey, D.Fisher, & S. Everlove. (2009) Productive Group Work: How to engage students, build teamwork, and promote understanding. ASCD: VA. Complete chapter review analysis (handout) Section III: RTI Tier 1 Submit evidence of implementing active/cooperative learning at Tier 1 in a lesson Plan Format Submit observation notes with reflection Provide evidence of participation in a minimum of one technical assistance session and submit a written reflection Read: Section 3: A Tiered Service-Delivery Model, August 2006, National research Center on Learning Disabilities, pages 3.0 ? 3.6 Write a reflection on why using valid and reliable data is important and a key component of quality teaching and learning Provide evidence of using screening tools within your classroom Section IV: RTI Tier 2 Submit evidence of implementing active/cooperative learning at Tier 2 (intensity, frequency, and clarity of roles) in a lesson plan format. Submit observation notes Provide evidence of participation in a minimum of one technical assistance session and submit a written reflection Read: Section 3: A Tiered Service-Delivery Model, August 2006, National research Center on Learning Disabilities, pages 3.13 ? 3.17 Write a reflection on the critical features of Tier 2 and Provide evidence of using progress monitoring to inform your instruction Section V: Native Hawaiian Values and Education Read: V., Ogata, P. Sheehy, M.J., Noonan. (2006). Rural Native Hawaiian Perspectives on Special Education. Rural Special Education Quarterly 25(1) pp. 7-15. Write a reflection on how culturally responsive teaching may increase academic achievement for Native Hawaiian students. Section VII: Student Work Samples Submit student work samples that support student involvement in active /cooperative learning strategies that were used in Tier 1 and 2. Submit examples of how the Native Hawaiian values were infused into various active/cooperative learning strategies. Section VII: Professional Development Submit evidence of participation in all three professional development sessions. Write a reflection on learning/understanding from each session.
<b>Content of Learning Portfolio:</b>	The portfolio will include the following artifact: student products, readings, pictures, observation and technical assistance forms. For each artifact submitted, the participant will include a caption, explanation and reflection.
<b>Other Instructions:</b>	Participating teachers will be expected to assist CDS staff with disseminating and collecting parent/student consent forms. Participating teachers must sign a consent form and return to CDS staff.
<b>Course Requirements:</b> (Prerequisite skills, text reading) Prior approval from teacher's principal or supervising administrator as needed to use this course reclassification (Form 201a)	his course is intended for participating middle and high school teachers in the Culturally Responsive Response to Intervention Project. Participating teachers are expected to read, Productive Group Work: How to Engage Students, Build Teamwork, and Promote Understanding, (ISBN 978-1-4166-0883-7) and participate in on-line discussion. The book will be provided to all registered participants at no cost Journal articles will be provided and posted on the portal. Prior approval from teacher's principal or supervising administrator as needed to use this course reclassification (Form 201a)
<b>Fee Payment To:</b>	Not Applicable

#### Program Plan

#### Qualifications of Instructor(s):

Leslie Lopez is a licensed teacher and administrator and current PhD candidate who has been involved in teacher training at UH Manoa since 2004. Her educational leadership experiences include serving as the Dean of Student Development at the first privately funded Native American college preparatory school, with students from over 40 Indigenous Nations. She also has rural leadership experience as a public school Principal of two village schools in northern New Mexico. In Hawaii, she taught at Kamehameha Schools and developed and taught the Introduction to Teaching course for the UH Manoa Institute of Teacher Education both online outer island students and face to face platforms. In addition, she taught Multicultural Education for several years and developed the first online platform for the secondary program. Her interests are Teacher Training, Indigenous Education, Media Literacy, ESL/ELL and TESOL Strategies, Culturally Responsive Practices, Indigenous Appropriation of Technology, Place Based Education, and Incarcerated Youth. She has been recognized by the College of Education for technology integration in teaching. She is currently a Specialist with the Center on Disability Studies working in teacher training on the Culturally Responsive Response to Intervention project. The grant funded by the US Dept of Education addresses the disproportionate number of Native Hawaiian students in Special Education and provides reflective, research based, and tiered intervention strategies for teachers. Jeanne Bauwens, PhD. Dr. Bauwens has extensive experience with tiered reading, writing, and math strategies. She has numerous years of experience incorporating universal design approaches as well as teaching diverse special education learners at the high school level. In addition, she possesses in-depth and extensive curriculum content expertise in the areas of reading, writing, and math, as well as special education teaching experience.

**Purpose of the Activity:** Teachers enrolled in this course will learn how to integrate Hawaiian Cultural values using evidence-based strategies across within the RTI framework. Additionally, teachers will learn how to use progress monitoring to determine how and when to supplement the core instruction to support students in achieving academic success

**Budget Plan Details:** Not Applicable

**Additional Information:** None

#### Elements of Quality PD

##### Focus on the Hawaii Content and Performance Standards (HCPS):

- Identifies HCPS focus.
  - Describes how the HCPS will broaden/expand teachers knowledge of the content they teach.
- This course requires participants to focus on incorporating HCPS III content area standards into effective lessons utilizing "best practices." Teachers will also share various tools used to assess their standards-based lessons for wider implementation.

##### Focus on the School's Strategic Plan:

- Professional Development activity is an integral part of school-wide goals.
  - School Strategic Plan supports the need for the professional development course or activity.
- Participants will learn to prepare effective lessons aligned to standards, and incorporate active/cooperative learning into their teaching to help students make connections, deliver comprehensible lessons, provide interaction and application opportunities, use maximum time for effective delivery, and assess student progress. The CDS staff works collaboratively with WestEd and the Castle and King administrators to ensure all PD activities are aligned with and integral part of the school-wide goals.

**Focus on Student Learning, Results-Oriented:** The ultimate goal of this PD course is to impact student learning outcomes by implementing active/cooperative learning within the RTI framework. As part of a PD portfolio, participants will



- Demonstrates impact on student action and accomplishment.
- Develops general learning outcomes.
- Generates quality student performance and products.

submit a variety of artifacts that demonstrate correct implementation, student progress, and overall impact of active/cooperative learning. The course will require teachers to link their instruction to all General Learner Outcomes but with a particular focus on GLOs for Community Contributor (2), Quality Producer (4), Effective Communicator (5), and Effective and Ethical User of Technology (6). Participants will review their students' work on a weekly basis to determine the quality of instruction, revising and re-teaching lessons as necessary. Participants will also submit samples of their students' work as part of their portfolios.

#### **Appropriate Content:**

- Incorporates content knowledge and specific research valid
- Links new to prior knowledge.
- Delivers content appropriate for participants.

Active/cooperative learning is the most highly researched area and is proven to be highly effective. It can be used across grade level, subject areas, and appropriate for all learning styles.

