Autonomy Supportive Instruction as it relates to Students' Motivational Beliefs on an ePortfolio Project: The Moderating Role of Culturally Based Learning Preferences.

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This study investigated students' perceptions of autonomy support from an instructor in relation to students' motivational beliefs on an ePortfolio project. The motivational beliefs of interest included: Effort/Importance, felt Pressure/Tension, and Value/Usefulness. These relationships were further examined with particular focus on the potential moderating role of students' culturally based learning preferences as outlined in Parrish and Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework (CDLF). This study was quasi-experimental, survey-based research supported by self-reported data collected from a convenience sample of graduate and undergraduate students. Students enrolled in a variety of courses that assigned an ePortfolio assignment received an email invitation from their instructor and self-selected to participate. Based on the responses of 35 students, the findings from this research showed significant relationships between three culturally based learning preferences and the motivational belief of Value/Usefulness. A summary of findings, limitations, and implications for further research are discussed.

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GENERAL AUDIENCE ABSTRACT

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DEDICATION

This work is dedicated to the Lord, for He has given me the gift of an enjoyment for learning. I am thankful for the opportunities I have been given to embrace education. I am also thankful to have been given the wisdom to know that this was the time to search, not the time to give up (Ecclesiastes 3:6). I take comfort in knowing that whatever is has already been, and what will be has been before (Ecclesiastes 3:15). To me, this is the beauty of research. We rely on what has come before us, and we work to find out more about what already is.

So I saw that there is nothing better for a person than to enjoy their work, because that is their lot. For who can bring them to see what will happen after them? (Ecclesiastes 3:22)

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CHAPTER ONE

Introduction

Today, instructional designers have the opportunity to design in a way that is adaptable to learners based on a number of different factors. While it is not always possible to take every aspect of a learning situation into account, for each design, instructional designers take into consideration the amount of variability (e.g., environment, context, learner expectations/values, learning preferences, etc.) that can be accounted for in their design. Doyle (2008) suggests that "learner-centered teaching means subjecting every teaching activity (method, assignment, or assessment) to the test of a single question: 'Given the context of my students, course, and classroom, will this teaching action optimize my students' opportunity to learn?'" (p. 4). In consideration of this question, it is important to contemplate how an instructional designer might first consider the context of the learners. This is especially pertinent as global learning contexts increase in commonality, as learner contexts are likely to involve vast differences, such as those of cultural norms and expectations both familiar and potentially unfamiliar to a designer.

One of the ways in which instructional designers have worked to positively influence learning while accounting for the individuality of their learners is in the tailoring of education to the individual learner. This educational concept of design becomes more and more accessible and generally "doable" for the everyday educator as the development of specific technologies ease the process of differentiation of instruction and provision of choice for learners. Emphasized by Doyle (2008), "learner-centered teaching can optimize students' opportunities to learn in many different ways" (p. 6). Four specific aspects of practice that are fundamental to the process are highlighted: (a) involving students in firsthand learning; (b) giving students choices about and control of their learning; (c) teaching students lifelong learning skills; and (d) promoting the

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relevance of learner-centered teaching (Doyle, 2008, pp. 6-10). In a time when the very nature of our educational technologies have placed much choice and control in the hands of the learner, it has become important to identify how to intentionally and effectively design for appropriate learner choice and control in the educational environment.

Learner choice. The concept of giving choice and control of learning to the learner is one that entrusts designers with the complex task of discovering how much, what type, and the how-to of providing choice and control in an instructional design. In addition to these complexities, instructors and designers must also respond to pushback from those learners who are not comfortable or disagree with the concept of having choice and control. Although there may never be a perfect clear-cut solution to pleasing each learner and/or instructor, instructional designers continue to explore the concept of designing learner-centered instruction in order to make learning most efficient, motivating, and long lasting for each learner.

Learners, each with their own cultural preferences, belief systems, and past experiences, enter a learning experience with views regarding their own abilities and interests as well as views about how they prefer to learn. Not only do instructors, and therefore designers, often face students' differing expectations for learning, choice, and control in the classroom, but they also face students' disinterest or conflict of belief in a task. Learners' opinions, beliefs, and even misconceptions about teaching can have an impact on the classroom environment (Luke, 2006). Many of these factors play a role in the overall motivation of a student to complete a learning task, which is of vital importance to consider in the design of learning. This is of particular significance for tasks in which learners are given choice and control over the process of a task; designers must take motivation into consideration in order to engage students throughout the learning process and through completion of the task.

According to Doyle (2008), "despite all of the potential factors that, on any given day, can negatively affect students' learning, teachers who know how to create community, engage students actively in their learning, make content challenging and interesting, teach students how to learn the content, give students choices about what and how they learn, and make the learning meaningful, do positively affect students' learning" (pp. 3-4). With careful consideration, it is clear that the responsibility for this process falls on the designer of the learning process:

> The methods and strategies we as teachers choose, our demonstrated passion for teaching, our skills in connecting with our students on a social and emotional level, and our ability to teach students the learning skills they need to master the content…have a direct and measurable effect on students' learning. (Doyle, 2008, p. 4)

The choice of instructional strategies at use in a learning situation has an impact on student motivation. At the same time, learners' motivations for a learning task impact their choice to engage in the learning situation. Not only should designers and instructors be concerned with the initiation of a behavior or engagement in a task, but they should be concerned with the continuation of the behavior. Research on motivation in the area of counseling and psychology has shown that patients need to feel in control (or develop the feeling of control) in order to see long-term behavioral effects of therapy (Lynch, Vansteenkiste, Deci, & Ryan, 2011; Ryan & Deci, 2008). In the same way, presenting learners with choice and control in the educational environment can increase motivation and therefore positively influence the behavioral continuation necessary for success on a semester-long learning task.

With today's emphasis on learner-centered educational approaches, instructional designers must consider learners' motivational needs prior to the design of instruction, during the instruction, as well as after instruction. Doyle (2008) addressed student resistance toward

learner-centered teaching approaches, stating "the biggest challenge we face in successfully adopting a learner-centered approach to teaching is getting our students to buy into the change, to switch their learning paradigm" (p. 17). Learners' beliefs about how and what they should be taught influence their motivations and performances on a task or in an environment that gives them more choice and control, such as that of a learner-centered project.

Autonomy Support and motivation. One of the ways in which each individual learner's motivation can be supported and enhanced is through the support of autonomy. Within the framework of self-determination theory (SDT), it is empirically supported that humans have a universally inherent psychological need for competence, relatedness, and autonomy (Deci & Ryan, 2000; Deci & Vansteenkiste, 2004; Ryan & Deci, 2000b).

Furthermore, in today's global society, public schools, university classes, and corporate training environments are likely to include learners from a variety of nations and cultures. Ryan and Deci (2000b) emphasize, however that "individuals are likely to express their competence, autonomy, and relatedness differently within cultures that hold different values" (p. 75). This is not to say that these three needs are not universally applicable, but simply a reminder that we must be careful to understand these terms as used in current educational research in order to fully and accurately grasp the universal, as well as the nuanced, application of this knowledge.

Lynch, La Guardia, and Ryan (2009) provide support for the SDT definition and the cross-cultural benefits of Autonomy Support in their study involving university-level students in the United States, Russia, and China and the assessment of the autonomy supportiveness of their relationship partners. Findings revealed that in all three countries, Autonomy Support was linked to greater psychological well-being. In order to lessen the frequency of misconceptions regarding autonomy as a universal need and to further clarify the question of its impact or lack thereof on

well-being, Lynch et al. (2009) suggests that more empirical research be gathered to test for autonomy as a need in other countries. Furthermore, it remains essential to gather empirical evidence of the benefits and the need for autonomy in learning in order to establish a clear definition of autonomy and to firmly distinguish autonomy from the concepts of individualism, independence, and separateness (Ryan & Lynch, 1989; Williams, 2002).

It is necessary to gather more information regarding how to most effectively support the autonomy of individuals in educational contexts in order for more learners to experience these research-supported benefits of Autonomy Support in the learning environment: positive effects on intrinsic motivation (Assor, Kaplan, & Roth, 2002; Deci, Schwartz, Sheinman, & Ryan, 1981; Kusurkar, Croiset, & Ten Cate, 2011); encouragement and enhancement of positive feelings and engagement in learning (Assor et al., 2002; Reeve, Jang, Carrell, Jeon, & Barch, 2004); increased autonomous self-regulation, enhanced adjustment, and higher grades (Black & Deci, 2000; Deci et al., 1981); persons motivated in ways that are "conducive to more adaptive cognitive, affective, and behavioural outcomes" (Vallerand, Pelletier, & Koestner, 2008, p. 257); increased autonomous motivation and therefore increased competence, interest in the content, adjustment, and learning (Deci et al., 1981; Hidi & Renninger, 2006; Williams & Deci, 1998); higher likelihood of integration of learning from active conceptualization and organization (Grolnick & Ryan, 1987); greater effort and persistence (Pelletier, Fortier, Vallerand, & Brière, 2001; Vallerand, Fortier, & Guay, 1997); higher likelihood of choosing more challenging tasks in the absence of rewards (Shapira, 1976); and increased conceptual-learning, creativity, flexibility, and active processing (Amabile, 1998; Benware & Deci, 1984; Grolnick & Ryan, 1987; Koestner, Ryan, Bernieri, & Holt, 1984).

Of particular interest for this research, autonomy supportive design has the potential to enhance the intrinsic motivation of individual learners on given tasks. There is a need for greater understanding of how that support might be varied to best enhance various motivational beliefs for learners of various cultural orientations.

Importance of the Study

For decades, researchers have investigated the effects that autonomy supportive environments have on students, as well as the benefits of autonomous learning, particularly focusing on the area of teacher roles (Assor et al., 2002; Grolnick & Ryan, 1987; Grolnick, Gurland, Jacob, & Decourcey, 2002; Reeve & Jang, 2006). When students are able to be more autonomous (i.e., act volitionally and "fully endorse their behaviors rather than feeling controlled to do them" [Zhou, Ma, & Deci, 2009, p. 492]) they experience numerous positive outcomes when "compared to students in classrooms taught by more controlling teachers" (Reeve, 2006, p. 228). Zhou et al. (2009) emphasized that students who are more autonomous have increased well-being and adjust to their school environment more successfully.

As researchers in various fields, including the field of Instructional Design and Technology (IDT) and educational technology, investigate the design of autonomy supportive, learner-centered instruction, it has become more and more important to understand how instructional designers and educators can best motivate individual learners. Given that learner-centered instruction places more responsibility on the learner, often times, learners who have not learned how to take an active role in their learning must adapt their thinking and behavior in order to be successful (Doyle, 2008). Learners may refrain from taking an active role in their learning for various reasons, one of which being a result of cultural influences on their educational experiences and beliefs. Students' culturally based learning preferences can become

evident in the display of more active or passive behaviors in the learning environment. Students who value a more passive approach to education may be resistant toward taking an active role. For this reason, motivational support is a necessary consideration for the design of inherently learner-centered projects and tools, with which learners will uniquely interact.

Statement of the Problem

More research is necessary to determine the extent to which various cultural orientations will affect the relationship between perception of Autonomy Support and various motivational beliefs on educational tasks. In terms of exploring the individual-focused construct of autonomy, one of the greatest individual differences that educators experience in their classroom demographics is that of cultural orientation, including culturally based learning preferences and cultural values. Educators need to be aware of the ways in which cultural orientation influences learners' experiences with autonomy supportive efforts as well as their motivational beliefs as a result. As learners open themselves up to choosing and internalizing new ways to behave and perform learner-centered tasks, teachers have the unique ability to impact what learners choose to do throughout a learning task. However, in order to effectively design learner-centered instruction that has an impact on learners' motivational beliefs, it is also necessary to understand how learners' differing cultural orientations interact with instructors' attempts to support student motivation (i.e., Autonomy Support).

Overview of the Variables

The following sections briefly outline the cultural and motivational variables under investigation in this study.

Cultural Orientation. Hofstede (1980) investigated the way that culture affects people in the workplace and identified five cultural dimensions: Power Distance Index; Individualism

vs. Collectivism; Masculinity vs. Femininity; Uncertainty Avoidance Index; and Long Term Orientation. According to Wursten and Jacobs (2013), "Hofstede carried out fundamental research into the dominant values of countries and the way in which they influence behavior in organizations" (p. 6).

Based on the work of Hofstede and Hofstede (2005), Nisbett (2003), Levine (1997), Hall (1983), and Lewis (2006), Parrish and Linder-VanBerschot (2010) created a learning situation-based framework, the Cultural Dimensions of Learning Framework (CDLF), which is broken into three sections: social relationships, epistemological beliefs, and temporal perceptions. Parrish and Linder-VanBerschot designed the CDLF to include eight cultural parameters based on prior research supporting their influence on educational events. While "cultural complexity and the fundamental role of education and training in the transmission of culture make a comprehensive framework impractical to describe in a single article" (Parrish and Linder-VanBerschot, 2010), the authors expanded upon previous frameworks to broaden and account for updated research on cultural differences that have an effect on education, teaching, and learning. Given this focus on the educational influence of culture, the CDLF is most applicable to this study.

The following three CDLF cultural dimensions represent social relationships:

Equality/Authority. This dimension addresses the variability in the way that individuals handle inequality, status, and interactions between people of unequal status (Parrish and Linder-VanBerschot, 2010).

Individualism/Collectivism. This dimension addresses the variability in the way that individuals value the interests of the individual versus the interests of the group, as well as the

degree to which individuals value interpersonal relationships (Parrish and Linder-VanBerschot, 2010).

Nurture/Challenge. This dimension addresses the variability in the way that individuals set goals: more focused on cooperation or security; or more focused on recognition and advancement. Also, this dimension addresses whether individuals believe that acts that are more supportive, or acts that are more challenging, will produce superior outcomes for learning (Parrish and Linder-VanBerschot, 2010).

The following three CDLF cultural dimensions represent epistemological beliefs:

Stability seeking/Uncertainty acceptance. This dimension addresses the variability in the way that individuals deal with uncertainty, structure versus flexibility, and whether knowledge is a developing process or previously established (Parrish and Linder-VanBerschot, 2010).

Logic argumentation/Being reasonable. This dimension addresses the variability in the way that individuals develop arguments and disagreements, and identifies if an individual more highly values consistency of logic or outcomes that are more practical (Parrish and Linder-VanBerschot, 2010).

Causality/Complex systems (Analysis/Holism). This dimension addresses the variability in the way that individuals assign causality, to either a likely single source, or a larger, broader context (Parrish and Linder-VanBerschot, 2010).

The following two CDLF cultural dimensions represent temporal perceptions:

Clock time/Event time. This dimension addresses the variability in the way that individuals address, conform, or experience the concept of time, and the varied importance they give to deadlines or relationships (Parrish and Linder-VanBerschot, 2010).

Linear time/Cyclical time. This dimension addresses the variability in the way that individuals address time, as a cycle or pattern, or as a path with destinations (Parrish and Linder-VanBerschot, 2010).

Given that Parrish and Linder-VanBerschot's CDLF is adapted from Hofstede's work, it is clear that the educational impact of Hofstede's cultural dimensions noted above are similarly applicable under these categories of the CDLF: equality vs. authority (similar to Hofstede's power distance); individualistic vs. collectivist (similar to Hofstede's individualism vs. collectivism); nurturing vs. challenging (related to Hofstede's masculinity vs. femininity); stability seeking vs. uncertainty acceptance (similar to Hofstede's uncertainty avoidance index); logic vs. reason (partially addressed under Hofstede's long term orientation); causality vs. complexity (partially addressed under Hofstede's long term orientation); clock time vs. event time (partially addressed under Hofstede's long term orientation); and linear time vs. cyclical time (partially addressed under Hofstede's long term orientation).