Active/cooperative learning is an evidence-based strategy and when implemented correctly, may improve achievement for all students. Additionally, RTI is a national initiative that integrates assessment and intervention within a multi-level prevention system to maximize student achievement and reduce referral to special education programs and behavior problems. With the RTI process, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions, adjust the intensity and nature of those interventions depending on students' responsiveness, and identify students with learning disabilities.

#### **On-going and Sustained:**

- Is long-range and supported over time.
- Allows participants to experiment/reflect on their practices.

During the course, participants will complete various assignments and professional development sessions. While implementing active/cooperative learning in their own classrooms, teachers will be supported with on-going technical assistance by the CDS staff. Even after completing the course, participants may access the CDS team for consultation and support for school-wide implementation during the entire federal grant period. Participants will share their lessons and reflections through their participation in the professional development sessions and written reflections.

#### **Active Engagement:**

- Models what needs to occur in the classroom.
- Is inquiry-based, varied and engaging
- Models practice by facilitator/instructor.

After each of the three professional development sessions, CDS staff will provide technical assistance to all participants. The first technical assistance will include modeling, guided practice, and feedback. The second technical assistance, participants will be allowed to choose from a menu of options technical assistance that meets their individual needs.

#### **Collegial:**

- Brings teams together.
- Requires participants to design and implement activities that have direct application to work.

Building a strong network of fellow teachers will be encouraged throughout the course. Participants will get to know each other via the three face-to-face professional development sessions. Participants will learn as well as plan and implement lessons using active/cooperative activities in their classrooms. Participants will interact with instructors who have experience implementing active/cooperative learning.

#### **Job-Embedded:**

- Is an integral part of the school.
- Represents mutual obligation and requires planning and reflecting on practice.

Upon completion of this course, participants will become experts in how to implement active/cooperative learning within the RTI framework and able to teach others how to effectively use active/cooperative learning to promote academic success for all students. Participants may also become the lead or the go-to person for the area complex.

#### **Systemic Perspective:**

- Incorporates stakeholder group(s).

Participants will have an opportunity to plan with school-level experiences on effective active/cooperative learning activities, and exchange lesson implementation ideas. All participants are expected to share course work and experiences with their colleagues at faculty meetings or other staff development opportunities.

- Creates responsibilities in the change process.

**Client-Focused and Adaptive:**

- Based on interest/needs of participants, school, and change over time.
  - Based on formal analysis of needs.
- Participants will become familiar with active/cooperative learning, evidence-based activities that may assist teachers with improving student achievement. Additionally, participants will self-assess and learn how use data to inform their teaching and determine each student's strengths and needs.

**Incorporates Reflection:**

- Has time for participants to analyze and reflect.
  - Challenges, enhances and connects with practice.
  - Promotes continuous improvement.
- Participants will have time to analyze and reflect on their learning through the 3 face-to-face PD sessions and written reflections. Required readings and assignments will be used to challenge participating teachers to improve their teaching practices.

**Requires Learning Portfolio From Each Participant:**


- Mutual agreement on the content of the portfolio.
  - Portfolio is a reflection and evidence of new learnings.
  - Incorporates Essential Features of a Learning Results Portfolio.
- Each participant is required to complete a portfolio compiling all the information covered in the course. The portfolio will include the following artifact: student products, readings, pictures, observation and technical assistance forms. For each artifact submitted, the participant will include a caption, explanation and reflection.

**Sponsor Assures Quality PD Activity:**

- PD application accurately reflects course content and implementation.
  - Instructor delivers course content as specified in the application.
  - Instructor sponsor ensures quality portfolios reviews all portfolios and requests revisions as necessary.
  - Application documents include timelines, including how and when post-events activities will be completed.
- CDS assures the following: 1) This PD application accurately reflects course content and implementation. 2) The instructor will deliver course content as specified in the application. 3) The instructor/sponsor will ensure quality portfolios, and will review all portfolios and request revisions as necessary. 4) The application documents include timelines, including how and when post-event activities will be completed.

## APPENDIX D: SCHOOL VIDEO RELEASE

Form SP/VR

	<b>State of Hawaii Department of Education</b>	<b>Student Publication/Video Release Form</b>								
<p><i>This form combines and replaces the previous Student Permission to Videotape/Record and Reproduce Work Forms. By signing this form, you agree to the terms and conditions of this agreement. Please complete the following:</i></p> <ol style="list-style-type: none"> <li>1. <i>Print all of the following legibly. Use blue or black ink.</i></li> <li>2. <i>Check the boxes below.</i></li> <li>3. <i>Sign this form.</i></li> <li>4. <i>Distribute as instructed.</i></li> </ol> <p>I hereby give my permission to the Hawaii State Department of Education (HIDOE) to use my child's work, videotape, or otherwise record my child's name, voice, and/or likeness in its publications. I understand that examples of my child's work and/or these recordings of my child will be used exclusively for non-commercial, educational purposes, which may include, <u>but not limited to</u>, distribution by print, internet, or digital media and open-circuit broadcast, closed-circuit, and/or cable television transmission within or outside of the State of Hawaii for the duration of the media.</p> <p>I understand that there will be no financial or other remuneration for use of my child's work and/or recordings, either for initial or subsequent transmission or playback, and I hereby release the HIDOE from any liability resulting from or connected with the publication of such work. Permission is granted for the duration of the media. I further understand that my permission or consent may be rescinded; however, in order for the revocation of permission/consent to be effective, it must be made in writing and said revocation will not affect the publication or work that has already been produced.</p> <p>The HIDOE may use my child's name, likeness, work, and/or bibliographical identification for publicizing and promoting the use of these recordings.</p> <p>The HIDOE has permission to videotape or otherwise record my child's name, voice, and/or likeness for educational purposes.  <input type="checkbox"/> yes    <input type="checkbox"/> no         </p> <p>The HIDOE has permission to use my child's work for educational purposes.  <input type="checkbox"/> yes    <input type="checkbox"/> no         </p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Student's Name (Please Print)</td> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Parent/Guardian Name (Please Print)</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">School</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Signature</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Home Address</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Date</td> </tr> <tr> <td colspan="2" style="border-bottom: 1px solid black; padding-bottom: 5px;">City, State, Zip Code</td> </tr> </table>			Student's Name (Please Print)	Parent/Guardian Name (Please Print)	School	Signature	Home Address	Date	City, State, Zip Code	
Student's Name (Please Print)	Parent/Guardian Name (Please Print)									
School	Signature									
Home Address	Date									
City, State, Zip Code										

*Distribution: White: School*

*Canary: Parent*

Student Publication/Video Release Form

RS 07-0116

# APPENDIX E: COLLABORATIVE INSTITUTIONAL TRAINING MODULES (CITI) ON BELMONT REPORT AND CITI INTRODUCTION

Completion Report

<https://www.citiprogram.org/members/learnersII/crbystage.asp?...>

## CITI Collaborative Institutional Training Initiative

**Students conducting no more than minimal risk research Curriculum  
Completion Report  
Printed on 2/27/2013**

**Learner:** Leslie Lopez (username: lalopez)

**Institution:** University of Hawaii

**Contact Information**

[REDACTED]  
[REDACTED]  
Department: Center on Disability Studies  
[REDACTED]  
[REDACTED]

**Students - Class projects:** This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

### Stage 1. Basic Course Passed on 03/12/12 (Ref # 7626740)

Required Modules	Date Completed	Score
Belmont Report and CITI Course Introduction	03/12/12	3/3 (100%)
Students in Research	03/12/12	9/10 (90%)

**For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.**

Paul Braunschweiger Ph.D.  
Professor, University of Miami  
Director Office of Research Education  
CITI Course Coordinator

[Return](#)

## APPENDIX F: PRESURVEY

4/1/13

Culturally Responsive Response to Intervention Project

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# Culturally Responsive Response to Intervention Project

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Hi students. As part of my dissertation work, I am collecting data related to online instruction and teacher education. This document explains a little about the research, and then there is a short survey at the end.

Thanks.

\* Required

### About the Project

This project will be assessing the difference between text-based and video based content in an online pre-service teacher online education course. Participant assessment data will be used to determine the effectiveness of online and text-based curriculum in an online course.

### Participation Information

For this project, all enrolled students will receive the same content on evidence-based teaching strategies (graphic organizer and active learning) and implement the strategies learned in your classes. The PD will emphasize and align Native Hawaiian cultural values and concepts with the evidence-based strategies. Regardless of participation, all students in this course will receive text-based instruction and video-based modeling targeted, evidence base strategies.

### Potential Risks

You may feel discomfort in sharing your opinions about your own teaching practices and culture in a survey as well as in class discussions. All data will be kept in a locked file cabinet and only the researcher on this project will have access to information. Information obtained will be destroyed at the end of the three-year period. Students may feel that non-participation could affect their grade or fear of retaliation. The research materials implemented in the course content meet all



Select your teaching experience level. \*

- I have never taught.
- I have some teaching experience teaching in a secondary setting, but have not managed my own class.
- I have taught secondary students, and have managed my own class.

## Directions.

Please select the number that best describes your knowledge, skills, and application of the active/cooperative learning competencies.

5 : Strongly Agree 4 : Agree 3 : Neither Agree or Disagree 2 : Disagree 1: Strongly Disagree

1. I can describe specific ways I can explicitly infuse Native Hawaiian values into my teaching (specifically kuleana, kōkua, and pili). \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

2. I can explain how the social context of a school community has instructional implications. \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

3. I can explain how to facilitate learning. \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

4. I can describe specific ways to integrate culturally congruent curriculum within my course content. \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

5. I can explain why graphic organizers are culturally responsive. \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

6. I can identify the key elements of a successful group activity. \*

1 2 3 4 5

Strongly Disagree

Strongly Agree

7. I can explain how to design group work so each student is individually accountable. \*

1 2 3 4 5

## APPENDIX G: POST-SURVEY

4/1/13

Culturally Responsive Post Survey

### Culturally Responsive Post Survey

Please click on the number that best describes each statement regarding the video clips you viewed in this class.

5 : Strongly Agree

4 : Agree

3 : Neither Agree or Disagree

2 : Disagree

1: Strongly Disagree

\* Required

**The video clips helped me to understand the text in the teacher handbook. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video clips were enjoyable to watch. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video helped me to understand how to integrate culturally congruent curriculum. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video helped me understand how to use graphic organizers. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video helped me understand how to integrate Native Hawaiian values. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video helped me understand active learning. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**The video clips helped me to better understand the context of teaching in a Hawai'i classroom. \***

<https://docs.google.com/spreadsheets/viewform?formkey=dDBRd3l4VUlkbkY3b3Fia1YzRWp1a1E6MQ#gid=0>

1/4

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

Please provide any comments about the differences you noted in your understanding of the topics after you watched the video clips. \*

1. I can describe specific ways I can explicitly infuse Native Hawaiian values into my teaching (specifically kuleana, kōkua, and pili). \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

I can explain how the social context of a school community has instructional implications. \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

3. I can explain how to facilitate learning. \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

4. I can describe specific ways to integrate culturally congruent curriculum within my course content. \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

5. I can explain why graphic organizers are culturally responsive. \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

6. I can identify the key elements of a successful group activity. \*

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**7. I can explain how to design group work so each student is individually accountable. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**8. I can describe different ways to structure group work. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**9. I can describe what multiple pathways there are to assessing student learning. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**10. I can explain the benefits of having students be individually accountable, even though they work in groups. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**11. I can explain how to design group work so students are interdependent. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**12. I can design and implement multiple pathways to assess student learning. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**13. I can structure group activities using graphic organizers. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**14. I can develop group activities so students are interdependent. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

**15. I can design group activities so each student is accountable. \***

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

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## APPENDIX H: CONSENT

University of Hawai'i Manoa

*"Developing Culturally Congruent Curriculum for Teachers: Targeting evidence-based strategies and culturally responsive methods in an online distance teacher education course in Hawai'i"*

### Consent Form

#### About the Project

This project will be assessing the difference between text-based and video based content in an online pre-service teacher online education course. Participant assessment data will be used to determine the effectiveness of online and text-based curriculum in an online course.

#### Participation Information

For this project, all enrolled students will receive the same content on evidence-based teaching strategies (graphic organizer and active learning) and implement the strategies learned in your classes. The PD will emphasize and align Native Hawaiian cultural values and concepts with the evidence-based strategies. Regardless of participation, all students in this course will receive text-based instruction and video-based modeling targeted, evidence base strategies.

#### Potential Risks

You may feel discomfort in sharing you opinions about your own teaching practices and culture in a survey as well as in class discussions. All data will be kept in a locked file cabinet and only the researcher on this project will have access to information. Information obtained will be destroyed at the end of the three-year period. Students may feel that non-participation could affect their grade or fear of retaliation. The research materials implemented in the course content meet all secondary departmental standards within the College of Education. **Participation/non-participation will not affect students' grades in any way.**

#### Potential Benefits

The pre-service teachers will receive the same materials in evidence-based practices and culturally responsive teaching regardless of participation in this study. However, the assessment data collected in this project will be used to evaluate the effectiveness of text and video-based content.

#### Compensation

All students will receive the same instructional materials, PPT, and instruction regardless of participation.

#### Confidentiality

All information obtained during this study will remain confidential. On all study documents, your name will be replaced with an identification number and the only document containing both pieces of information will be contained in a password protected file accessible only by principal research staff. When the results of this data are presented, only aggregated data will be included.



University of Hawai'i Manoa

Participation and Withdrawal

Your signature indicates that you have read the information provided above and agree to participate in this research study. Your participation is strictly voluntary and you can discontinue your participation in this study at any time. There is no penalty for withdrawal and you will still be able to keep all the materials you received to implement the strategies during the follow-up period.