The consideration of the dimensions of culture and all eight culturally based learning preferences of the CDLF for every instructional design project is not always ideal or possible. Parrish and Linder-VanBerschot (2010) discuss applications of these dimensions for the instructional design process, noting:

> The degree to which an instruction and ID [instructional designer] can adapt instruction, given time and budget constraints, organizational desires for consistency, and the need to acculturate students into professional and mainstream cultures, is limited. Which adaptive design choices should be made requires careful consideration. (p. 7)

Once again, the importance of the concept of deciding how much and what type of choices to give learners is reiterated; in other words, how much and what types of supports for

autonomy can be put in place to best enhance motivation throughout the learning process? Parrish and Linder-VanBerschot (2010) added:

> Some choices may be more costly than others to include, so the use of alternatives must be based on how deeply rooted the cultural preferences are (the degree to which ignoring them will affect learning) and on how easy the alternatives are to implement (which will vary by instructional mode). (p. 8)

Further research is necessary to identify how the well-established, evidence-based relationship between Autonomy Support and motivational beliefs is influenced by various culturally based learning preferences. In this way, various aspects of culturally based learning preferences may increasingly be taken into consideration throughout the adaptive design process.

Motivational Beliefs. Learners' culturally based learning preferences will uniquely influence their perceptions of instructors' efforts to support autonomy (or lack thereof) as well as their motivational beliefs (Hofstede, 2001) regarding a given project. The specific effect of the eight cultural dimensions of the CDLF on the relationship between perception of Autonomy Support and motivation is unknown. The support of motivation affects learners in various ways. According to The Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997; Vallerand & Ratelle, 2002), the effects, or consequences, of motivational support can be cognitive, affective, and/or behavioral. Vallerand and Ratelle (2002) explained that motivation leads to such important consequences (as isolated by researchers) as "cognitive (e.g., concentration, attention, and memory), affective (e.g., interest, satisfaction, and positive emotions), and behavioral (e.g., choice of behavior, persistence at a task, intensity, task complexity, behavioral intentions, and performance consequences" (p. 53).

The following three sets of factors are the motivational beliefs that were investigated in this study: Effort/Importance, Value/Usefulness, and Pressure/Tension. Each was included in the study due to empirical support demonstrating that increased Autonomy Support is positively related to motivational beliefs intrinsic in nature (Deci & Ryan, 1985), and due to the potential and unknown influence of cultural orientation given the context of this study.

Effort/Importance. As learners' motivation increases, it is expected that the effort and importance learners place on a learning task will also increase. Ryan and Connell (1989) developed a continuum to investigate the way in which learners' perceived locus of causality (i.e., autonomy) is related to specific achievement-related behaviors. The results of their study showed that ratings of child motivation were related to learners' self-reported "coping styles, anxiety, effort, and enjoyment in school" (Ryan & Connell, 1989, p. 756). For this study, increased Effort/Importance on a task would reflect increased motivation on the task. Given the positive nature of Effort/Importance, it was expected have a positive relationship with increased Autonomy Support.

Value/Usefulness. As learners become more motivated, they integrate their actions and behaviors into their concept of self (i.e., self-regulation). In this way, as learners self-regulate, they assess their values against those of what they are being asked to do. To be fully autonomous, learners must feel that they have choice and control over a situation, and that what they do is aligned with their personal values and beliefs. As learners become more autonomous and motivated for a task, this alignment strengthens, and learners place more and more value on the task. For this study, increased Value/Usefulness on a task would reflect increased motivation on the task. Given the positive nature of Value/Usefulness, it was expected to have a positive relationship with increased Autonomy Support (Gagné & Deci, 2005; Williams & Deci, 1996).

Pressure/Tension. The minimization or absence of pressure in a learning situation has been empirically supported as a way to lessen the perception of control and instead convey choice. The existence and amount of felt pressure and tension in a situation are dependent upon the way in which the "rationale and acknowledgement are presented" (Deci, Eghrari, Patrick, & Leone, 1994, p.124). One way to minimize the feeling of pressure and tension is to use speech that is less controlling (e.g., could rather than should; may rather than must). According to Deci et al. (1994), if "it does not pressure, but instead allows the person to feel choice about doing the activity, the communication is likely to convey Autonomy Support and thus facilitate internalization and integration" (p. 125). They concluded that is desirable to present "requests, limits, and extrinsically motivating structures in a way that promotes integration and self-determination rather than introjection and internally controlling regulation" (Deci et al., 1994, p. 140). For this study, the self-reported absence of the feeling of pressure and tension would be considered to be a positive response to non-controlling, autonomy supportive structures in place from an instructor. Given the negative nature of pressure and tension, it was expected to have a negative relationship with increased Autonomy Support.

Purpose of the Study

The purpose of this study was to identify how students' perceptions of Autonomy Support on a project related to their motivational beliefs including Effort/Importance, Value/Usefulness, and felt Pressure/Tension on the project. This relationship was examined with particular focus on the investigation of the potential moderating role of students' culturally based learning preferences according to the eight cultural dimensions outlined in Parrish and Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework (CDLF), adapted from the

work of "Hofstede and Hofstede (2005), Nisbett (2003), Levine (1997), Hall (1983), and Lewis (2006)" (Parrish & Linder-VanBerschot, 2010, p. 5).

Design of the Study

Participants self-selected to participate from a convenience sample that encompassed varying levels of higher education instruction, subject areas taught, age group of students, nature of the course (required or elective), and levels of experience of instructors of students in higher education. The participants were students enrolled in courses that implemented an ePortfolio project (e.g., showcase, working, assessment). The independent (predictor) variable was defined as student perception of Autonomy Support. The dependent (outcome) variables were defined as student motivational beliefs including: (a) Effort/Importance, (b) Value/Usefulness, and (c) felt Pressure/Tension. The eight moderating variables were defined as the cultural dimensions (i.e., culturally based learning preferences) derived from Parrish and Linder-VanBerschot's (2010) CDLF: (a) Equality and Authority, (b) Individualism and Collectivism, (c) Nurture and Challenge, (d) Stability seeking and Uncertainty acceptance, (e) Logic argumentation and Being reasonable, (f) Causality and Complex systems/(Analysis and Holism), (g) Clock time and Event time, and (h) Linear time and Cyclical time.

Research Questions (RQ)

This study investigated the research questions:

RQ1: How do students' perceptions of Autonomy Support from an instructor on a project relate to their motivational beliefs on the project?

RQ2: What is the moderating role of students' culturally based learning preferences on the relationship between perceived Autonomy Support and motivational beliefs on the project?

RQ3: What relationships exist between individual culturally based learning preferences and motivational beliefs on the project?

Need for the Study

It is becoming more and more challenging for educators to effectively motivate learners, particularly for learning tasks in which the control for learning is placed in the hands of individual students (e.g., learner-centered instruction). Motivational supports, such as the support of autonomy, cannot be appropriately structured without consideration of the major factors influencing individuals' thoughts and behaviors (e.g., cultural orientation). For this reason, it is necessary to investigate how knowing and assessing students' culturally based learning preferences could aide in the design of learner-centered instructional tasks. This investigation could allow designers to better know how those learning preferences influence perceptions of instructional supports (e.g., support for autonomy), and is especially pertinent to expand the knowledge base for the areas in which individual differences such as cultural orientation have been noted to impact educational outcomes (e.g., motivational beliefs, behavior change, performance).

Autonomy Support, cultural orientation, and motivation. The definition and understanding of autonomous learning, particularly when it comes to cultural research, often differs according to the theory or lens through which it is viewed. According to SDT, autonomy is a psychological need for humans of all cultures. It is unknown how individuals with varying combinations of culturally based learning preferences might perceive Autonomy Support in various contexts. Therefore, this study is beneficial to help clarify the way that instruction (assessed on a scale of students' perceptions from autonomy supportive toward controlling) for projects varying in learner-centeredness, is related to students' motivational beliefs toward the

projects. More specifically, it is hoped that this study will help clarify the role that individual culturally based learning preferences play in that relationship as potential moderating factors. More research will be necessary to help instructional designers to become aware of the ways in which the unique cultural orientations of learners influence their perceptions of supports. However, it is hoped that this study will aid the design process in providing more data to support the discussion on how the relationship between Autonomy Support and motivational beliefs on learner-centered projects is influenced by cultural orientation. As a result, it is hoped that instructional designers will be able to better design and support those projects to enhance those motivational outcomes for each of their uniquely oriented learners, as well as to help learners to be aware of their culturally based learning preferences and the way they might interact with their perceptions of support and motivational beliefs.

Rationale for the Study

In their research examining current trends and policies in education, and including the voices of education scholars, policy makers, students, educators, and parents, Cornelius-White and Harbaugh (2009) noted:

> Significant trends in ongoing educational discussions make LCI (learner-centered instruction) a relevant and enduring contributor to teacher development. The rising importance of multiculturalism and interconnectedness in the postmodern world and accountable, evidence-based practices, or scientifically supported teaching and learning strategies that bridge the research-to-practice gap, are perhaps the most important developments in education in recent years. (p. xvi)

Educators have long faced the challenge of discovering the most effective, long-lasting, and efficient ways to educate students. In the last few decades, there has been a growing focus on

involving learners in the learning process rather than the traditional approach of teacher transfer

of knowledge to the learners through lecture. Just six years ago, Cornelius-White and Harbaugh

reflected on this emerging approach, "in the past 15 years particularly, there has been an

increased flurry of activity to discover evidence-based practices related to learner-centered

instruction, explicitly integrating adaptation to individual and cultural differences as a major

variable" (Cornelius-White & Harbaugh, 2009, p. xvi).

Today, learner-centered instruction is more and more prevalent in higher education, as

evidenced from pedagogical discussions in educational research and the availability of numerous

professional development opportunities emphasizing active learning strategies for student

engagement. Many educators implement inherently learner-centered tools, processes, and

projects into their courses (e.g., working [process-focused] ePortfolio projects) to help learners

take control of the learning process while also encouraging and scaffolding for reflection along

the way. The implementation of technological tools that are designed to enable learning

outcomes and processes, such as ePortfolio projects, often align with a learner-centered

pedagogical framework. Kahn (2014) reflects:

> In a larger sense, e-portfolios also embrace several ideas that have been central to the
>
> higher education innovation and reform movement that has taken place over the past
>
> generation: a constructivist epistemology that puts students at the center of building
>
> knowledge and meaning, urging instructors off the podium and turning them into
>
> intellectual mentors and guides; high-impact practices that take students out of the
>
> classroom and into contexts that ask them to transfer and apply knowledge; and active,
>
> social pedagogies in which students create, integrate, and apply knowledge together. (p.
>
> 5)

However, learner-centered instruction requires learners to have some degree of autonomy to be motivated and perform well. Doyle (2008) emphasizes the fact that learners will have varying levels of readiness in terms of taking control of the learning process, stating that many learners "will need help to learn how to play a more active role in their own learning, which will include learning how to take on new responsibilities and roles that previously belonged to the teacher" (pp. 8-9). The psychological need for autonomy is universal (Deci & Ryan, 2000), but the way in which learners experience autonomy is very much a result of individual and cultural traits. Knowing more about the way in which learners' unique cultural orientations interact with their perceptions of support and motivational beliefs on a project can help designers design more effective learner-centered instruction.

Design of learner-centered instruction. As we set out to introduce learners to new technologies and to scaffold the development of new learner-centered skills, it is important that learners are willing and open to behaving and interacting with the learning environment in new ways. Over the past few decades, with an increasing focus on 21st century skills (K-12) and learning with technology, there has been a focus on designing learner-centered instruction that allows learners to interact with technology throughout the learning process. Learners more and more experience the use of technology for a variety of purposes in their educational careers. In this particular study, the context of the study will involve the development of an ePortfolio.

ePortfolio as a process for learning. Many universities, programs, and courses have implemented the ePortfolio as a process for learners to reflect, compile, or showcase a culmination of work, experience, or learning over a period of time. In fact, as noted by Clark and Eynon (2009):

according to a 2008 study by the Campus Computing Project, just over 50 percent of public and private universities and public four-year colleges now offer some form of an e-portfolio to their students. Across all higher education sectors, the study shows, the use of e-portfolios has tripled since 2003. (p. 18)

Over the last decade, there has been a steady increase in the research and implementation of the electronic portfolio (ePortfolio) as an educational process or tool. While there are many uses and definitions for an electronic portfolio, Lorenzo and Ittelson (2005) defined an ePortfolio as "a digitized collection of artifacts including demonstrations, resources, and accomplishments that represent an individual, group, or institution" (p. 2) or "personalized, Web-based collections of work, responses to work, and reflections that are used to demonstrate key skills and accomplishments for a variety of contexts and time periods" (p. 2). An extension of the paper-based portfolio, three main purposes are often described in ePortfolio research, often termed "types" of portfolios. These types, coined by Danielson and Abrutyn (1997), are: working (also process or learning); showcase; and assessment. A "working ePortfolio" may focus on a formative approach to learning and reflection, whereas the other two types are more summative in nature (a "showcase ePortfolio" may focus on a student's best work and an "assessment ePortfolio" on archived work according to course objectives). Given the wide use of ePortfolio in higher education, often engaging learners with learner-centered approaches, ePortfolio was chosen as the educational process through which this study will be investigated.

Summary

Through this study, it is hoped that instructional designers will learn how to design learner-centered instruction, such as working ePortfolio projects, in a way that motivates learners of various cultural orientations in the most effective way possible. With the proper support in

place for each uniquely oriented learner, learners can benefit from increased intrinsic motivation, therefore experiencing positive effects on various motivational beliefs and performance outcomes. While it is well established that Autonomy Support has a positive effect on intrinsic motivation and various motivational beliefs, it has also been shown that learners' cultural orientations influence the way in which they perceive Autonomy Support (Hagger et al., 2007). This study aimed to determine if cultural orientation influences (moderates) the relationship between students' perceptions of Autonomy Support on a project and their motivational beliefs including Effort/Importance, Value/Usefulness, and felt Pressure/Tension on the project. This relationship was examined with particular focus on the investigation of the potential moderating role of students' culturally based learning preferences according to the eight cultural dimensions outlined in Parrish and Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework (CDLF), adapted from the work of "Hofstede and Hofstede (2005), Nisbett (2003), Levine (1997), Hall (1983), and Lewis (2006)" (Parrish & Linder-VanBerschot, 2010, p. 5). Potential applications of that knowledge according to the strength of those moderating relationships will be discussed.

Participants in this study completed an online survey that included sections for: demographic information, perception of Autonomy Support, motivational beliefs, and culturally based learning preferences. Following data collection, data were analyzed to answer both research questions. To address RQ1, both Pearson's and biserial correlations were performed. To address RQ2, a multiple linear regression analysis was performed to determine if and which moderating variables had a significant effect on the relationship between perception of Autonomy Support and each of the motivational beliefs. To address RQ3, correlational and simple linear regression analyses were performed to investigate the relationship between

individual culturally based learning preferences and motivational beliefs. This analysis added to

further discussion of how varying levels of selected moderating variables (culturally based

learning preferences) are related to the dependent variables (motivational beliefs) of significance.

CHAPTER TWO

Review of the Literature

Introduction

The review of the literature encompasses three main areas of research in relation to this study. It begins with a review of the meaning and purpose of Autonomy Support in an educational context. Next follows an inclusion of the theoretical underpinnings for the concept of autonomy and its connection to motivational theory, including reviews on intrinsic and extrinsic motivation and the evidence for the support thereof in educational contexts. Next follows an overview of various motivational beliefs of consideration for the design of instruction. Finally, a historical context of the study of cultural orientation is reviewed, followed by an overview of cultural dimensions of consideration for educational contexts.