Identification of Investigators

If you have any questions or concerns about this study, please contact:

Dr. Ellen Hoffman

Leslie Lopez: PhD Advisor

[ehoffman@hawaii.edu](mailto:ehoffman@hawaii.edu)

or

Dr. Jeff Moniz

Secondary Chair

[jmoniz@hawaii.edu](mailto:jmoniz@hawaii.edu)

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawai'i, 1960 East-West Road, Biomedical Bldg., B-104, Honolulu, HI 96822.)

University of Hawai'i Manoa

**Agreement to Participate**

I certify that I have read and that I understand the information in this document. I certify that I have been given satisfactory answers to my inquiries concerning project procedures and other matters. I certify that participation is voluntary and I have been advised that I am free to withdraw my consent and to discontinue my participation in the study at any time without prejudice. I consent to participate in this study with the understanding that such consent does not waive any of my legal rights, nor does it release the my instructor or the institution or any employee or agent thereof from liability for negligence.

---

Signature

---

Please Print Your Name

---

Date



University of Hawai'i Manoa

**COPY TO PARTICIPANT**

**Agreement to Participate**

I certify that I have read and that I understand the information in this document. I certify that I have been given satisfactory answers to my inquiries concerning project procedures and other matters. I certify that participation is voluntary and I have been advised that I am free to withdraw my consent and to discontinue my participation in the study at any time without prejudice. I consent to participate in this study with the understanding that such consent does not waive any of my legal rights, nor does it release the my instructor or the institution or any employee or agent thereof from liability for negligence.

---

Signature

---

Please Print Your Name

---

Date

**COPY TO PROJECT**

## APPENDIX I: SCREENSHOT OF LAULIMA ASSIGNMENT

The screenshot displays the Laulima Learning & Collaboration Server interface. At the top, the Laulima logo is accompanied by the tagline "Cooperation, joint action; group of people working together; community food patch; to work together, cooperate. Lit., many hands." and the text "The Learning & Collaboration Server for the University of Hawai'i Community". A "Logout" link is visible in the top right corner. Below the header, a navigation bar shows the user's current workspace as "ITE-401-701 [MAN.92630.SU12]", with other course options like "ITE-401-003 [MAN.89751.SP12]" and "ITE-401-701 [MAN.92264.SU11]" also listed. A "View Site As:" dropdown menu is set to "Select Role".

On the left sidebar, there is a section for "University of Hawai'i" with links to "Announcements", "Home", "DisCourse", "Cohort Pics", "Syllabus", "Schedule", "Gradebook", "Site Info", "Resources", "Chat Room", "Tests & Quizzes", and "Help". Below this, it indicates "Users present: Leslie Lopez".

The main content area is titled "Forums" and contains a post titled "Module 10: The last one." with links for "New Topic", "Forum Settings", and "Delete". The post description reads: "Please click on description." and "Hide Full Description". The "Final Assignment:" section states: "You will be viewing an final set of mini-video clips of a segmented lesson plan. This exercise will help expand your ability to see the different and creative ways to think about and use the strategies and methods you read about in the handbook. Please view the video clips in sequence. You may watch the clips as many times as you like. Again, format your journal by numbering each clip with the corresponding title. Under each numbered clip, identify (using keywords) the strategy or method you observe that you have read about, specifically **graphic organizers, active learning strategies, culturally responsive teaching, classroom management, local-to-global connections, media literacy etc.** Also identify anything else that stands out to you in each clip, such as the way the room is configured, the white board, etc." The post concludes with: "Use the same 'tags', or keywords from the previous module, rating only the top three, or the most salient methods and strategies you identify. If there are less than three in any given clip, that's fine. The tags are:"

## REFERENCES

- About the Project. (n.d.). *Culturally Responsive Response to Intervention Strategies*. Retrieved November 24, 2012, from <http://www.cds.hawaii.edu/rti/about/>
- Akiba, M. (2011). Identifying Program Characteristics for Preparing Pre-Service Teachers for Diversity. *Teachers College Record*, 113(3), 658–697.
- Alger, C. L. (2009). Secondary teachers' conceptual metaphors of teaching and learning: Changes over the career span. *Teaching and Teacher Education*, 25(5), 743–751.
- Allen, M. (2003). *Eight Questions on Teacher Preparation: What Does the Research Say? A Summary of the Findings*. Education Commission of the States, Denver, CO. (ERIC Document Reproduction Service No. ED479051)
- Amiel, T., & Reeves, T. C. (2008). Design-based research and educational technology: Rethinking technology and the research agenda. *Educational Technology & Society*, 11(4), 29–40.
- Anderson, T., & Shattuck, J. (2012). Design-Based Research A Decade of Progress in Education Research? *Educational Researcher*, 41(1), 16–25.
- Artiles, A., Kozleski, E., Trent, S., Osher, D., & Ortiz, A. (2010). Justifying and Explaining Disproportionality, 1968-2008: A Critique of Underlying Views of Culture. *Exceptional Children*, 76(3), 279–299.
- Bacevich, A. E. (2010). *Building curriculum for teacher education: A study of video records of practice*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 761538074)

- Baldemor, J. (2012). Teach for America. *Hawai'i*. Retrieved March 25, 2013, from <http://www.teachforamerica.org/where-we-work/hawaii>
- Barbarin, O. A., Downer, J., Odom, E., & Head, D. (2010). Home-school differences in beliefs, support, and control during public pre-kindergarten and their link to children's kindergarten readiness. *Early Childhood Research Quarterly*, 25(3), 358–372.
- Beitzel, B. D. (2004). Designing contrasting video case activities to facilitate learning of complex subject matter. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 305112144)
- Beitzel, B. D., & Derry, S. J. (2009). When the Book Is Better than the Movie: How Contrasting Video Cases Influence Text Learning. *Journal of Educational Computing Research*, 40(3), 337–355.
- Bell, P. (2004). On the Theoretical Breadth of Design-Based Research in Education. *Educational Psychologist*, 39(4), 243–253.
- Berry, B., Daughtrey, A., & Wieder, A. (2009, December). Collaboration: Closing the Effective Teaching Gap. Center for Teaching Quality. Retrieved from [http://teachersnetwork.org/effectiveteachers/images/CTQPolicyBriefOn\\_COLLABORATION\\_\\_021810.pdf](http://teachersnetwork.org/effectiveteachers/images/CTQPolicyBriefOn_COLLABORATION__021810.pdf)
- Boe, E. E., Cook, L. H., & Sunderland, R. J. (2008). *Teacher qualifications and turnover: Bivariate associations with various aspects of teacher preparation, induction, mentoring, extra support, professional development, and workload factors for early career teachers in special and general education* (Data Analysis No. 008-DAR1). Philadelphia: University of Pennsylvania, Center for Research and

- Evaluation in Social Policy. Retrieved from  
<http://www.gse.upenn.edu/cresp/pdfs/DAR1-mss1.pdf>
- Borghi, A. M., Glenberg, A. M., & Kaschak, M. P. (2004). Putting words in perspective. *Memory & Cognition*, 32(6), 863–873.
- Borko, H., Whitcomb, J., & Liston, D. (2008). Wicked Problems and Other Thoughts on Issues of Technology and Teacher Learning. *Journal of Teacher Education*, 60(1), 3–7.
- Borko, H., Koellner, K., Jacobs, J., & Seago, N. (2010). Using video representations of teaching in practice-based professional development programs. *ZDM*, 43(1), 175–187.
- Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2008a). *Who leaves? Teacher attrition and student achievement*. National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w14022>
- Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2008b). *Teacher Preparation and Student Achievement*. National Bureau of Economic Research.
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2003). *Analyzing the Determinants of the Matching Public School Teachers to Jobs: Estimating Compensating Differentials in Imperfect Labor Markets*. National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w9878>
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. H. (2010). Teacher Layoffs: An Empirical Illustration of Seniority v. Measures of Effectiveness. *CALDER Brief*, 12.
- Brophy, J. (Ed.). (2004). *Using Video in Teacher Education*. Jai: Elsevier.

- Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The journal of the learning sciences*, 2(2), 141–178.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, 18(1), 32.
- Cajete, G. (1994). *Look to the Mountain: An Ecology of Indigenous Education* (1st ed.). Durango, CO: Kivaki Press.
- Chaney-Cullen, T., & Duffy, T. M. (1999). Strategic Teaching Framework: Multimedia to Support Teacher Change. *The Journal of the Learning Sciences*, 8(1), 1–40.
- Hawai‘i Teacher Standards Board Code of Ethics. (n.d.). *State of Hawai‘i Hawai‘i Teacher Standards Board*. Retrieved from <http://www.htsb.org/code-of-ethics/>
- Cody, A. (2012, January 9). Philip Kovacs: Research Suggests Teach For America Does Not Belong in Huntsville. *Education Week - Living in Dialogue*. Retrieved from [http://blogs.edweek.org/teachers/living-in-dialogue/2012/01/philip\\_kovacs\\_research\\_suggest.html?cmp=SOC-SHR-FB](http://blogs.edweek.org/teachers/living-in-dialogue/2012/01/philip_kovacs_research_suggest.html?cmp=SOC-SHR-FB)
- Coles, A. (2010). Using video for professional development: a case study of effective practice in one secondary mathematics department in the UK. Retrieved from <http://www.bsrlm.org.uk/IPs/ip30-2/BSRLM-IP-30-2-01.pdf>
- Colestock, A., & Sherin, M. G. (2009). Teachers’ sense-making strategies while watching video of mathematics instruction. *Journal of Technology and Teacher Education*, 17(1), 7–29.
- Collective, T. D. B. R. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 5–8.

- Creswell, J. W. (1994). *Research design: qualitative & quantitative approaches*. Thousand Oaks, CA: Sage Publications.
- Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Culturally Responsive Response to Intervention Teacher Handbook. (2012). U.S. Department of Education, Native Hawaiian Education.
- Dabbagh, N. (2011). The Instructional Design Knowledge Base. *Nada Dabbagh's Homepage, George Mason University*. Retrieved from [http://classweb.gmu.edu/ndabbagh/Resources/IDKB/models\\_theories.htm](http://classweb.gmu.edu/ndabbagh/Resources/IDKB/models_theories.htm)
- Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence*. Center for the Study of Teaching and Policy, University of Washington Seattle, WA.
- Darling-Hammond, L. (2009). Teacher Education and the American Future. *Journal of Teacher Education*, 61(1-2), 35–47.
- Darling-Hammond, L. (2005). Does Teacher Preparation Matter? Evidence about Teacher Certification, Teach for America, and Teacher Effectiveness Linda Darling-Hammond, Deborah J. Holtzman, Su Jin Gatlin, and Julian Vasquez Heilig. *Education Policy Analysis Archives*, 13(42), 2.
- Darvish, S. (2008). The role of expertise in tagging video. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 304340310)

- Dede, C., Ketelhut, D. J., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A Research Agenda for Online Teacher Professional Development. *Journal of Teacher Education*, 60(1), 8–19.
- Delpit, L. D. (2006). *Other people's children: cultural conflict in the classroom*. New York: New Press.
- Derry, S.J., Hmelo-Silver, C. E., Nagarajan, A., Chernobilsky, E., & Beitzel, B. D. (2006). Cognitive transfer revisited: Can we exploit new media to solve old problems on a large scale? *Journal of Educational Computing Research*, 35(2), 145–162.
- Derry, S.J. (1996). Cognitive schema theory in the constructivist debate. *Educational Psychologist*, 31(3/4), 163.
- Derry, S.J., Pea, R. D., Barron, B., Engle, R. A., Erickson, F., Goldman, R., ... Sherin, B. L. (2010). Conducting Video Research in the Learning Sciences: Guidance on Selection, Analysis, Technology, and Ethics. *Journal of the Learning Sciences*, 19(1), 3–53.
- Dewey, J. (1897) My Pedagogic Creed. *School Journal*, 54, 77-80. Retrieved from <http://dewey.pragmatism.org/creed.htm>
- Dillon, S. (2010, December 3). Teacher Evaluations May Get a Video Assist. *The New York Times*. Retrieved from <http://www.nytimes.com/2010/12/04/education/04teacher.html>
- Eiteljorg, E. W. (2007). Teacher learning in the problem-solving cycle: A study of teacher use of online technologies and video records of practice. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 304886716)



- Fisher, D., & Frey, N. (2008). *Better Learning Through Structured Teaching: A Framework for the Gradual Release of Responsibility*. Association for Supervision & Curriculum Development.
- Fishman, B. (2003). 8. Linking on-line video and curriculum to leverage community knowledge. In J. Brophy (Ed.), *Using Video in Teacher Education* (Vol. 10, pp. 201–234). Emerald Group Publishing Limited.
- Frey, N., & Fisher, D. (2005). *Language Arts Workshop: Purposeful Reading and Writing Instruction*. Pearson.
- Furlong, J. (2005). New Labour and Teacher Education: The End of an Era. *Oxford Review of Education*, 31(1), 119–134.
- Galloway, D., & Ruebel, K. (2012). Upping the Ante: Video and Tagging Software Technology to Improve Teacher Candidate Performance. *Society for Information Technology & Teacher Education International Conference 2012*, 2012(1), 1784–1791.
- Garcia, S. B., & Ortiz, A. A. (2006). Preventing Disproportionate Representation: Culturally and linguistically responsive pre-referral interventions. *Teaching Exceptional Children*, 38(4), 64–68.
- Gay, G. (2009). Acting on Beliefs in Teacher Education for Cultural Diversity. *Journal of Teacher Education*, 61(1-2), 143–152.
- Gay, G. (2010). *Culturally Responsive Teaching: Theory, Research, and Practice* (2nd ed.). Teachers College Press.
- Glenberg, A. M., & Robertson, D. A. (1999). Indexical understanding of instructions. *Discourse Processes*, 28(1), 1–26.