Autonomy

According to Williams and Deci (1998), autonomy means "the quality of being self-regulating" (p. 304). To act autonomously, therefore, they suggest that humans must behave with "feelings of volition, willingness, and choice" (Williams & Deci, 1998, p. 303). Early on in the study of what is now termed "autonomy" in the field of education, deCharms (1968) noted that "man strives to be a causal agent, to be the primary locus of causation for, or the origin of, his behavior; he strives for personal causation" (p. 269). As evident in his research as early as 1968, deCharms hypothesized that the person who perceives that he has choice over his behavior (i.e., is an "origin," or someone who feels free and in control of his or her environment) will be more likely to experience resulting behavioral changes than the person whose behavior is perceived to be controlled by the environment (i.e., a "pawn"). In other words, the person that is not told how

to behave, but rather feels in control of his choices (i.e., autonomous), is more likely to be willing to change his behavior over the course of any given process. This is relevant in much research in the field of counseling and psychology, in which researchers have identified the need for patients to feel in control (or to develop that autonomy) in order to see long-term behavioral effects of therapy (Lynch, Vansteenkiste, Deci, & Ryan, 2011; Ryan & Deci, 2008), as well as applicable to the field of education in efforts to encourage behavioral change and development of new skill sets.

Autonomy Support

Reeve (2006), in his research on autonomy supportive teachers and the benefits on students thereof, stated "autonomy-supportive teachers facilitate congruence by identifying and nurturing students' needs, interests, and preferences and by creating classroom opportunities for students to have these internal states guide their behavior" (p. 228). Once again it is stressed that autonomous learning occurs when students' needs are met. It is essential that students experience that they can act by choice according to their own likes, goals, beliefs, and with consideration of personal constraints such as comfort level, prior knowledge, and expectations. According to this concept of autonomous learning as defined within SDT, it does not matter whether a person is dependent on someone, told to do something by someone else, or acts completely independently, as emphasized by Chirkov, Ryan, Kim, and Kaplan (2003). What does matter is whether the person feels that they acted on their own accord; in fact, Chirkov et al. (2003) further explained, "one can willingly follow an external influence or even an order provided one fully consents to, concurs with, or identifies with that influence" (p. 98). In this fashion, learner autonomy can occur regardless of the type of motivating factors in presence in the learning environment. The

existence and extent of experienced autonomy in learning, furthermore, is dependent on a number of intrinsic and extrinsic factors, but is not limited thereof to one specific combination.

Theoretical Underpinnings

Deci and Ryan (1985) explored the need for self-determination (i.e., to determine one's own actions) in humans in order to better explain the motivations behind behaviors. DeCharms (1968) described the state of man as a "unique locus of causality" (p. 272), and that one's behavior is "elicited by the unique combination of psychological and physical determinants within the human at a given time" (p. 273). One's ability to behave free from pressure, control, or from a desire to cause one's own behavior (i.e., self-determined) is considered to have an effect on motivation in learning (Deci & Ryan, 1985).

Deci and Ryan (1985) suggested that intrinsic motivation would drive human behavior when "the action is experienced as autonomous, and it is unlikely to function under conditions where controls or reinforcements are the experienced cause of action" (p. 29). They introduced organismic integration theory (OIT) through which they explained the process by which humans internalize extrinsically motivated behaviors. They provided a continuum which describes the developmental process of extrinsically motivated behavior from least to most autonomous as *external regulation*, *introjected regulation, identified regulation*, and *integrated regulation*, respectively (Deci and Ryan, 1985). In this final, most autonomous development of extrinsically motivated behavior, "identified regulations are fully assimilated to the self, which means they have been evaluated and brought into congruence with one's other values and needs" (i.e., integrated) (Ryan & Deci, 2000b, p. 73). Studies across a wide range of fields have investigated Deci and Ryan's (1985) continuum, finding that the more that people internalize extrinsically motivated behaviors (thus increasingly engaging in those behaviors autonomously), the more

benefits they experience (Gagné, Ryan, & Bargmann, 2003; Grolnick et al., 2002; Niemiec & Ryan, 2009; Ryan & Deci 2000b; Ryan, Kuhl, & Deci, 1997).

Regardless of the nature of existing motivational factors, (a) if learners are intrinsically motivated to perform a task, they will likely perform the task autonomously; or (b) if non-intrinsically motivated persons are presented with extrinsic motivators, they can still perform the task autonomously as long as they "have identified with and integrated" (Deci & Vansteenkiste, 2004, p. 30) the tasks. This presents a positive view for teachers in the suggestion that they can have an impact on the autonomy of their students (Ryan & Deci, 2000a; Ryan & Deci, 2008). Teachers should note that external forces (e.g., the environment, extrinsic motivators, teacher role, structures, Autonomy Support) interact in a way that can either support or thwart autonomy. It is necessary to understand the ways these forces interact with one another in order to create an environment of Autonomy Support rather than control (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Reeve, 2006).

Once a learner has transformed the perception of the task into alignment with their sense of self and integrated "the behavior into a larger constellation of related behaviors and values," (Grolnick et al., 2002, p. 151) they have successfully self-regulated the behavior and thus have become more self-determined. Thus, autonomous learning can occur regardless of students' inherent motivations and teachers' inherent motivational styles provided that the student perceives choice and personally endorses or develops endorsement for the learning behavior.

According to OIT, the presence of autonomy (in addition to relatedness) facilitates the process of integration of an extrinsically motivated behavior (Ryan & Deci, 2000b). Because humans must feel in control of their choices as well as personally endorse their behavior in order to fully act autonomously, the degree to which autonomy is facilitated will affect the degree to

which it is experienced (particularly in the absence of intrinsic motivation) and consequently the degree to which the benefits of autonomous behavior are experienced. This reiterates for educators that supports such as teacher role and the learning environment can have an effect on the degree to which learners experience autonomy.

Intrinsic Motivation

According to SDT, human behavior can be explained on a range from controlled to autonomous. Autonomous learning naturally occurs when a student is interested in a task that is also aligned with his/her beliefs. According to Black and Deci's (2000) research on the motivation behind behaviors, "intrinsically motivated behaviors are the prototype of autonomy. They are undertaken out of interest and sustained by the spontaneous thoughts and feelings that emerge as one performs the activity" (p. 741). Learners who value and are interested in a task often choose to perform it willingly and therefore autonomously, while learners who are uninterested are not naturally able to perform it autonomously. While the need for autonomy has been studied relative to age and gender, as long as the definition of autonomy "concerns the experience of volition and the self-endorsement of one's actions" (Chirkov et al., 2003, p. 107), it has been considered an individual-focused construct. In their research investigating gender differences in self-determination, Grolnick et al. (2002) maintained, "self-determination seems more likely to be a function of individual differences" (p.154). Even so, it can still be beneficial to make age and gender related decisions based on motivation and developmental research (Assor et al., 2002) in order to best understand students' intrinsic motivations and to predict their engagement.

Extrinsic Motivation

For those students who are not intrinsically motivated, extrinsic motivators must be carefully employed so as to ensure that the motivators are not perceived by the learner to be controlling factors, thus allowing for autonomous learning to occur. Kusurkar et al. (2011) emphasized, "intrinsic or extrinsic motivation is not a permanent or personality characteristic of an individual" (p. 978). Therefore, external factors, such as teachers, the supports in the environment, and the structure of the learning tasks can be manipulated in order to increase the likelihood that extrinsic motivation for a task will develop into "fully internalized extrinsic motivation" (i.e., closest to intrinsic motivation; fully volitional) (Deci, 1975; Deci & Ryan, 1985; Deci & Ryan, 2000). Learners then might experience the noted benefits of not only autonomy, but those of intrinsic motivation: deep learning, better performance, and well-being (Deci & Ryan, 2000).

Deci (1975) reinforced the fluid nature of motivation in referencing Gordon Allport's coining of the term "functional autonomy" for the concept that "an activity, regardless of its initiating motive, can become intrinsically interesting" (as cited in Deci, 1975, p. 25). Allport (1937) identified the alterable nature of human motives, stating "starting life, as a completely selfish being, the child would indeed remain entirely wolfish and piggish throughout his days unless genuine transformations of motives took place" (p. 5). One goal for the support of autonomous learning, therefore, is that students who experience an absence of intrinsic motivation and therefore completely rely on extrinsic motivation for a learning task would not just be praised, rewarded, or punished to ensure completion of a learning task, but that they would be exposed to the external factors necessary to enhance their intrinsic motivation and therefore would be positively influenced toward long-term success for that learning task.

Motivational Belief Factors

Research has shown that increased Autonomy Support is a facilitator of the integration of behavioral regulations (Ryan & Deci, 2000b), and is positively related to increased motivational beliefs, particularly those intrinsic in nature. Therefore, as Autonomy Support facilitates the internalization and integration of values and practices in the educational environment, students have increased intrinsic (i.e., autonomous) motivation for specific tasks. The following motivational beliefs have a relationship with the support of autonomy and are pertinent for consideration in educational contexts.

Interest/Enjoyment. It is generally understood that when someone is intrinsically motivated for a task, he or she is generally interested and finds the task enjoyable. Ryan and Connell (1989) investigated students' reasons (based on a continuum for autonomous regulation) for self-reported enjoyment in school, confirming that the more "autonomous the reason category, the more it was associated with self-reported enjoyment" (p. 756). Black and Deci (2000), in a study investigating the effects of instructors' Autonomy Support and organic chemistry students' autonomous motivation, found that "students' perceptions of workshop leader Autonomy Support explained enhanced adjustment as indicated by significant increases in perceived competence and interest/enjoyment and a significant decrease in anxiety during the semester" (p. 753).

Deci, Koestner, and Ryan (2001) investigated the factors (e.g., rewards) undermining intrinsic motivation, finding that rewards do not add value or interest to a task. They emphasized a larger issue at hand, raising the question of "how to facilitate people's understanding the importance of the activity to themselves and thus internalizing its regulation so they will be self-motivated to perform it" (Deci et al., 2001, p. 15). In this way, regardless of initial interest in a

task, as students' autonomy is supported, they can develop and report interest and enjoyment in a task.

Perceived competence. Black and Deci's (2000) previously mentioned study also displayed a relationship between Autonomy Support and students' adjustment and perceived competence. In consideration of the three psychological needs according to SDT, supports for autonomy, in conjunction with supports for competence and relatedness, enhance the motivational benefits of any supportive efforts (Ryan & Deci, 2000b). According to cognitive evaluation theory (CET), feelings of competence alone do not have an increasing effect on intrinsic motivation; however, if a sense of autonomy is present, a positive effect on intrinsic motivation is present.

Well-being. Ryan and Deci (2000b) further emphasized the importance of supporting students' psychological needs, noting "we maintain that by failing to provide supports for competence, autonomy, and relatedness, not only of children but also of students, employees, patients, and athletes, socializing agents and organizations contribute to alienation and ill-being" (p. 74). Similarly, Kasser and Ryan (1999), in their study on the relationship between the psychological needs of autonomy and relatedness on vitality, well-being, and mortality of residents in a nurse home found that "perceptions of autonomy support from family and friends, as well as from staff, were associated with lower depression and increased well-being, vitality, and life satisfaction" (p. 948). Autonomy Support has therefore been shown to be an important part of psychological health and overall well-being.

Engagement. Vallerand, Fortier, and Guay (1997), in an investigation of the relationship between students' perceptions of competence and autonomy and high school drop-out behaviors, summarized previous research, noting "much experimental (laboratory) research reveals that

individuals who are induced to become externally regulated persist much less than those who are intrinsically motivated (see Deci & Ryan, 1985) for a review)" (p. 1163). The study showed that motivation is linked to academic behavior, and reinforced the need for motivational support to predict, prevent, and enhance various educational behaviors. Deci et al. (2001) further emphasized that focusing on the facilitation of intrinsic motivation (rather than rewards) in such ways as supporting interests, choice, and appropriate levels of challenge will better enhance the type of motivation that is linked to the promotion of creative task engagement. Once again, the knowledge of appropriate supports (versus thwarts) is of utmost importance in the design of instruction that will increase student motivation and engagement.

High performance. Black and Deci (2000) took on the challenge of investigating the effect of Autonomy Support on performance as a learning outcome. They reported "the present results are important in that they are the first to focus on a college-level natural science course, and they are the first to link instructor autonomy support to actual exam performance in an educational setting" (p. 753). Based on previous research, it was thought that Autonomy Support would be generally positively related to conceptual learning. Further discussion of the results of this study revealed performance differences among students with high initial autonomy versus those with low initial autonomy. As the course progressed, Black and Deci (2000) reported:

> It was the students' low in autonomous self-regulation whose performance benefited from autonomy support, because instructors faced with such students may be inclined to become more controlling as a way of trying to motivate them. The results show clearly, however, that just the opposite is what these students need if they are to perform well in the course. (p. 754)

Student performance and various learning outcomes continue to be an important consideration for the support of autonomy in learning contexts.

Pressure/Tension. Given the fluid nature of motivation, and the potential for extrinsic factors to both enhance and thwart intrinsic motivation, it is necessary to assess and distinguish between the types of motivation by which people take action. Gagné and Deci (2005) emphasized, "central to SDT is the distinction between *autonomous motivation* and *controlled motivation*" (p. 333). Whereas autonomous motivation involves the experience of choice and the presence of a sense of volition (e.g., intrinsic motivation), controlled motivation "involves acting with a sense of pressure, a sense of *having to* engage in the actions" (Gagné & Deci, 2005, p. 334). For this reason, assessing students' perceptions of Pressure/Tension on a task can help determine the extent to which a student's action has been integrated. In consideration of the OIT controlled-to-autonomous continuum, at the least, a student could have no intention to act; in other words, amotivation. At the most, a student could already be naturally intrinsically motivated for a task. For the rest of the students in between, their motivations will fall along the continuum, at introjected, identified, or integrated (most autonomous/closest to intrinsic motivation). However, with proper supports in place, according to SDT, "under optimal conditions, people can, at any time, fully integrate a new regulation, or can integrate an existing regulation that had been only partially internalized" (Gagné & Deci, 2005, p. 335).

Value/Usefulness. It is important to understand the controlled-to-autonomous continuum as we assess students' motivations: students who feel pressure to act but do not identify with the task (introjected); students who may not be interested, but understand the importance and identify with what they are doing (identified); students who are willingly acting in alignment with their identities, beliefs, interests, goals, and values (integrated). Students who value the task

at hand are either intrinsically (autonomously) motivated or have reached an autonomous level of extrinsic motivation, and therefore are closest to fully autonomous, intrinsically motivated action (Gagné & Deci, 2005).

Effort/Importance. Those students who have integrated regulation "have a full sense that the behavior is an integral part of who they are, that it emanates from their sense of self and is thus self-determined" (Gagné & Deci, 2005, p. 335). Gagné and Deci (2005) further clarified:

Integrated regulation does not, however, become intrinsic motivation but is still considered extrinsic motivation (albeit an autonomous form of it) because the motivation is characterized not by the person being *interested* in the activity but rather by the activity b*eing instrumentally important* for personal goals. In short, intrinsic motivation and integrated extrinsic motivation are the two different types of autonomous motivation (with identified extrinsic motivation being relatively autonomous). (p. 335)

Each of these motivational beliefs is supported and/or enhanced through the support of autonomy. Given the individuality of students in their values, beliefs, and expectations, among various other differences, the support of autonomy is a process that can be challenging for educators to understand and implement. However, it is possible to support autonomy by understanding the true meaning of autonomy and considering how the support of autonomy is perceived by individuals according to various differences. Hagger et al. (2007) raised important questions with their research showing differences in the perception of Autonomy Support among diverse cultures, opening the door for researchers to further investigate how cultural differences influence perceptions of various aspects of instructional design and motivational support.

Cultural Orientation

Students, regardless of their nationality, can have a range of cultural similarities and/or differences to one another. Students can be similar to others in their native culture, or very different, or a blend of various dimensions of cultural traits. Thomas, Mitchell, and Joseph (2002) emphasized the socio-cultural nature of education in their plea for the Instructional Design Process to include three new parameters (intention, interaction, and introspection) as a third dimension of the ADDIE (Analysis, Design, Development, Implementation, Evaluation) Model. Thomas et al. (2002) further noted:

> As technology enables us to increase our interaction with the peoples of the world, we are enriched by the incessant shifts in our own cultural paradigms. Attention to this cultural dynamism and incessant interplay leads to both improved designs and improved designers. As instructional designers, we must be able to critically analyze our learner's cultures and allow it to strengthen the instructional design process. (p. 44)

Hofstede and Hofstede (2005) identified three sources of influence on human behavior and thinking: human nature, culture, and personality. One of the challenges of understanding cultural influences on behavior and thinking is in distinguishing between the influence of culture rather than other influences, such as human nature and/or personality (Hofstede & Hofstede, 2005).

Culture and autonomy. Researchers have investigated the question of autonomy as a psychological need for people of all cultures (Chirkov & Ryan, 2001; Hagger et al., 2007), some specifically focusing on comparing the perceptions and effects of Autonomy Support across cultures known to be diverse in nature.

In one study by Chirkov and Ryan (2001), adolescents in the U.S. and Russia were compared in terms of their perceptions of Autonomy Support from both teachers and parents, and the relationship between that perception and various motivational factors, including well-being, intrinsic motivation, and identification with goals. Regardless of cultural, contextual differences between the two countries (i.e., U.S.'s individualism vs. Russia's collectivism/authoritarianism), the adolescents in both samples revealed links between perceptions of Autonomy Support and well-being and intrinsic motivation. Chirkov and Ryan (2001) stated, "the concept of autonomy is perhaps a psychological variable worth studying in diverse nations and cultures and may be less culturally delimited an idea that many authors have assumed" (p. 632). Most significant to this research, Chirkov and Ryan (2001) also noted:

Although there may be cultural variations in how and to what extent autonomy is supported and expressed, the need to experience one's behavior as self-regulated and self-endorsed may be critical to psychological health across human groups, as Self-Determination Theory has suggested. (p. 632)

Hagger et al. (2007) set out to further clarify the question of how perceptions of Autonomy Support might vary among diverse cultures, hypothesizing that given Chirkov and Ryan's (2001) research, there would be differences in the perception of Autonomy Support among diverse cultures (i.e., individualistic cultures may report higher averages of perceived Autonomy Support than those of collectivistic cultures). The results of their study investigating youths' perceptions of Autonomy Support from PE teachers, peers, and parents in three diverse countries (Great Britain, Estonia, and Hungary) showed that overall "perceived autonomy support tended to be rated higher by British participants, an individualist culture, compared to the ratings of those from a collectivist culture" (p. 647).

Historical context. Educators, instructional designers, researchers, and humans alike

have long been interested in the differences among people of different cultures. Cultural

differences in values, beliefs, expectations, and behaviors become evident as humans of various

cultures set out to interact, work, and learn together. Beginning in the 1960's, while working for

IBM Corporation, Geert Hofstede gained experience in research regarding the investigation of

cultural implications in the workplace. In 1980, he published the first edition of *Culture's*

Consequences: International Differences in Work-Related Values (Hofstede, 1980). This book

and its second edition *Culture's Consequences: Comparing Values, Behaviors, Institutions, and*

Organizations Across Nations (Hofstede, 2001*)* set out to explore and clarify differences in

thinking and social action among people of different nations. Based on answers from a survey of

subsidiaries of IBM (a large multinational business organization) in 72 countries, respondents

were grouped by occupation, age, and gender, and analysis cultural revealed differences that

were later categorized for further comparison.

Hofstede (1980) and Hofstede and Bond (1988) defined five cultural dimensions through

which people can be assessed at the country and organizational-level. The following cultural

dimensions were revealed through analysis of employees' values and solutions for various

problems that occur cross-culturally: Power Distance, "which is related to the different solutions

to the basic problem of human inequality" (measured high/low); Uncertainty Avoidance, "which

is related to the level of stress in a society in the face of an unknown future" (measured

strong/weak); Masculinity versus Femininity, "which is related to the division of emotional roles

between men and women" (measured masculinity/femininity); Long-term versus Short-term

orientation, (i.e., Time Orientation) "which is related to the choice of focus for people's efforts:

the future or the present" (measured long-term/short-term); and Individualism versus

Collectivism, "which is related to the integration of individuals into primary groups" (measured Individualism/Collectivism) (Hofstede, 2001, p. 29).

Hofstede (2001) refers to culture as "the collective programming of the mind that distinguished the members of one group or category of people from another" (p. 9). Given that he investigated culture at the societal level (as opposed to the individual "values" level), he focused on global correlations, within-society correlations, and between-society correlations. He further explained that culture "could be defined as the interactive aggregate of common characteristics that influence a human group's response to its environment. Culture determines the uniqueness of a human group in the same way personality determines the uniqueness of an individual" (p. 10).

In a review of empirical research using Hofstede's cultural values framework, Kirkman, Lowe, and Gibson (2006) stated, "research using a variety of frameworks has shown that national cultural values are related to workplace behaviors, attitudes and other organizational outcomes" (p. 285). Looking at research published between 1980 and 2002 incorporating Hofstede's framework, they claimed that according to Social Science Citations Index, Hofstede's work "is more widely cited than others [frameworks] (cited 1,800 times through 1999; Hofstede, 2001)" (Kirkman et al., 2006).

Over the years, Hofstede's (2001) five cultural dimensions have been researched, adapted, and expanded upon. According to Kerr (2014) "despite some criticism, Hofstede's work continues to be frequently used as the theoretical framework for studies examining cultural diversity in online learning" (p. 159). Hofstede's five dimensions allow for individuals to be categorized according to a unique set of cultural beliefs, forming a unique cultural orientation to be grouped and compared according to country and/or organization. However, through trait-

based analysis, individuals' cultural orientations have been investigated and compared in terms of their direct effect and moderating effect on specified outcomes, aside from (but often including comparisons of) the typical or expected orientations of their organizational affiliations and nationalities. In this way, it is possible to understand humans according to their uniquely individualized or blended cultural orientations in addition to or separate from their association with a country or community of beliefs.

Given that many of the scales and individual trait-based analyses that have been developed to study cultural influences are adapted from Hofstede's (2001) work (designed for international organizational comparison, originally for IBM corporation), often times they focus on various workplace and management applications for institutions and organizations.

In a meta-analytic review of three decades of research using Hofstede's cultural value dimensions, Taras, Kirkman, and Steel (2010) compared "the predictive power of the cultural values versus that of other individual level attributes such as personality traits, general mental ability, and demographics on organizationally relevant outcomes" (p. 41). At first glance, the results of their studies suggested that cultural values did not strongly predict employee outcomes. However, their results showed that the amounts of variance due to cultural values were equal to or more "than that explained by individual differences such as the Big Five personality traits [extraversion; emotional stability; agreeableness; conscientiousness; and openness to experience] (e.g., Barrick & Mount, 1991), demographics (e.g., Eagly & Karau, 1991), and general mental ability (e.g., Hunter & Schmidt, 1998) with respect to specific outcomes" (Taras et al., 2010, p. 42-43).

Of particular relevance for the study of cultural values and their effect on educational contexts and students' perceptions of instructional supports, Taras et al. (2010) reported:

Specifically, while cultural values explained relatively low amounts of variance in outcomes such as job performance, absenteeism, and turnover, relatively larger effect sizes were detected for outcomes such as organizational commitment, organizational citizenship behavior, organizational identification, team-related attitudes and perceptions, receptivity to certain leadership styles, and feedback seeking. (p. 43)

Finally, Taras et al. (2010) reported that their meta-analysis revealed that cultural values have a greater relationship to attitudes and perceptions than to behaviors, and more to behaviors than to performance. For this reason, in consideration of the effect of culture on students' motivation in educational contexts, it is worthwhile to look at how culture impacts students' attitudes and perceptions rather than their behaviors and performance.

Cultural orientation and motivation. Soon after researchers began to classify cultural dimensions to investigate the role of national culture on various outcomes, others redirected the focus from national culture toward individual variations of culture within societies, various groups, and differing situations. Researchers began developing tools to investigate the culture of individuals within cultures (in both mono-cultural and cross-cultural studies), making sure to test the individual scales against national culture scales to validate the tools. Triandis, Leung, Villareal, and Clack (1985) took interest in the differences among individuals within national cultures, and investigated the relationship between specific national culture dimensions and variations among other similar tendencies. They found variance in tendencies among individuals within the same national culture from what was expected given participants' national individualism (Individualism/Collectivism) cultural dimension.

Au (1999) set out to explain "why variation within cultures, or intra-cultural variation (ICV), is an important construct for international management research" (p. 799), and cautioned

of differences among the conclusions of research on cultural dimensions when ICV is not considered appropriately. Au (1999) summarized findings of relevant studies, concluding "cultural heterogeneity, conceptualized as ICV here, can have significant impact on important management phenomena" (p. 809). This is applicable to various other fields in which there are managing roles, including that of business, marketing, and learning environments, of which many researchers have since begun to investigate (Dash, Bruning, & Acharya, 2009; Dorfman & Howell, 1988; McCoy, 2002; Patterson, Cowley, & Prasongsukarn, 2006; Robertson & Hoffman, 2000; Triandis et al., 1985; Yoo & Donthu, 2002).

Given the individual-focused nature of autonomy and motivation, it is inherent that students' cultural orientations play a role in their motivational beliefs regarding specific learning tasks and the learning environment. Many researchers have looked at the role of culture on various outcomes, often referring to culture at the national level. Others have investigated and argued the importance of examining the role of culture at the individual level, one group of researchers noting, "culture is the factor that has the most extensive influence on many dimensions of human behaviors" (Rinuastuti, Hadiwidjojo, Rohman, & Khusniyah, 2014, p. 143).

To meet various research interests, the Hofstede (1980) scales were adapted and tested by other researchers to allow for assessment at the individual level (e.g., Dorfman & Howell, 1988; Robertson & Hoffman, 2000). Numerous researchers have explored the relationship between culture and motivational outcomes in various contexts, particularly interested in the way that culture uniquely impacts motivation as opposed to variations in personality or preference. As these individual-level studies continued to be of interest, a new challenge arose for cultural

researchers to ensure that their investigations were encompassing cultural values rather than simple differences among personalities within cultures.

In one particularly applicable study, Dorfman and Howell (1988) investigated the moderating role of dimensions of national culture on effective leadership patterns, using culture scales based on those developed by Hofstede (1980). They categorized leadership patterns according to national culture, while also developing a scale to begin paving the way for future researchers to investigate cultural influences at the individual level. Dorfman and Howell (1988) noted "our data make it quite clear that the cultural values in the society will have a major influence in the degree to which directive leadership behaviors influence subordinate attitudes and job performance" (p. 145). In their discussion of results, they mentioned previous efforts by researchers to study national culture and its relationship to group and organizational efforts, stating "yet, an individualized measure sensitive to the strength of beliefs in key cultural values would be invaluable to organizational practitioners" (p. 146).

Regardless of the development of scales that can be used to explore individual differences within cultures beginning decades ago, many researchers have continued to investigate cultural differences across countries (cross-cultural research), thus expanding upon the knowledge of larger organizational and societal cultural impact. For example, d'Ailly (2004) found country-based differences in students' reported self-efficacy, levels of interest, effort expenditure, and performance on a set of three computerized foreign language learning tasks. However, some researchers have grouped students within a single-country cultural study (mono-cultural research) based on their native culture, such as a study by Asakawa and Csikszentmihalyi (2000) in which the relationship between feelings of connectedness and

internalization of values was investigated by use of a comparison of Caucasian American and Asian American adolescents.

In a summary of research based on Hofstede's (1980) cultural values framework, including investigations of the moderating role of culture on motivation, Kirkman, Lowe, and Gibson (2006) described numerous studies that examined cultural differences. Many of these studies compare groups according to country or language spoken (i.e., the national level). Motivational factors that have been investigated include: response to individual vs. group-focused trainings (Earley, 1994); the link between goal-setting and performance (Erez & Earley, 1987); relationship between leadership and performance/satisfaction (Dorfman & Howell, 1988); and the relationship between empowerment and performance (Eylon & Au, 1999).

In one individual-level study that also included national-level comparisons, Lam, Chen, and Schaubroeck (2002) investigated the moderating effect of cultural allocentrism, idiocentrism, and efficacy on employees' participative decision-making and performance. In their discussion of results, they mentioned, "when organizational or societal cultures are in transition, conceptualizations of beliefs at the individual level and their corresponding measures may better reflect the subtle nature of changes in belief structures" (p. 912). This gives warning to researchers of countries that are experiencing a blending of culture, or even to researchers of learning contexts that include learners from various countries and with various study abroad experiences, to consider examining at the individual level rather than solely at the national level.

Another important consideration for researchers interested in investigating how culture impacts various outcomes was revealed through a meta-analysis of Hofstede's work over the past three decades. Taras et al. (2010) identified the individualism vs. collectivism dimension as the most popular research consideration, while warning that the predictive value of that dimension

may be weak for certain outcomes. In an effort to provide direction to future cultural research, Taras et al. (2010) advised:

> Unfortunately, with the focus on individualism, the other cultural value dimensions have remained relatively underexplored. As represented by the differences in data availability on the various cultural dimensions, the number of studies that explored the other dimensions is only one-tenth to one-fifth of those that addressed issues related to individuals. (p. 52)

Educators and instructional designers in the United States (U.S.) face the unique challenge of designing instruction for students who are often very blended in cultural orientation. Higher education institutions in the U.S. not only have many international students enrolled, but many students who are native to the U.S. come from culturally blended families and have differing lengths of generational influences on their cultural orientations.

Whereas Hofstede's (1980) well-known research on the effects of cultural orientations began as an application for the workplace and for understanding workplace roles across cultures, these dimensions have since necessitated more clearly defined educational applications for each of the recognized dimensions of culture.

In 2010, Parrish and Linder-VanBerschot identified a need for a framework based on research that further specifies the cultural dimensions that are most likely to influence instruction. In an attempt to further understand the many influences on human behavior at the individual level, Parrish and Linder-VanBerschot (2010) gathered the research and identified eight cultural dimensions based on Hofstede and Hofstede's (2005) discussion of cultural values (i.e., "deepest and most enduring aspects of culture") versus cultural practices ("superficial rituals and norms that are more easily observed…more subject to change") (Parrish & Linder-

VanBerschot, 2010, p. 6). They created The Cultural Dimensions of Learning Framework (CDLF), which "describes a set of eight cultural parameters regarding social relationships, epistemological beliefs, and temporal perceptions, and illustrates their spectrums of variability as they might be exhibited in instructional situations" (Parrish and Linder-VanBerschot, 2010, p.1).

The Cultural Dimensions of Learning Framework (CDLF), was derived from multiple works, and is described in terms of learning behaviors that are "direct reflections of values, and challenging them may conflict with those underlying values" (Parrish & Linder-VanBerschot, 2010, p. 6).