- Glenberg, A.M., & Robertson, D. A. (1999). Indexical understanding of instructions. *Discourse Processes*, 28(1), 1–26.
- Gold, S. (2001). A constructivist approach to online training for online teachers. *Journal of Asynchronous Learning Networks*, 5(1), 35–57.
- Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The Achievement Gap and the Discipline Gap. *Educational Researcher*, 39(1), 59–68.
- Grossman, P. (2011). Framework for teaching practice: A brief history of an idea. *Teachers College Record*, 113(12), 2836–2843.
- Grzyb, G. J. (1981). Decollectivization and Recollectivization in the Workplace: The Impact of Technology on Informal Work Groups and Work Culture. *Economic and Industrial Democracy*, 2(4), 455–482.
- Hamamoto, P. (2007, April). Highly Qualified Teacher Equity Plan. Hawaii State Department of Education.
- Harvey, D. (2005). *A Brief History of Neoliberalism* (First Edition.). Oxford University Press, USA.
- Hatch, T., & Grossman, P. (2008). Learning to Look Beyond the Boundaries of Representation: Using Technology to Examine Teaching (Overview for a Digital Exhibition: Learning From the Practice of Teaching). *Journal of Teacher Education*, 60(1), 70–85.
- Hawai'i Department of Education, Office of Human Resources/Personnel Management Branch, State of Hawaii. (2010). *Annual Employment Report 2009-2010* (No. RS 11-0476).
- Hawaii Department of Education. (2012). *Annual Employment Report 2010-2011*.

- Hawaii DOE Employment Report. (n.d.). Retrieved from [https://www.capitol.hawaii.gov/session2010/bills/DC5\\_.pdf](https://www.capitol.hawaii.gov/session2010/bills/DC5_.pdf)
- Herrington, J., McKenney, S., Reeves, T., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. In C. Montgomerie & J. Seale (Eds.), *World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (pp. 4089–4097). Vancouver, Canada: AACE. Retrieved from <http://www.editlib.org/p/25967>
- Hitz, R. (2002, July). Cost of Teacher Turnover in Hawaii. Honolulu, HI: Hawaii Educational Policy Center.
- Hmelo-Silver, C. E., Derry, S. J., Bitterman, A., & Hatrak, N. (2009). Targeting Transfer in a S<sup>REL</sup>LAR PBL Course for Pre-Service Teachers. *Interdisciplinary Journal of Problem-based Learning*, 3(2), 4.
- Hmelo-Silver, C. E., Liu, L., & Jordan, R. (2009). Visual representation of a multidimensional coding scheme for understanding technology-mediated learning about complex natural systems. *Research and Practice in Technology Enhanced Learning*, 4(3), 253–280.
- Hmelo-Silver, C. E. (2003). Analyzing collaborative knowledge construction. *Computers & Education*, 41(4), 397–420.
- Hoban, G. (Ed.). (2005). *The Missing Links in Teacher Education Design: Developing a Multi-linked Conceptual Framework* (1st ed.). Springer.
- Hofer, M., & Grandgenett, N. (2012). TPACK Development in Teacher Education: A Longitudinal Study of Preservice Teachers in a Secondary MA Ed. Program. *Journal of Research on Technology in Education*, 45(1), 83.

- Hoover, W. (2010, February 8). Teach for America makes mark in Hawaii. *Honolulu Advertiser*. Retrieved from <http://the.honoluluadvertiser.com/article/2010/Feb/08/ln/hawaii2080352.html>
- How to Become a Teacher. (n.d.). *American Board for Certification of Teacher Excellence*. Retrieved from <http://www.abcte.org/teach>
- Hynds, A., Sleeter, C., Hindle, R., Savage, C., Penetito, W., & Meyer, L. H. (2011). Te Kotahitanga: a case study of a repositioning approach to teacher professional development for culturally responsive pedagogies. *Asia-Pacific Journal of Teacher Education*, 39(4), 339–351.
- Iarossi, G. (2006). *The Power of Survey Design: A User's Guide for Managing Surveys, Interpreting Results, and Influencing Respondents* (1st ed.). World Bank Publications.
- Ingersoll, R. M. (1999). The problem of underqualified teachers in American secondary schools. *Educational Researcher*, 28(2), 26–37.
- Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American educational research journal*, 38(3), 499–534.
- Irvine, J. J. (2003). *Educating Teachers for Diversity: Seeing With a Cultural Eye*. Teachers College Press.
- Jacobsen, M., Clifford, P., & Friesen, S. (2002). Preparing teachers for technology integration: Creating a culture of inquiry in the context of use. *Contemporary issues in technology and teacher education*, 2(3), 363–388.
- Janik, T., & Seidel, T. (2009). *The power of video studies in investigating teaching and learning in the classroom*. Waxmann Verlag.

- Johnson, C., Lessem, A., Bergquist, C., Carmichael, D., & Whitten, G. (2006). *Disproportionate Representation of Minority Children in Special Education*. Public Policy Research Institute, Texas A&M University. Retrieved from <http://www.freepatentsonline.com/article/Journal-Instructional-Psychology/157946271.html>
- Jorgensen, R., Grootenboer, P., Niesche, R., & Lerman, S. (2010). Challenges for teacher education: the mismatch between beliefs and practice in remote Indigenous contexts. *Asia-Pacific Journal of Teacher Education*, 38(2), 161–175.
- Jr, V. D., & Wildcat, D. R. (2001). *Power and Place: Indian Education in America*. Fulcrum Publishing.
- Kahumoku, W., & Kekahio, W. (2010). The Kahua Induction Program: Systemically Supporting New Teachers Through Culturally Relevant, Place-Based, and Community Mentor Strategies. *Hūlili : Multidisciplinary Research on Hawaiian Well-Being*, 6. Retrieved from [http://www.ksbe.edu/spi/Hulili/Hulili\\_vol\\_6/10\\_The\\_Kahua\\_Induction\\_Program.pdf](http://www.ksbe.edu/spi/Hulili/Hulili_vol_6/10_The_Kahua_Induction_Program.pdf)
- Kamehameha Schools. (2009). *Native Hawaiian educational assessment update 2009: A supplement to Ka Huaka 'i 2005*. Honolulu.
- Kana'iaupuni, S. M., Ledward, B., & Jensen, U. (2010). Culture-Based Education and Its Relationship to Student Outcomes.
- Kana'iaupuni, S. M., Malone, N. J., & Ishibashi, K. (2005). *Income and poverty among Native Hawaiians: Summary of Ka Huaka 'i findings*. (PASE No. 05-06:5). Honolulu: Kamehameha Schools.