Parrish and Linder-VanBerschot (2010) note the confusion that can arise with the attribution of human behavior toward the various levels of sources of influence on human behavior and thinking (i.e., human nature, culture, and personality [Hofstede & Hofstede, 2005]), stating:

> When people demonstrate differences or similarities, it is easy to confuse these levels because their influences combine, making them difficult to distinguish. The resulting uncertainty can lead to false assumptions and difficulties in interactions with others. This is just as true in education and training as it is in other life situations. (p. 3)

The CDLF takes the existence of various influences on thinking and behavior into consideration, and it is therefore noted that given human nature, "each person is capable of the entire range of thoughts and behaviors that can arise along each of the dimensions" (Parrish and Linder-VanBerschot, 2010, p. 5). The goal of the use of this framework is to help researchers identify how learners' culturally based learning preferences interact with their perceptions of support and their motivational beliefs on a project.

The cultural dimensions included in this framework are noted to represent cultural values rather than cultural practices. This is an identification based on Hofstede and Hofstede's (2005) model of cultural dimensions, in which they distinguish between layers of culture, and those aspects of culture that run deep (i.e., values) versus those that are more superficial and susceptible to change (i.e., practices). Whereas cultural practices are thought to be more adaptable to new situations without challenging a person's values, the possibility of challenging cultural values requires more careful consideration, particularly given that the successful support of autonomy requires the feeling of choice, volition, and alignment with one's beliefs. Given that Parrish and Linder-VanBerschot note that the learning behaviors described in this framework represent values, it can be very useful for instructional designers to be aware of the manifestation of the CDLF learning behaviors in their design of instruction.

Cultural Dimension Factors

For the purposes of investigating cultural orientation as applicable to educational contexts, Figure 1 shows a detailed description of the factors of the Cultural Dimensions of Learning Framework, from Parrish and Linder-VanBerschot's (2010) article outlining the framework. Based on the work of Hofstede and Hofstede (2005), Nisbett (2003), Levine (1997), Hall (1983), and Lewis (2006), Parrish and Linder-VanBerschot (2010) created the learning situation-based framework, broken into three sections introducing the cultural dimension factors. Each dimension was included based on cultural research demonstrating its effect on educational contexts. The following section provides an overview of the summarized evidence supporting each of the CDLF cultural dimensions' potential impact on various outcomes. Each dimension included in the CDLF will be discussed in terms of previous cultural research. Given that much of the previous cultural research has stemmed from the work of Hofstede (1980), those

dimensions that align closely with Hofstede's original framework will be supported by the previous research supporting the semi-equivalent dimension. However, the CDLF was adapted from numerous cultural frameworks, and was designed to encompass the cultural dimensions that influence the educational environment. Therefore, the CDLF dimensions discussed will vary from Hofstede's five dimensions in both name and in terms of its full application and description.

The Cultural Dimensions of Learning Framework

Social Relationships

Cultural dimension **Equality and authority**	How this dimension is manifested in learning situations	
	More equality	**More authority**
How is inequality handled? How is status demonstrated and respect given? What interactions are appropriate for those of unequal status? (Hofstede & Hofstede, 2005; Lewis, 2006)	Teachers treated as equals to be engaged and even challenged	Teachers are treated as unchallenged authorities
	Students take responsibility for learning activities	Teachers are solely responsible for what happens in instruction
	Dialogue and discussion are critical learning activities	The teacher is the primary communicator
Individualism and collectivism	**More individualistic**	**More collectivist**
Which prevails, the interests of the individual or the interest of the group? To what degree are interpersonal relationships valued? (Hofstede & Hofstede, 2005; Nisbett, 2003)	Expectation that students speak up Learning how to learn (cognitive skill) is primary (individual growth)	Students speak up in limited situations Learning how to do (content knowledge) is primary (social growth)
	Expression of student's point of view is valuable component of learning	Student expected to accommodate teacher's point of view
	Hard work is motivated by individual gain	Hard work is motivated by the greater good
Nurture and challenge	**More nurturing**	**More challenging**
Which is the more important set of goals, cooperation and security or recognition and advancement? Which achieves better learning outcomes, supportive acts or challenging acts? (Hofstede & Hofstede, 2005)	Average is used as the norm	Best student is used as the norm
	All students are praised	Only excellence is praised
	Collaboration is cultivated	Competition is cultivated
	Failure is a growth opportunity	Failure is a highly discouraged, and can be considered disastrous
	More modesty	More assertiveness
	Seek good relationships and security	Seek challenge and recognition

Epistemological Beliefs

Cultural dimension	How this dimension is manifested in learning situations	
Stability seeking and uncertainty acceptance	More stability seeking	More uncertainty acceptance
How is uncertainty dealt with? Is it avoided or accepted? Is structure assumed more important than flexibility? What is the status of knowledge – established or in a process of development? (Hofstede & Hofstede, 2005; Nisbett, 2003)	Structured learning activities	Learning activities more open-ended (discussions, projects)
	Focus on getting right answers	Focus on process and justified opinions
	Ambiguity to be avoided	Ambiguity is a natural condition
	Teachers expected to have the answers	Teachers can say "I don't know"
	Single textbooks or teacher authority	Many resources used
	Luck is a factor in student success (e.g., guessing the right things to study for the test)	Demonstrated ability to think is the key to academic success, not right answers
	More stressed	Less stressed
Logic argumentation and being reasonable	More logical	More reasonable
How are arguments developed? Which is more important, logical consistency or practical outcomes? How is disagreement managed? (Nisbett, 2003)	Focus on logical argumentation to find truth	Focus on achieving practical and socially acceptable outcomes
	Insistence on single truths based on logical reasoning	Acceptance of multiple truths based on experience
	Debate/argumentation is a learning activity	Consensus building is a learning activity
	Being right is most important	Being virtuous is most important
	Willingness to challenge others when the teacher/students are presumed wrong or being inconsistent	Acceptance of contradictions for the sake of continuing, harmonious dialogue
Causality and complex systems (Analysis and holism)	More focus on causality	More focus on systems and situations
How is causality assigned typically? Is it assigned to a single, most likely source, or is it assigned to the broader context? (Nisbett, 2003)	More goal orientation expected of learners	More willing to work within situational constraints
	Knowledge tied to cause-effect explanations	Knowledge tied to explanations of systems and situations
	Focus on stable knowledge and rules	Focus on evolving and situational knowledge
	Learning success or failure attributed to student characteristics	Learning success or failure attributed to the situation

Temporal Perceptions

Cultural dimension **Clock time and event time**	How this dimension is manifested in learning situations	
	More clock focus	**More event focus**
Do people conform to an external measure of time, or do they allow the event at hand to unfold on its own time? Which are more important, deadlines or relationships? (Levine, 1997)	Instructional activities start and stop promptly	Instructional activities are allowed to continue as long as they are useful
	Meetings outside of class time are limited to strict schedules	Boundaries between class and outside class time more fluid
	Strict deadlines and consequences for missing them	Work continues toward improvements with less regard for deadlines
	Likes procedures	Willing to bypass procedures
	Learners work quietly toward planned ends	Learners are talkative and expressive and may ignore plans

Linear time and cyclical time	**More linear time**	**More cyclical time**
Do people see time as a path and see goals as necessary destinations, or do they see time as a pattern of interlocking cycles into which they step in and out over the course of a life? (Hall, 1983; Lewis, 2006)	Time is to be managed	One adapts to time
	Learning proceeds along a linear path with clear prerequisites and milestones	Learning is seen as practice toward slowly increasing perfection
	Goal setting is essential to learning	Goals are secondary, one adapts to the situation to draw from it as much as possible
	Time is not to be wasted, actions should be quick and decisive if one cares about achievement	Time exists for observation and reflection, rushing is counter-productive to achievement
	Opportunities are not to be wasted. Chances don't present themselves twice	Because time is a series of cycles, opportunities recur. When they do, one may make wiser decisions
	The past is irrelevant. Future goals are what are important.	The past is influential since cycles repeat. One carries the past forward.
	Repetition can be seen as a being in a "rut" (not progressing)	Repetition is valuable for learning
	Students want to see immediate relevance	Students may be more patient to discover relevance

Figure 1. The Cultural Dimensions of Learning Framework. From "Cultural dimensions of learning: Addressing the challenges of multicultural instruction," by P. E. Parrish and J. A. Linder-VanBerschot, 2010, *The International Review of Research in Open and Distributed Learning*, *11*(2), pp. 4-5. Copyright 2010 by Parrish and Linder-VanBerschot. Reprinted with permission.

Equality/Authority. This dimension addresses the variability in the way that individuals handle inequality, status, and interactions between people of unequal status. Taras et al. (2010)'s meta-analysis investigating three decades of cultural research using Hofstede's cultural dimensions revealed that the dimension of Power Distance (addressing factors similar to Equality/Authority), at the individual level of analysis, has "the strongest positive associations with continuance (p=.30) and normative organizational commitment (p=0.39), preference for directive leadership (p=0.33), and religiosity (p=.36); and the strongest negative associations with both avoiding unethical behavior (p=-.038) and feedback seeking (p=-.26, k=3)" (p. 36). At the group level of analysis, Power Distance was strongly positively related to cooperating in groups (p=0.37) (Taras et al., 2010). Finally, at the country level of analysis, Power Distance "has a strong positive association with corruption (p=0.83) and agreeableness (p=0.46, k=2); but the strongest negative associations with openness to experience (p=-0.54, k=2) and income equality (p=-0.60)" (Taras et al., 2010, p. 37).

Hofstede, Hofstede, and Minkov (2010) identified that students in countries scoring high on Power Distance valued: "having desires; moderation, following the middle way; and keeping oneself disinterested and pure" (p. 63) while those in countries scoring low in Power Distance valued: "adaptability and prudence (carefulness)" (p. 63). In terms of an educational application, Hofstede et al. (2010) summarizes that in small Power Distance countries: "(a) students treat teachers as equals; (b) teachers expect initiatives from students in class; (c) teachers are experts who transfer impersonal truths; (d) quality of learning depends on two-way communication and excellence of students; and (e) less educated persons hold more authoritarian values than more educated persons" (p. 72). In large Power Distance countries: (a) students give teachers respect, even outside class; (b) teachers should take all initiatives in class; (c) teachers are gurus who

transfer personal wisdom; (d) quality of learning depends on excellence of the teacher; and (e) more educated and less educated persons show equally authoritarian values" (Hofstede et al., 2010, p. 72).

According to Wursten and Jacobs' (2013) analysis, in which they broke down Hofstede's five cultural dimensions in terms of their influences on education, cultures with low power distance might be more student-centered, while high power distance might experience more teacher-centered practices.

Individualism/Collectivism. This dimension addresses the variability in the way that individuals value the interests of the individual versus the interests of the group, as well as the degree to which individuals value interpersonal relationships. Taras et al. (2010)'s meta-analysis investigating three decades of cultural research using Hofstede's cultural dimensions revealed that the dimension of Individualism/Collectivism, at the individual level of analysis, "has the strongest positive associations with avoiding unethical behavior (p=0.39) and preference for paternalistic leadership (p=0.46, k=3); and the strongest negative associations with need for affiliation (p=-.37), concern for other's interests in conflict management (p=-0.37), and embarrassability (p=-0.42)" (Taras et al., 2010, p. 36). At the group level of analysis, individualism has "the strongest positive association with a preference for a compromising conflict management style (p=0.19, k=3); and the strongest negative association with cooperation in groups (p=-0.39)" (Taras et al., 2010, p. 36). Finally, at the country level of analysis, individualism "has the strongest positive associations with innovation (p=0.65, k=3), wealth (p=0.70), life satisfaction (p=0.64), and income equality (p=0.64); but the strongest negative associations with importance of family (p=-0.55, k=3) and corruption (p=-0.84)" (Taras et al., 2010, p. 37).

Hofstede et al., 2010 reported that students from individualist countries value: "tolerance of others; harmony with others; noncompetitiveness; a close, intimate friend; trustworthiness; contentedness with one's position in life; solidarity with others; and being conservative" (p. 100). However, students of collectivist countries or societies valued: "filial piety (obedience to parents, respect for parents, honoring of ancestors, financial support of parents); chastity in women; and patriotism" (p. 100). In terms of an educational application, Hofstede et al. (2010) summarizes that in collectivist cultures: "(a) students speak up in class only when sanctioned by a group; (b) the purpose of education is learning how to do; and (c) diplomas provide entry to higher-status groups" (p. 124). However, in individualist cultures: "(a) students are expected to individually speak up in class; (b) the purpose of education is learning how to learn; and (c) diplomas increase economic worth and/or self-respect" (Hofstede et al., 2010, p. 124).

According to Wursten and Jacobs' (2013) analysis, in which they broke down Hofstede's five cultural dimensions in terms of their influences on education, cultures leaning toward collectivist ideals may only speak in groups or when called on by the instructor, while students in individualist cultures may speak up, confront, and challenge in the learning environment.

Nurture/Challenge. This dimension addresses the variability in the way that individuals set goals: more focused on cooperation or security; or more focused on recognition and advancement. Also, this dimension addresses whether individuals believe that acts that are more supportive, or acts that are more challenging, will produce superior outcomes for learning. This dimension is similar to Hofstede's Masculinity/Femininity dimension, in which masculinity refers to masculine assertiveness and competition, while femininity refers to feminine nurturance and concern for others and the environment.

Taras et al. (2010)'s meta-analysis investigating three decades of cultural research using Hofstede's cultural dimensions revealed that the dimension of Masculinity/Femininity, at the individual level of analysis, has "the strongest positive associations with a preference for a compromise conflict management style ($p=0.58$, $k=3$) and social avoidance ($p=0.55$, $k=3$); and the strongest negative associations with a preference for an avoidance conflict management style ($p=-0.36$, $k=3$) and the value of individual equality ($p=-0.44$, $k=3$)" (p. 36). At the group level of analysis, Masculinity was negatively related to cooperation in groups ($p=-0.45$, $k=2$) (Taras et al., 2010, p. 36). Finally, at the country level of analysis, Masculinity "had the strong positive associations with neuroticism ($p=0.29$) and corruption ($p=0.29$); but the strongest negative association with gender role equality ($p=-0.50$, $k=2$)" (p. 37).

Hofstede et al. (2010) summarized that in educational contexts, in feminine societies: "(a) average student is the norm; praise for weak students; (b) jealousy of those who try to excel; (c) failing in school is a minor incident; and (d) competitive sports are extracurricular" (p. 165). However, in masculine societies: "(a) best student is the norm; praise for excellent students; (b) competition in class; trying to excel; (c) failing in school is a disaster; and (d) competitive sports are part of the curriculum" (p. 165).

According to Wursten and Jacobs' (2013) analysis, in which they broke down Hofstede's five cultural dimensions in terms of their influences on education, in cultures that are more masculine, students may be rewarded for excelling, choose majors according to future career goals, and be devastated by failure. In more feminine cultures, students are expected to adapt to the social environment, behave modestly, consider failure to be minor, and choose studies based on interest (Wursten & Jacobs, 2013).

Stability seeking/Uncertainty acceptance. This dimension addresses the variability in the way that individuals deal with uncertainty, structure versus flexibility, and whether knowledge is a developing process or previously established. This dimension encompasses Hofstede's Uncertainty Avoidance Index, for which the focus is on how people deal with ambiguity and uncertainty. Taras et al. (2010)'s meta-analysis investigating three decades of cultural research using Hofstede's cultural dimensions revealed that the dimension of Uncertainty Avoidance, at the individual level of analysis, had "the strongest positive associations with team commitment (p=0.37) and preference for directive leadership (p=0.36); and the strongest negative associations with innovation (p=-0.41) and preference for participative leadership (p=-0.25)" (p. 36). At the group level of analysis, uncertainty avoidance was strongly positively related to cooperation in groups (p=0.37, k=2). Lastly, at the country level of analysis, uncertainty avoidance "had the strongest positive associations with neuroticism (p=0.59) and corruption (p=0.43); but the strongest negative associations with innovation (p=-0.45, k=3) and life satisfaction (p=-0.49)" (p. 37).

According to Hofstede et al. (2010), in educational contexts, for weak uncertainty avoidance societies: "(a) students are comfortable with open-ended learning situations and concerned with good discussions; (b) teachers may say, "I don't know"; (c) results are attributed to a person's own ability; and (d) teachers involve parents" (p. 208). However, for strong uncertainty avoidance societies: "(a) students are comfortable in structured learning situations and concerned with the right answers; (b) teachers are supposed to have all the answers; (c) results are attributed to circumstances or luck; and (d) teachers inform parents" (p. 208).

According to Wursten and Jacobs' (2013) analysis, in which they broke down Hofstede's five cultural dimensions in terms of their influences on education, for cultures in which there is

low uncertainty avoidance, students enjoy broad tasks, control of their own time and schedules, and intellectual debate with their teachers, and are comfortable with unknowns in the learning environment. For those cultures with high uncertainty avoidance, students will receive detailed instructions, schedules, and expectations, will be rewarded for accuracy, and speak with professional language (Wursten & Jacobs, 2013).

The following four CDLF dimensions do not align as closely in name as the previous four in terms of Hofstede's original cultural dimensions. However, they are addressed partially in Hofstede's Long-term Orientation dimension, while also crossing over some of the previously discussed dimensions as well as addressing additional cultural preferences in the research.

Logic argumentation/Being reasonable. This dimension addresses the variability in the way that individuals develop arguments and disagreements, and identifies if an individual more highly values consistency of logic or outcomes that are more practical. This dimension encompasses some of the work of Lewis (2006) in which the concepts of decision-making and negotiation are discussed in terms of cultural differences. In Lewis's (2006) discussion of decision-making across cultures, there is focus on differences among the processes by which decisions are made, the amount of time it takes to make decisions, and how binding the decisions tend to be. Lewis (2006) also presents a breakdown of differences among cultures in terms of their negotiating objectives, such as the United States most valuing the current deal, Japan valuing "harmonious relationships and 'direction taking'" and Latin America valuing national honor (p. 164).

Causality/Complex systems (Analysis/Holism). This dimension addresses the variability in the way that individuals assign causality, to either a likely single source, or a larger, broader context. This dimension is partially addressed in Nisbett's (2003) work discussing how

Asians and westerners think, describing causality and rules of logic as western notions while designating the thinking of events and objects as changing parts of a meaningful whole as an Asian concept.

Clock time/Event time. This dimension addresses the variability in the way that individuals address, conform, or experience the concept of time, and the varied importance they give to deadlines or relationships. This dimension of time across cultures was previously investigated in Levine's (1997) work, in which cultural tempos (i.e., pace of life) are described in detail. Levine (1997) summarizes that larger cities have faster tempos, locations with hotter climates are slower, places with vital economies move faster, places with a high degree of industrialization move faster, and that individualistic cultures move faster than collectivistic ones.

Linear time/Cyclical time. This dimension addresses the variability in the way that individuals address time, as a cycle or pattern, or as a path with destinations. In previous research, Levine (1997) discussed the concept of the psychological duration of time, diving into the way that people experience time. The concept of the pace of life is taken one step further, discussing rhythms of time, sequences of time, and synchronies of time. Hall (1983) described the concept of monochronic vs. polychronic time, considering those who prefer to do one thing at a time monochronic (M-time) (e.g., United States, Northern Europe) or those who prefer to do multiple things at once polychronic (P-time) (e.g., Latin America, Middle East).

According to Hofstede et al. (2010), in terms of education, in societies that are more short-term orientation focused, "(a) students attribute success and failure to luck; (b) weaker mathematics and science results of fourteen-year-olds due to less effort; (c) no special skills for mathematics; and (d) talent for theoretical, abstract sciences" (p. 275). In societies that are more

long-term focused, "(a) students attribute success to effort and failure to lack of it; (b) better mathematics and science results of fourteen-year-olds due to harder work; (c) In East Asia, better at mathematics; and (d) talent for applied, concrete sciences. Whereas long-term orientation represents "the fostering of virtues oriented toward future rewards—in particular, perseverance and thrift" (Hofstede et al., 2010, p. 239), short-term orientation represents "the fostering of virtues related to past and present—in particular, respect for tradition, preservation of 'face', and fulfilling social obligations" (p. 239).

According to Wursten and Jacobs' (2013) analysis, in which they broke down Hofstede's five cultural dimensions in terms of their influences on education, in cultures with low long-term orientation, students may ask questions about why they are learning something, see problems as having one primary solution, and value stability. Students in cultures with high long-term orientation may ask regarding how they should learn something, expect various possibilities and solutions to given problems, emphasize education as an obligation to their families and communities, and value perseverance (Wursten & Jacobs, 2013).

Although the CDLF was designed to address cultural differences that have an influence on teaching and learning, Parrish and Linder-VanBerschot (2010) emphasized that it "does not pretend to address all potential cultural dimensions that might be useful to consider. For example, gender roles and differences in non-verbal communications are treated only indirectly" (p. 6). Even so, there continues to be an exponential growth in cultural research (Taras et al., 2010), and the CDLF ensures that the influence of culture on educational contexts will be taken into consideration.

Summary

According to self-determination theory, humans have three psychological needs (autonomy, relatedness, and competence) that work together to support students in various ways, including motivationally (Deci & Ryan, 2000; Deci & Vansteenkiste, 2004; Ryan & Deci, 2000b). In consideration of educational contexts, one of the most important considerations for instructional designers and educators to address is student motivation. When students are intrinsically motivated, they tend to be engaged, have increased well-being, and perform well in learning environments (Deci & Ryan, 2000). However, when students are not motivated, they require the intervention of extrinsic factors in order to develop motivation for a task (Deci, 1975). Instructional designers and educators have the ability to support or thwart this motivational development through the design and implementation of instruction. One of the primary ways to provide motivational support for students is through the support of student autonomy (Reeve, 2006). According to Black and Deci's (2000) research on the motivation behind behaviors, "intrinsically motivated behaviors are the prototype of autonomy. They are undertaken out of interest and sustained by the spontaneous thoughts and feelings that emerge as one performs the activity" (p. 741). Through the support of autonomy, students are able to reach a more autonomous form of motivation, closest to intrinsic in nature (Deci, 1975; Deci & Ryan, 1985; Deci & Ryan, 2000). In this way, they are able to experience numerous benefits, including increased interest, engagement, effort, value, and performance on a given task (Deci, 1975; Deci & Ryan, 2000; Gagné & Deci, 2005).

Since the mid 1900's, researchers have studied how best to support students' autonomy, suggesting numerous strategies to employ in the educational environment (Allport, 1937; deCharms, 1968; Deci, 1975; Reeve, 2006). Researchers have also investigated the effects of

Autonomy Support and numerous other factors on various motivational beliefs (Lynch et al., 2011; Ryan & Deci, 2008). In today's multi-cultural educational environments, one of the greatest individual differences among students is that of their cultural values, beliefs, expectations, and general differences (Cornelius-White & Harbaugh, 2009).

Based on current cultural research, it has been suggested that similar to, or even more than such factors as personality, the individual level of cultural values predict and "affect emotions, attitudes, and perceptions more strongly than behaviors and, in turn, behaviors more strongly than job performance" (Taras et al., 2010, p. 63). According to a meta-analysis of cultural research over the past three decades, Taras et al. (2010) were not able to analyze cultural values as moderators in their meta-analysis due to the lack of replicated research involving the moderating effects of culture. They expressed hopes "that with Hofstede-inspired research continuing to expand exponentially, such an investigation may be possible in the near future" (p. 53). They acknowledged "cultural beliefs/values can also moderate relationships between individual level facets such as attitudes and perceptions and behavior and between behavior and job performance" (p. 64). Current research is limited in the exploration of cultural effects on known relationships, particularly in the area of Autonomy Support and its effect on various motivational beliefs. Even though SDT posits autonomy as a universal need for autonomy, it is still largely unknown how students, given various cultural differences, perceive autonomy supportive efforts and how that might impact the resulting motivational effects.

CHAPTER THREE

Methodology

Purpose of the Study

The purpose of this study was to identify how students' perceptions of Autonomy Support on their projects related to their motivational beliefs including Effort/Importance, Value/Usefulness, and felt Pressure/Tension on the project. This relationship was examined with particular focus on the investigation of the potential moderating role of students' culturally based learning preferences according to the eight cultural dimensions outlined in Parrish and Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework (CDLF), adapted from the work of "Hofstede and Hofstede (2005), Nisbett (2003), Levine (1997), Hall (1983), and Lewis (2006)" (Parrish & Linder-VanBerschot, 2010, p. 5).

Research Questions (RQ)

This study investigated the research questions:

RQ1: How do students' perceptions of Autonomy Support from an instructor on a project relate to their motivational beliefs on the project?

RQ2: What is the moderating role of students' culturally based learning preferences on the relationship between perceived Autonomy Support and motivational beliefs on the project?

RQ3: What relationships exist between individual culturally based learning preferences and motivational beliefs on the project?

Research Design

This study was quasi-experimental, survey-based research. This study was supported by self-reported data collected from a convenience sample of graduate and undergraduate students enrolled in a variety of courses that assigned an ePortfolio project. I used correlational analysis to

determine the relationship between students' perceptions of Autonomy Support from their instructor on an ePortfolio project and their motivational beliefs on the project (Effort/Importance, Pressure/Tension, and Value/Usefulness) to answer RQ1. I used Multiple Regression Analysis to determine the moderating effect of students' culturally based learning preferences on the relationship between their perception of Autonomy Support and each motivational belief to answer RQ2. I used correlational and simple linear regression analysis to determine the relationship between students' culturally based learning preferences and each of the three motivational beliefs to answer RQ3.

Participants

Students of higher education instructors who implemented ePortfolio projects in their courses were the population from which the data were collected. Higher education instructors who implemented ePortfolio projects in their courses from all over the U.S. were invited to participate, through whom students were contacted to complete the survey. Instructors were contacted by email directly, through professional ePortfolio listservs, and through ePortfolio Centers on campuses. Instructors taught a variety of subject areas and levels of higher education. Instructors received an email invitation and self-selected to invite their students to participate by email. Student participants for this study then self-selected to participate. There were a variety of different age groups, class sizes, and course subjects represented in the population.

Survey response. A total of 49 instructors were contacted directly by email as a result of initial emails, recommendations from those instructors, and in response to email inquiries from direct emails, forwarded emails, and receipt of a listserv email. An unknown number of instructors were reached by way of the EPAC (Electronic Portfolio Action & Communication) listserv as well as by way of forwarded emails from ePortfolio instructors and directors. Of the

49 instructors that agreed to participate in some way (by sharing with instructors under their direction; sharing with other instructors; or sharing directly with students under their direction), 12 instructors self-selected to invite their students to take the survey. In total, 313 students were committed to be invited to take the survey. Of the 313 students invited to participate, 38 students self-selected to respond and submitted surveys. Three responses were incomplete for one or more sections of the survey, and therefore were omitted from the analysis for a final response count of 35 (N=35). Each section of the survey was essential to answer the research questions, given the three variable analysis for RQ2 (x, y and moderator).

Learner demographics. Of the 35 participants included in the analysis, females comprised 60% (n=21), and males comprised 40% (n=14). In regard to student status, 46% (n=16) were undergraduate students, 51% (n=18) were graduate students, and 3% (n=1) identified as "other."

Instruments

Each participant completed a single survey that included sections for: demographic information, perception of Autonomy Support, motivational beliefs, and cultural orientation. Participants first completed an introductory section of the survey with questions about the participant's demographic information, including: sex, ethnicity or country/culture of identification, and student status (undergraduate/graduate/other). The independent (predictor) variable was defined as student perception of Autonomy Support. The dependent (outcome/response) variables were defined as student motivational beliefs, three of which were of interest in this study: (a) Effort/Importance, (b) Value/Usefulness, and (c) felt Pressure/Tension. The eight moderating variables were defined as the cultural dimensions (i.e., culturally based learning preferences) derived from Parrish and Linder-VanBerschot's (2010)

CDLF: (a) equality and authority, (b) individualism and collectivism, (c) nurture and challenge, (d) stability seeking and uncertainty acceptance, (e) logic argumentation and being reasonable, (f) causality and complex systems/analysis and holism, (g) clock time and event time, and (h) linear time and cyclical time. Each participant completed the entire survey one time, and no treatment was administered.

Perceived Autonomy Support: The Learning Climate Questionnaire (LCQ). After completing the demographic section of the survey, participants then continued the survey to complete the Perceived Autonomy Support: The Learning Climate Questionnaire (LCQ) adapted by Williams and Deci (1996) from the Health-Care Climate Questionnaire by Williams, Grow, Freedman, Ryan, and Deci (1996). This instrument questions students regarding their perceptions of their teacher's actions in the learning environment. In this study, the full scale was used to ensure accurate representation of perceptions of Autonomy Support on a wide variety of ePortfolio projects. The students answered 15 questions according to a seven point Likert scale from one to seven, with one being "strongly disagree," four being "neutral," and seven being "strongly agree." The questionnaire begins with the statement "This questionnaire contains items that are related to your experience with your instructor in this class. Instructors have different styles in dealing with students, and we would like to know more about how you have felt about your encounters with your instructor. Your responses are confidential. Please be honest and candid." (Perceived Autonomy Support: The Learning Climate Questionnaire, 2015). The questionnaire is noted to be typically used in a specific learning event or class, at the college or graduate level. It is also noted to sometimes be adapted slightly in the instructions to pertain to the specific learning event of interest. The questionnaire was adapted to ensure consideration of the ePortfolio project as students answer the questions. For example, a question that reads, "I feel

that my instructor provides me choices and options" was adapted to read, "I feel that my instructor provides me choices and options in the preparation of my ePortfolio" (see **Appendix E** for a few examples of the adapted questions as included in the Qualtrics survey; see **Appendix F** for additional description of the questionnaire and scoring instructions).

In a study by Williams and Deci (1996) with (N = 131) students, "a principal-components factor analysis yielded a single factor solution (15 items, eigen value = 9.5) that explained 63% of the variance in the scale. All items loaded .66 or higher on the single factor. The alpha reliability of the scale was .96" (p. 770).

Intrinsic Motivation Inventory (IMI). Next, students completed the following three subscales from the Intrinsic Motivation Inventory (IMI): Effort/Importance, Value/Usefulness, and felt Pressure/Tension. This instrument questions students on their motivational beliefs on a task. The three motivational beliefs were assessed by inclusion of three individual subscales from the full questionnaire. The students answered 17 questions according to a seven point Likert scale from one to seven, with one being "not at all true," four being "somewhat true," and seven being "very true." The questionnaire is noted to be intended to assess participants' "subjective experience related to a target activity in laboratory experiments" (Intrinsic Motivation Inventory, 2015). The questionnaire was adapted to ensure consideration of the ePortfolio project as students answer the questions. For example, a question that reads, "I put a lot of effort into this" was adapted to read, "I put a lot of effort into this ePortfolio project" (see **Appendix E** for a few examples of the adapted questions as included in the Qualtrics survey; see **Appendix G** for additional description of the questionnaire and scoring instructions).