- Kana'iaupuni, S. M. (2007, June). A Brief Overview of Culture-Based Education and Annotated Bibliography. Kamehameha Schools Research & Evaluation Division.
- Kersting, N. B., Givvin, K. B., Sotelo, F. L., & Stigler, J. W. (2009). Teachers' Analyses of Classroom Video Predict Student Learning of Mathematics: Further Explorations of a Novel Measure of Teacher Knowledge. *Journal of Teacher Education*, 61(1-2), 172–181.
- Khadaroo, S. T. (2011, January 24). Big Brother at Wyoming schools? Legislature considers filming teachers. *Christian Science Monitor*. Retrieved from <http://www.csmonitor.com/USA/Education/2011/0124/Big-Brother-at-Wyoming-schools-Legislature-considers-filming-teachers>
- Klingner, J. K., & Edwards, P. A. (2006). Cultural considerations with response to intervention models. *Reading Research Quarterly*, 41(1), 108–117.
- Koh, J. H. L., & Divaharan, S. (2011). Developing Pre-Service Teachers' Technology Integration Expertise Through the TPACK-Developing Instructional Model. *Journal of Educational Computing Research*, 44(1), 35–58.
- Kozol, J. (2005). *Shame of the Nation : The Restoration of Apartheid Schooling in America*. Westminster, MD, USA: Crown Publishing Group.
- Krull, E., Oras, K., & Sisask, S. (2007). Differences in teachers' comments on classroom events as indicators of their professional development. *Teaching and Teacher Education*, 23(7), 1038–1050.
- KS Admissions Office. (n.d.). *Admissions and Program Enrollment*. Retrieved December 8, 2012, from <http://www.ksbe.edu/admissions/>

- Ladson-Billings, G. (1995). But That's Just Good Teaching! The Case for Culturally Relevant Pedagogy. *Theory into Practice*, 34(3), 159–165.
- Lahann, R., & Reagan, E. (2011). Teach For America and the politics of progressive neoliberalism. *Teacher Education Quarterly*, 38(1), 7–27.
- Lampert, M., & Ball, D. (1998). *Teaching, Multimedia, and Mathematics: Investigations of Real Practice (The Practitioner Inquiry Series)*. Teachers College Press.
- Lave, J. (1991). Situating learning in communities of practice. *Perspectives on socially shared cognition*, 2, 63–82.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation* (1st ed.). Cambridge University Press.
- Lebec, M., & Luft, J. (2007). A Mixed Methods Analysis of Learning in Online teacher Professional Development: A Case Report. *Contemporary Issues in Technology and Teacher Education*, 7(1), 554–574.
- Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for data analysis triangulation. *School Psychology Quarterly*, 22(4), 557–584.
- Lin, M., Lake, V. E., & Rice, D. (2008). Teaching anti-bias curriculum in teacher education programs: What and how. *Teacher Education Quarterly*, 35(2), 187–200.
- Lin, X., & Bransford, J. (2010). Personal Background Knowledge Influences Cross-Cultural Understanding. *The Teachers College Record*, 112(7).
- Liu, L., Jones, P., & Sadera, W. (2010). An Investigation on Experienced Teachers' Knowledge and Perceptions of Instructional Theories and Practices. *Computers in the Schools*, 27(1), 20–34.

- Luckin, R., Plowman, L., Laurillard, D., Stratfold, M., Taylor, J., & Corben, S. (2001). Narrative evolution: learning from students' talk about species variation. *International Journal of Artificial Intelligence in Education*, 12(1), 100–123.
- Marzano, R. J., & Kendall, J. S. (Eds.). (2006). *The New Taxonomy of Educational Objectives* (2nd ed.). Corwin Press.
- McLaughlin, M., & Talbert, J. (2003). Reforming districts: How districts support school reform. *Seattle, WA: Center for the Study of Teaching and Policy*.
- McLuhan, M. (1964). *Understanding media: the extensions of man*. McGraw-Hill.
- McNiff, J., & Whitehead, J. (2009). *Doing and Writing Action Research*. SAGE.
- Mishra, P., & Koehler, M. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *The Teachers College Record*, 108(6), 1017–1054.
- Moore, D. W., & Readence, J. E. (1984). A Quantitative and Qualitative Review of Graphic Organizer Research. *The Journal of Educational Research*, 78(1), 11–17.
- National Center for Education Information. (2005). Alternative Routes to Teacher Certification: An overview. *National Center for Education Information*. Retrieved April 26, 2012, from <http://www.ncei.com/Alt-Teacher-Cert.htm>
- Naya, S. (2007). Income distribution and poverty alleviation for the Native Hawaiian community. Presented at the 2nd Annual Hawaiian Business Conference, Honolulu.
- Nieto, S. (2000). Placing Equity Front and Center: Some Thoughts on Transforming Teacher Education for a New Century. *Journal of Teacher Education*, 51(3), 180–187.



- Nieto, S., & Bode, P. (2011). *Affirming Diversity: The Sociopolitical Context of Multicultural Education* (6th ed.). Pearson.
- O'Connor, C., & Fernandez, S. D. L. (2006). Race, class, and disproportionality: Reevaluating the relationship between poverty and special education placement. *Educational Researcher*, 35(6), 6–11.
- Office of Human Resources/Personnel Management Branch. (2009). *Annual Employment Report 2008\*2009* (No. RS 10-0219). State of Hawaii. Retrieved from [https://www.capitol.hawaii.gov/session2010/bills/DC5\\_.pdf](https://www.capitol.hawaii.gov/session2010/bills/DC5_.pdf)
- Ogata, V. F. S. (2006). Rural Native Hawaiian Perspectives on Special Education. *Rural Special Education Quarterly*, 25(1), 7–15.
- Okamura, J. Y. (2008). *Ethnicity and Inequality in Hawai'i*. Temple University Press.
- Orfield, G., & Lee, C. (2005). *Why Segregation Matters: Poverty and Educational Inequality*. Civil Rights Project, Harvard University.
- Prince, M. (2004). Does active learning work? A review of the research. *JOURNAL OF ENGINEERING EDUCATION-WASHINGTON-*, 93, 223–232.
- Ravitch, D. (2010). *The Death and Life of the Great American School System: How Testing and Choice Are Undermining Education*. Basic Books.
- Reeves, T. C., Herrington, J., & Oliver, R. (2005). Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education*, 16(2), 96–115.
- Reyhner, J., Sakiestewa, W., & Lockard, L. (Eds.). (2011). *Honoring our heritage : culturally appropriate approaches for teaching indigenous students*. Northern Arizona University.