In a study by McAuley, Duncan, and Tammen (1989) with (N = 116) subjects, internal consistency for the subscales was "generally quite adequate with the alpha coefficient for each of

the following scales shown in parentheses: … effort (α = .84); and pressure-tension (α = .68). The overall scale also appears to be internally consistent with an alpha coefficient of .85" (p. 51).

Survey on Culturally Based Learning Preferences. Finally, students completed the Survey on Culturally Based Learning Preferences, designed by Parrish and Linder-VanBerschot (2009a). This survey questions participants regarding their culturally based learning preferences dealing with: Equality/Authority; Individualism/Collectivism; Nurture/Challenge; Stability seeking/Uncertainty acceptance; Logic argumentation/Being reasonable; Causality/Complex systems (Analysis/Holism); Clock time/Event time; and Linear time/Cyclical time. Students answered 36 questions according to a ten point semantic differential scale from one to ten, with one being "strongly agree with the left-hand statement," ten being "strongly agree with the right-hand statement," and the selection of other numbers indicating "lesser degrees of agreement with one side or the other" (see **Appendix E** for a few examples of the unadapted questions as included in the Qualtrics survey; see **Appendix H** for the original questionnaire; see **Appendix I** for scoring instructions).

Pilot Test

In November, 2015, a pilot test of this survey was performed with four student participants. Students were also asked to provide feedback regarding the length and clarity of questions and were invited to share any other questions or concerns that arose throughout the pilot testing process. The information gained from this pilot test was used to inform instructors and students of a 15-30-minute time expectation for completion of the survey upon invitation to participate in the study. No additional changes were made as a result of this pilot test.

Procedures

Data for this study was collected through an online survey. In October 2015, instructors were contacted by email through direct contact, a professional listserv, and ePortfolio Centers on campuses, and self-selected to participate by responding to the email from the primary investigator. On December 2, 2015, an email was sent out to participating instructors including the email and link to the study to be shared with their students. In December, 2015, as the course projects were completed, instructors were advised to send the email to their students; the primary investigator asked instructors to verify that this email was received and distributed to students.

Students of those instructors that elected to share the survey with their students self-selected to respond. The students were given a link and asked to complete their surveys no later than two weeks after completion of the ePortfolio project. The survey closed within a few weeks of the typical conclusion of higher education fall semesters, on January 12, 2016. Efforts were made to ensure that approximately 300 students were invited to participate. On December 16, 2015, a reminder email was sent to instructors asking them to remind their students to fill out the survey following submission of their ePortfolio projects. These emails were tailored to each individual instructor, reminding them of the number of students they committed to inviting and asking if they would please repeat the invitation to students.

Scoring

The surveys were scored and participants were assigned a quantitative average score that reflected: (a) the extent to which students perceived their instructor is supportive of their autonomy on an ePortfolio project (an average of 15 questions, each scored 1-7); (b) the extent to which students experienced the motivational beliefs of Effort/Importance (an average of five questions, each scored 1-7), Value/Usefulness (an average of seven questions, each scored 1-7),

and felt Pressure/Tension (an average of five questions, each scored 1-7); and (c) the extent to which students leaned toward either direction of each of the eight cultural dimensions, including Equality/Authority (an average of three questions, each scored 1-10); Individualism/Collectivism (an average of four questions, each scored 1-10); Nurture/Challenge (an average of five questions, each scored 1-10); Stability seeking/Uncertainty acceptance (an average of six questions, each scored 1-10); Logic argumentation/Being reasonable (an average of three questions, each scored 1-10); Causality/Complex systems (Analysis/Holism) (an average of four questions, each scored 1-10); Clock time/Event time (an average of four questions, each scored 1-10); and Linear time/Cyclical time (an average of seven questions, each scored 1-10). In total, each student was assigned eight cultural scores, three motivation scores, and one autonomy score from a total of 68 questions (see **Appendix E** for example questions as included in the Qualtrics survey; see **Appendices F, G, H, and I** for descriptions of the questionnaires and scoring information).

Data Analysis

The independent variables of the regression in this study were perception of Autonomy Support (average), each of the eight dimensions of cultural orientation (low, neutral, and high), and the interaction between perception of Autonomy Support and each of the eight dimensions of cultural orientation. The dependent variable of the regression in this study was each of the assessed motivational beliefs: Effort/Importance; Value/Usefulness; and felt Pressure/Tension). If the interaction was significant, then moderation was supported (Statistics Solutions, 2013). The data were tested for violations of normality.

Previous studies on the relationship between culture and motivation have examined moderating variables (Dorfman & Howell, 1988; Earley, 1994; Erez & Earley, 1987; Eylon &

Au, 1999; and Lam et al., 2002). Of these studies, Dorfman and Howell (1988) assessed the moderating effect of culture using two procedures; of the two, "a second and potentially more powerful technique for identifying the moderating effects of the culture scales uses hierarchical multiple regression as developed by Cohen and Cohen (1983)" (p. 136). In the case of this research, the hierarchical method of multiple regression was unnecessary given that the predictions for the regression model were not based on separate stages. Earley (1994) analyzed the study data using a regression model instead of an ANOVA, given that the interest was toward the relationship of "individualism-collectivism and its interaction with training as mediating variables" (p. 97). Erez and Earley (1987) also explored tests of moderation using hierarchical regression analysis, finding that "cultural values only seem to weakly moderate the effect of goal-setting strategies on goal acceptance" (p. 663). Eylon and Au (1999) and Lam et al. (2002) both investigated the moderation of variables through the use of interaction tests or three way ANOVAs.

Following data collection, data were analyzed using multiple linear regression, simple linear regression, and correlation tests as recommended by Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis (LISA) to answer all research questions.

Analysis of research question one. To address RQ1, both Pearson's and biserial correlations were performed. Individual correlations were used to assess for relationships between students' perceptions of Autonomy Support from an instructor and each of the three motivational beliefs. Level of perception of Autonomy Support was used as the x variable, and each motivational belief (Effort/Importance, Value/Usefulness, and felt Pressure/Tension) was used as the y variable (1,2,3). Given the concentration of responses for perception of Autonomy Support on the Likert scale between values 4 and 7, a biserial correlation was run using an

artificially dichotomized variable for x. The x variable was transformed into a 1 and 0 variable. It was equal to 1 if x≥6, and 0 otherwise. Finally, a simple linear regression was run to test for significance in the relationship between each of the three y values based on variations of x. For one of the values of y (Effort/Importance), the Kruskal-Wallis one-way analysis of variance was used to test for significance in the absence of assumptions necessary for simple linear regression.

Analysis of research question two. To address RQ2, a two-part analysis process was used. First, a multiple linear regression analysis was performed to determine if and which moderating variables had a significant effect on the relationship between perception of Autonomy Support and each of the dependent variables. A multiple linear regression was run for each of the three dependent variables. The model examined the interactions between the eight moderating variables (cultural orientation) and the independent variable (level of perception of Autonomy Support). With the occurrence of significant results, each regression analysis was to present a best model, revealing which of the eight moderating variables were most important in predicting each of the dependent variables. From each resulting equation, the moderating variables that most significantly predicted the dependent variable were to be determined and selected for further analysis using two-way ANOVA. The two-way ANOVA was to be used to better understand how varying levels of each of the selected moderating variables affect the dependent variable. Separate ANOVAs were to be used to investigate each moderating variable that was determined to be significantly influential for each of the three dependent variables. Each two-way ANOVA would have produced an interaction plot, with the level of perception of Autonomy Support plotted on the x-axis, and each of the three motivational beliefs on the y-axis. The three levels of the selected moderating variable (low, average, and high) would be plotted to determine if the interaction between the independent variable and the selected moderating

variable was significant. This analysis would have added to further discussion of how varying levels of selected moderating variables (cultural orientation) were related to the dependent variable (motivational belief) of significance.

Analysis of research question three. To address RQ3, correlations and simple linear regression analysis were used to investigate the relationship between each of the moderators and each of the motivational beliefs without the consideration of the Autonomy Support variable. This relationship would also add to the discussion of how varying levels of culturally based learning preferences are related to the dependent variable (motivational belief) of significance. Simple linear regression analysis was used to determine the significance of variation of each of the eight moderating variables on each of the three motivational variables. If the normality assumption of the model was not satisfied, a correlation was run between the motivational variable and each moderator to determine if there was any relationship.

Limitations and Assumptions

There were a few limitations that were predicted prior to this study. First, students were self-selecting to participate in this study, which could affect the generalizability of the data set. I aimed to address this limitation by reaching out to a wide variety of instructors in a wide variety of locations across the U.S. Another potential limitation to this study was that there could be too few participants to get an accurate assessment of the moderating effects of culture on perception of Autonomy Support and motivational beliefs. I tried to address this limitation by sending out reminder emails and reaching out to numerous ePortfolio centers, a professional listserv, and to instructors involved with ePortfolio all across the U.S.

CHAPTER FOUR

Results

Overview of Data Collected and Analyzed

This study collected quantitative data for learner perceptions of Autonomy Support on an ePortfolio project, learner perceptions of intrinsic motivators (Effort/Importance, Value/Usefulness, and Pressure/Tension) on an ePortfolio project, and learner's self-reported culturally based learning preferences. The survey instrument used included questions from three individual survey instruments, including: The Perceived Autonomy Support: Learning Climate Questionnaire; three subscales from the Intrinsic Motivation Inventory; and the Survey on Culturally Based Learning Preferences. The quantitative data gathered from this survey were analyzed using correlational and simple linear regression analysis for Research Question One (RQ1), multiple regression analysis for Research Question Two (RQ2), and correlational and simple linear regression analysis for Research Question Three (RQ3).

Results for research question one. RQ1 investigated: How do students' perceptions of Autonomy Support from an instructor on a project relate to their motivational beliefs on the project? Student perception of Autonomy Support was investigated through the use of the Perceived Autonomy Support: Learning Climate Questionnaire. Students answered 15 questions according to a seven point Likert scale. Students were assigned an average score based on their responses. This average represents the variable x. Students' motivational beliefs were investigated by use of three subscales of the Intrinsic Motivation Inventory. Students answered five questions relating to Effort/Importance, five questions relating to Pressure/Tension, and seven questions relating to Value/Usefulness, all on a seven point Likert scale. Students were assigned an average score based on their responses for each of the three motivational variables.

Correlations. First, a Pearson's correlation was run to determine the relationship between Autonomy Support and Effort/Importance, Autonomy Support and Pressure/Tension, and Autonomy Support and Value/Usefulness (see Table 1 for summary). Autonomy Support with Effort/Importance showed a slightly negative correlation, which was not expected based on previous research. However, Autonomy Support with Pressure/Tension showed a slightly negative correlation as expected, and Autonomy Support with Value/Usefulness showed a slightly positive correlation as expected. There were no significant correlations between Autonomy Support with Effort/Importance, Pressure/Tension, or Value/Usefulness (see Figure II for correlation trend charts).

Table 1

Pearson's Correlation Between Students' Perceptions of Autonomy Support and Motivational Beliefs

	Effort/Importance	Pressure/Tension	Value/Usefulness
Autonomy Support	-0.02751201	-0.1709579	0.03501848

However, given the concentration of responses for perception of Autonomy Support on the Likert scale between values 4 and 7, a biserial correlation was run using an artificially dichotomized variable for Autonomy Support. When correlated using this technique, none of the three correlations were statistically significant (see Table 2 for summary).

Table 2

Biserial Correlation Between Students' perceptions of Autonomy Support and Motivational Beliefs

	Effort/Importance	Pressure/Tension	Value/Usefulness
Autonomy Support	0.1638348	-0.275657	0.09609583

Simple linear regressions. Finally, a simple linear regression was run to test for significance in the relationship between each of the three motivational variables based on variations of perception of Autonomy Support, and model assumptions (normality, linearity, and homoscedasticity) were checked for each regression.

For the regression involving Effort/Importance, model assumptions were not satisfied.

Therefore, the Kruskal-Wallis one-way analysis of variance was used to test for significance in

the relationship between Autonomy Support and Effort/Importance (see Table 3 for summary).

The null hypothesis of this test is that there is no difference in relationship between each level of

Autonomy Support and the Effort/Importance variable. Given that the p-value of the test was

0.6771 (greater than 0.05), it failed to reject the hypothesis.

Table 3	
Kruskal-Wallis Rank Sum Test: Effort/Importance = $\hat{\beta}_0 + \hat{\beta}_1 * AutonomySupport$	
	Effort/Importance
Autonomy Support	Chi-squared = 0.1734 df = 1 p-value = 0.6771

For the regression involving Pressure/Tension, model assumptions were satisfied.

Therefore, a simple linear regression was used to test for significance in the relationship between

Autonomy Support and Pressure/Tension (see Table 4 for summary). The null hypothesis of this

test is that the slope is equal to zero (there is no significant difference in relationship between

each level of Autonomy Support and the Pressure/Tension variable). Given that the p-value of

the test was 0.32614 (greater than 0.05), it failed to reject the hypothesis.

Table 4	
Simple Linear Regression: Pressure/Tension = $\hat{\beta}_0 + \hat{\beta}_1 * AutonomySupport$	
	Pressure/Tension
Autonomy Support	p-value = 0.32614

For the regression involving Value/Usefulness, model assumptions were satisfied.

Therefore, a simple linear regression was used to test for significance in the relationship between

Autonomy Support and Value/Usefulness (see Table 5 for summary). The null hypothesis of this

test is that the slope is equal to zero (there is no significant difference in relationship between

each level of Autonomy Support and the Value/Usefulness variable). Given that the p-value of

the test was 0.84171 (greater than 0.05), it failed to reject the hypothesis.

Table 5	
Simple Linear Regression: Value/Usefulness= $\hat{\beta}_0 + \hat{\beta}_1 * AutonomySupport$	
	Value/Usefulness
Autonomy Support	p-value = 0.84171

Summary of results and responses. Neither the Kruskal-Wallis test nor the simple linear

regression tests revealed any significant relationship between Autonomy Support and each of the

three motivational beliefs under investigation.

Results for research question two. RQ2 investigated: What is the moderating role of

students' culturally based learning preferences on the relationship between perceived Autonomy

Support and motivational beliefs on the project?

Multiple linear regressions. Using the values for Autonomy Support, Effort/Importance,

Pressure/Tension, and Value/Usefulness as described in the results for research question one, the

following eight moderating variables were tested for a significant effect on the relationship

between Autonomy Support and each of the three motivational beliefs: Equality/Authority;

Individualism/Collectivism; Nurture/Challenge; Stability seeking/Uncertainty acceptance; Logic

argumentation/Being reasonable; Causality/Complex systems (Analysis/Holism); Clock

time/Event time; and Linear time/Cyclical time. Using a multiple linear regression model, each

moderator was tested to determine the effects of an interaction with Autonomy Support on each

of the three motivational beliefs (see Table 6 for an example of this process).

Table 6		
Multiple Linear Regression: Effort/Importance = $\hat{\beta}_0 + \hat{\beta}_1 * AutonomySupport + \hat{\beta}_2 * Moderator 1$		
	Effort/Importance	
Autonomy Support + Equality/Authority	Multiple R-squared: 0.02487 Adjusted R-squared: -0.03607	Residual standard error: 1.492 on 32 DF F-statistic: 0.4081 on 2 and 32 DF p-value: 0.6683

Using this process for each of the three motivational variables, there were no significant results when regressed on any of the eight moderators and the Autonomy Support variable.