- Rhodes, R. L., Ochoa, S. H., & Ortiz, S. O. (2005). *Assessing Culturally and Linguistically Diverse Students: A Practical Guide*. Guilford Press.
- Rice, J. K. (2003). Teacher Quality: Understanding the Effectiveness of Teacher Attributes. Economic Policy Institute, Washington, DC.
- Rich, P. J., & Hannafin, M. J. (2008). Decisions and reasons: examining preservice teacher decision-making through video self-analysis. *Journal of Computing in Higher Education*, 20(1), 62–94.
- Rich, P. J., & Hannafin, M. (2009). Video Annotation Tools Technologies to Scaffold, Structure, and Transform Teacher Reflection. *Journal of Teacher Education*, 60(1), 52–67.
- Rodriguez, S. (2010). Texas A&M University-Corpus Christi College of Education Department of Special Services Department Educational Technology Program ETEC 3310: Technology Applications for Teachers.
- Romano, D., Maxfield, M., & Rycik, M. (2012). The Role of Field-Experience in Pre-Service Teacher Training Programs. In *AECT International Convention*. Presented at the Association for Educational Communications and Technology (AECT), Louisville, KY.
- Romney for President. (2012, May 23). A Chance for Every Child: Mitt Romney's Plan for Restoring the Promise of American Education. Romney for President. Retrieved from [www.mittromney.com/blogs/mitts-view/2012/.../chance-every-child-](http://www.mittromney.com/blogs/mitts-view/2012/.../chance-every-child-)

- Ronfeldt, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). *How Teacher Turnover Harms Student Achievement* (Working Paper No. 17176). National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w17176>
- Rose, M. (2001). The Working Life of a Waitress. *Mind, Culture, and Activity*, 8(1), 3–27.
- Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. Sage Publications Ltd.
- Santagata, R. (2009). Designing Video-Based Professional Development for Mathematics Teachers in Low-Performing Schools. *Journal of Teacher Education*, 60(1), 38–51.
- Sass, T. R. (2011). Certification Requirements and Teacher Quality: A Comparison of Alternative Routes to Teaching. *Unpublished manuscript*. Retrieved from <http://www2.gsu.edu/~tsass/Alternative%20Certification%20and%20Teacher%20Quality%2011.pdf>
- Savage, C., Hindle, R., Meyer, L. H., Hynds, A., Penetito, W., & Sleeter, C. E. (2011). Culturally responsive pedagogies in the classroom: indigenous student experiences across the curriculum. *Asia-Pacific Journal of Teacher Education*, 39(3), 183–198.
- Scafidi, B., Sjoquist, D. L., & Stinebrickner, T. R. (2007). Race, poverty, and teacher mobility. *Economics of Education Review*, 26(2), 145–159.
- Schonleber, N. S. (2007). Culturally congruent teaching strategies: Voices from the field. *Hūlili: Multidisciplinary research on Hawaiian well-being*, 4, 239–264.

- Sherin, M. G., & Van Es, E. A. (2005). Using video to support teachers' ability to notice classroom interactions. *Journal of Technology and Teacher Education*, 13(3), 475–491.
- Sleeter, C. E. (2011). An agenda to strengthen culturally responsive pedagogy. *English Teaching: Practice and Critique*, 10(2).
- Sleeter, C., Torres, M. N., & Laughlin, P. (2004). Scaffolding conscientization through inquiry in teacher education. *Teacher Education Quarterly*, 31(1), 81–96.
- Smith, L. T. (1999). Decolonizing methodologies: Research and indigenous peoples. London: Zed Books.
- Smith, M., & Pandolfo, N. (2011, November 27). For-Profit, Alternative Teaching Programs Are Booming. *The Texas Tribune*. Nonprofit media organization. Retrieved from <http://www.texastribune.org/2011/11/27/-profit-alternative-teaching-programs-grow-texas/>
- Starker, T. V. (2008). Examining preservice teachers' cognitive engagement, knowledge, and self-efficacy of culturally responsive teaching using a web-based case study module: A mixed methods approach. (*Doctoral dissertation*) Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 89202077)
- Stevens, R., & Hall, R. (1998). Disciplined perception: Learning to see in technoscience. In *Talking Mathematics in School: Studies of Teaching and Learning*. Cambridge University Press.
- Students First. (2012). Students First Policy Agenda. Retrieved from [http://www.studentsfirst.org/page/-/StudentsFirst\\_Policy\\_Agenda.pdf?nocdn=1](http://www.studentsfirst.org/page/-/StudentsFirst_Policy_Agenda.pdf?nocdn=1)

- Teach for America: Boards. (n.d.). *Teach For America*. Retrieved from <http://www.teachforamerica.org/our-organization/boards>
- Technology, T. A. C. on I. and (Ed.). (2008). *Handbook of Technological Pedagogical Content Knowledge (TPCK) for Educators* (1st ed.). Routledge.
- The Education Alliance at Brown University. (n.d.). The Knowledge Loom: Culturally Responsive Teaching. Retrieved from <http://knowledgeloom.org/practices3.jsp?location=1&bpinterid=1110&spotlightid=1110>
- Thomas, C. N. (2008). A comparison of three instructional methods---teacher-directed lecture- and text-based instruction, analog video instruction, and multimedia anchored instruction---on the knowledge, beliefs, and skills of preservice teachers. Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 288087253)
- Tran, M. T., & And Others. (1994). Multicultural Education Courses and the Student Teacher: Eliminating Stereotypical Attitudes in Our Ethnically Diverse Classroom. *Journal of Teacher Education*, 45(3), 183–89.
- Van Es, E. A., & Sherin, M. G. (2002). Learning to notice: Scaffolding new teachers' interpretations of classroom interactions. *Journal of Technology and Teacher Education*, 10(4), 571–595.
- Veltri, B. (2010). *Learning on Other People's Kids: Becoming a Teach For America Teacher*. Information Age Publishing.

- Voithofer, R. J. (2007). Web 2.0: What is it and how can it apply to teaching and teacher preparation? In *American Educational Research Conference (AERA)*. Chicago Illinois. Retrieved from [education.osu.edu/rvoithofer/papers/web2paper.pdf](http://education.osu.edu/rvoithofer/papers/web2paper.pdf)
- Vygotskiĭ, L. S. (1978). *Mind in society: the development of higher psychological processes*. Harvard University Press.
- Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5–23.
- Wenger, E., McDermott, R. A., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Harvard Business Press.
- Wentworth, N., Waddoups, G. L., & Earle, R. (2004). Technology Integration into a Teacher Education Program. *Computers In the Schools*, 21(1/2), 1–14.
- Winner, L. (1978). *Autonomous Technology: Technics-Out-Of-Control as a Theme in Political Thought*. MIT Press.
- Wright, J. C. and P. D. M. [eds]. (2002). *Na Honua Maui Ola: Hawai'i Guidelines for Culturally Healthy and Responsive Learning Environments*.
- Wright, J., & De Morales, P. (Eds.). (2002). *Nā Honua Maui Ola: Hawaii Guidelines for Culturally Healthy and Responsive Learning Environments*. University of Hawai'i at Hilo: Native Hawaiian Education Council and Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language.