Results for research question three. RQ3 investigated: What relationships exist between individual culturally based learning preferences and motivational beliefs on the project?

Correlations and simple linear regressions. Because it was possible the original correlational relationships between Autonomy Support and each of the three motivational variables would not be significant, the study was designed to investigate for variation in motivational variables based solely on the moderating factors. Therefore, correlational and simple linear regression analysis were used to investigate the relationship between each of the moderators and each of the motivational beliefs without the consideration of the Autonomy Support variable. In my judgment, a significance level of .10 or less for this research question justifies further study of the relationship between the culturally based learning preference and the motivational belief in question.

Simple linear regression analysis was used to determine the significance of variation of each of the eight moderating variables on each motivational variable. If the normality assumption of the model was not satisfied, a correlation was run between the motivational variable and each moderator (see Table 7 for the summary of correlations for the Effort/Importance variable; see Table 8 for the summary of correlations and simple linear regressions for the Pressure/Tension variable; and see Table 9 for the summary of correlations and simple linear regressions for the Value/Usefulness variable).

Table 7

Correlation: Culturally Based Learning Preferences and Effort/Importance
*Effort/Importance = $\hat{\beta}_0 + \hat{\beta}_1$ * Moderator "i"*

	Effort/Importance
Equality/Authority	0.1903548
Individualism/Collectivism	-0.06698426
Nurture/Challenge	-0.210154
Stability seeking/Uncertainty acceptance	-0.06287514
Logic argumentation/Being reasonable	-0.1433441
Causality/Complex systems (Analysis/Holism)	-0.02230339
Clock time/Event time	-0.02682337
Linear time/Cyclical time	0.005885238

Because the normality assumption of the models was not satisfied, correlations were run

to determine if any relationship existed between students' culturally based learning preferences

and the motivational belief of Effort/Importance. As shown in the table above, the correlations

between each of the eight moderators and the Effort/Importance variable were not significant.

Table 8

Correlation: Culturally Based Learning Preferences and Pressure/Tension or
*Simple Linear Regression: Pressure/Tension = $\hat{\beta}_0 + \hat{\beta}_1$ * Moderator "i"*

	Correlation Pressure/Tension	Simple Linear Regression
Equality/Authority	0.1727123	
Individualism/Collectivism		Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 2.6469 0.6796 3.895 0.000453 *** data2[, i + 1] 0.2239 0.1961 1.141 0.261937
Nurture/Challenge	0.03415934	
Stability seeking/ Uncertainty acceptance		Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 4.3217 1.0782 4.008 0.000329 *** data2[, i + 1] -0.1318 0.1431 -0.921 0.363716 ---
Logic argumentation/ Being reasonable	-0.1700757	
Causality/Complex systems (Analysis/Holism)	-0.01664716	
Clock time/Event time		Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 4.2168 0.8353 5.048 1.6e-05 *** data2[, i + 1] -0.1291 0.1192 -1.083 0.287 ---
Linear time/Cyclical time	-0.1295719	

Because the normality assumption of the models was not satisfied for moderators

Equality/Authority, Nurture/Challenge, Logic argumentation/Being reasonable,

Causality/Complex systems (Analysis/Holism), and Linear time/Cyclical time, correlations were

run to determine if any relationship existed between students' culturally based learning

preferences and the motivational belief of Pressure/Tension. As shown in the table above, the

correlations between each of those five moderators and the Pressure/Tension variable were not

significant. For moderators Individualism/Collectivism, Stability seeking/Uncertainty

acceptance, and Clock time/Event time, a simple linear regression analysis was used to

determine the significance of the relationship between variation of the moderators and the

motivational belief of Pressure/Tension. Given that the p-value of those tests were all greater

than 0.10, the relationship was found to be not significant.

Table 9		
Correlation: Culturally Based Learning Preferences and Value/Usefulness or *Simple Linear Regression: Value/Usefulness= $\hat{\beta}_0 + \hat{\beta}_1$ * Moderator "i"*		
	Correlation Value/Usefulness	Simple Linear Regression
Equality/Authority	-0.05428722	
Individualism/Collectivism	-0.06884327	
Nurture/Challenge	-0.09164785	
Stability seeking/ Uncertainty acceptance		Coefficients: $\quad\quad\quad\quad$ Estimate Std. Error t value $\quad$ Pr(>|t|) (Intercept) $\quad$ 2.8219 $\quad$ 1.1987 $\quad\quad$ 2.354 $\quad\quad$ 0.0247 * data2[, i + 1] 0.3064 $\quad$ 0.1591 $\quad\quad$ 1.926 $\quad\quad$ *0.0628* .--
Logic argumentation/ Being reasonable		Coefficients: $\quad\quad\quad\quad$ Estimate Std. Error t value $\quad$ Pr(>|t|) (Intercept) $\quad$ 3.6877 $\quad$ 1.0010 $\quad\quad$ 3.684 $\quad\quad$ 0.000817 *** data2[, i + 1] 0.2549 $\quad$ 0.1774 $\quad\quad$ 1.437 $\quad\quad$ 0.160248 ---
Causality/Complex systems (Analysis/Holism)		Coefficients: $\quad\quad\quad\quad$ Estimate Std. Error $\quad$ t value $\quad$ Pr(>|t|) (Intercept) $\quad$ 3.8405 $\quad$ 0.8460 $\quad\quad$ 4.540 $\quad\quad$ 7.11e-05 *** data2[, i + 1] 0.2329 $\quad$ 0.1511 $\quad\quad$ 1.541 $\quad\quad$ 0.133 $\quad$ ---
Clock time/Event time		Coefficients: $\quad\quad\quad\quad$ Estimate Std. Error $\quad$ t value $\quad$ Pr(>|t|) (Intercept) $\quad$ 3.0925 $\quad$ 0.9154 $\quad\quad$ 3.378 $\quad\quad$ 0.00189 ** data2[, i + 1] 0.2960 $\quad$ 0.1307 $\quad\quad$ 2.266 $\quad\quad$ *0.03016* * ---

Linear time/Cyclical time		Coefficients:			
			Estimate	Std. Error	t value	Pr(>|t|)
		(Intercept)	2.7197	1.0160	2.677	0.0115 *
		data2[, i + 1]	0.4563	0.1900	2.401	*0.0221 *---*

Because the normality assumption of the models was not satisfied for moderators

Equality/Authority, Individualism/Collectivism, and Nurture/Challenge, correlations were run to

determine if any relationship existed between students' culturally based learning preferences and

the motivational belief of Value/Usefulness. As shown in the table above, the correlations

between each of those three moderators and the Value/Usefulness variable were not significant.

For moderators Stability seeking/Uncertainty acceptance, Logic argumentation/Being

reasonable, Causality/Complex systems (Analysis/Holism), Clock time/Event time, and Linear

time/Cyclical time, a simple linear regression analysis was used to determine the significance of

the relationship between variation of the moderators and the motivational belief of

Value/Usefulness. Given that the p-value of moderators Logic argumentation/Being reasonable

and Causality/Complex systems (Analysis/Holism) were greater than 0.10, those relationships

were found to be not significant. However, the p-values for moderators Stability

seeking/Uncertainty acceptance (p=0.0628), Clock time/Event time (p=0.03016), and Linear

time/Cyclical time (p=0.0221) were less than 0.10. Based on this statistical analysis, those three

culturally based learning preferences were shown to have significant relationships with the

motivational belief of Value/Usefulness.

Summary of Results and Responses

In the analysis of RQ2 using multiple linear regression, no significant moderation was

found between the eight moderating variables and the relationship between Autonomy Support

and each of the three motivational belief variables. However, with the removal of the x variable

(Autonomy Support) and further simple linear regression and correlation tests between the

moderators and the three motivational belief variables in the analysis of RQ3, three significant relationships were revealed. Based on this analysis, it is suggested that three culturally based learning preferences (Stability seeking/Uncertainty acceptance; Clock time/Event time; and Linear time/Cyclical time) have a significant relationship with the motivational belief of Value/Usefulness. These relationships will be discussed further in the next chapter.

CHAPTER FIVE

Discussion

Purpose of Study

The purpose of this study was to identify how students' perceptions of Autonomy

Support on their projects relate to their motivational beliefs including (1) Effort/Importance, (2)

felt Pressure/Tension, and (3) Value/Usefulness on the project. This relationship was examined

with particular focus on the investigation of the potential moderating role of students' culturally

based learning preferences according to the eight cultural dimensions outlined in Parrish and

Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework (CDLF): (a) Equality

and Authority, (b) Individualism and Collectivism, (c) Nurture and Challenge, (d) Stability

seeking and Uncertainty acceptance, (e) Logic argumentation and Being reasonable, (f) Causality

and Complex systems (Analysis and Holism), (g) Clock time and Event time, and (h) Linear time

and Cyclical time. It was expected that Autonomy Support would be positively correlated with

the motivational beliefs of Effort/Importance and Value/Usefulness, and negatively correlated

with the motivational belief of felt Pressure/Tension. Based on these correlational relationships,

it was expected that each of the eight moderators (culturally based learning preferences) would

uniquely interact to either strengthen or weaken the initial relationship between Autonomy

Support and each of the motivational beliefs. This chapter presents a discussion of the findings

and conclusions of the study based on the results presented in Chapter 4. The limitations of the

study, implications from the study, and recommendations for further research are also included.

Summary of Findings

In the analysis of RQ1 (How do students' perceptions of Autonomy Support from an

instructor on a project relate to their motivational beliefs on the project?), the results of Pearson's

correlation tests were not statistically significant. The biserial x value for Autonomy Support was used to investigate RQ1 further through simple linear regression tests for significance. Because the Effort/Importance y variable did not meet assumptions of normality, linearity, and homoscedasticity, the Kruskal-Wallis one-way analysis of variance test was used to test for significance, while both Pressure/Tension and Value/Usefulness met the assumptions of normality, linearity, and homoscedasticity and were tested for significance using simple linear regression tests. Neither the Kruskal-Wallis test nor the simple linear regression tests revealed any significant relationship between Autonomy Support and each of the three motivational beliefs under investigation (Effort/Importance, Pressure/Tension, and Value/Usefulness).

In the analysis of RQ2 (What is the moderating role of students' culturally based learning preferences on the relationship between perceived Autonomy Support and motivational beliefs on the project?) using multiple linear regression, no significant moderation was found between the eight moderating variables [(a) Equality and Authority, (b) Individualism and Collectivism, (c) Nurture and Challenge, (d) Stability seeking and Uncertainty acceptance, (e) Logic argumentation and Being reasonable, (f) Causality and Complex systems/(Analysis and Holism), (g) Clock time and Event time, and (h) Linear time and Cyclical time] and the relationship between Autonomy Support and each of the three motivational belief variables (Effort/Importance, Pressure/Tension, and Value/Usefulness).

In the analysis of RQ3 (What relationships exist between individual culturally based learning preferences and motivational beliefs on the project?), removal of the x variable (Autonomy Support) and further simple linear regression and correlation tests between the eight moderators and the three motivational belief variables revealed three relationships with p values less than .10. Based on this analysis, it is suggested that three moderators (Stability

seeking/Uncertainty acceptance; Clock time/Event time; and Linear time/Cyclical time) have a significant relationship with the motivational belief of Value/Usefulness.

Conclusions and Interpretations

As a result of the statistical analyses that were completed for this study, it was revealed that the culturally based learning preferences of the 35 students who participated in this study did not have a significant effect on the relationship between these students' perceptions of Autonomy Support and their motivational beliefs, specifically Effort/Importance, Pressure/Tension, and Value/Usefulness. Given that students' perceptions of Autonomy Support did not show any significant correlational relationships with the three motivational beliefs (as described in the analysis of RQ1), further analysis was completed without consideration of the perception of Autonomy Support. When the culturally based learning preferences (moderating variables) were analyzed as individual variables in terms of their relationship to the three motivational beliefs (dependent variables) for the analysis of RQ3, it was found that none of the cultural variables had a significant relationship with students' perceptions of Effort/Importance nor Pressure/Tension, but there were three culturally based learning preferences that did have a significant relationship with students' perceptions of Value/Usefulness for their projects.

Although it is unknown why students' culturally based learning preferences were not related to their perceptions of Effort/Importance and Pressure/Tension in this study, there are a few possibilities as to why three culturally based learning preferences did have a significant relationship with students' perceptions of Value/Usefulness for their ePortfolio projects.

Stability seeking/Uncertainty acceptance and Value/Usefulness. The first culturally based learning preference that was shown to have a significant relationship with students' perceptions of Value/Usefulness was the Stability seeking/Uncertainty acceptance dimension.

With a p value of 0.0628, the relationship between this dimension and Value/Usefulness was significant. This dimension addresses the variability in the way that individuals deal with uncertainty, structure versus flexibility, and whether knowledge is a developing process or previously established. This dimension encompasses Hofstede's Uncertainty Avoidance Index, for which the focus is on how people deal with ambiguity and uncertainty. Taras et al. (2010)'s meta-analysis investigating three decades of cultural research using Hofstede's cultural dimensions revealed that the dimension of Uncertainty Avoidance, at the individual level of analysis, had "the strongest positive associations with team commitment (p=0.37) and preference for directive leadership (p=0.36); and the strongest negative associations with innovation (p=-0.41) and preference for participative leadership (p=-0.25)" (p. 36). At the group level of analysis, uncertainty avoidance was strongly positively related to cooperation in groups (p=0.37, k=2). Lastly, at the country level of analysis, uncertainty avoidance "had the strongest positive associations with neuroticism (p=0.59) and corruption (p=0.43); but the strongest negative associations with innovation (p=-0.45, k=3) and life satisfaction (p=-0.49)" (p. 37).

According to Hofstede et al. (2010), in educational contexts, for weak uncertainty avoidance societies: "(a) students are comfortable with open-ended learning situations and concerned with good discussions; (b) teachers may say, "I don't know"; (c) results are attributed to a person's own ability; and (d) teachers involve parents" (p. 208). However, for strong uncertainty avoidance societies: "(a) students are comfortable in structured learning situations and concerned with the right answers; (b) teachers are supposed to have all the answers; (c) results are attributed to circumstances or luck; and (d) teachers inform parents" (p. 208).

For students completing an ePortfolio assignment, it can often be a challenge to balance students' desire for structure versus their desire for open-ended learning situations. In

consideration of the results from this study, it can be suggested that as students lean more toward

uncertainty acceptance on the Stability seeking/Uncertainty acceptance dimension, they will be

more likely to find a project or assignment to be valuable or useful to them. Based on the

coefficient output of the regression, for every 1-point increase in response average on the

Stability seeking/Uncertainty acceptance dimension, students' average perceptions of

Value/Usefulness are expected to increase by 0.3064 on average on a Likert scale. Therefore, the

more stability seeking the student, the less the student will perceive an ePortfolio project to be

valuable or useful; the more accepting of uncertainty, the more the student will perceive an

ePortfolio project to be valuable or useful.

Clock time/Event time and Value/Usefulness. The final two culturally based learning

preferences for which analyses revealed a significant relationship with the motivational belief of

Value/Usefulness both involve the concept of time. With a p value of 0.03016 for Clock

time/Event time, and a p value of 0.0221 for Linear time/Cyclical time, the relationship between

both of these dimensions and Value/Usefulness were significant. The first dimension, Clock

time/Event time, addresses the variability in the way that individuals address, conform, or

experience the concept of time, and the varied importance they give to deadlines or relationships.

This dimension of time across cultures was previously investigated in Levine's (1997) work, in

which cultural tempos (i.e., pace of life) are described in detail. Levine (1997) summarizes that

larger cities have faster tempos, locations with hotter climates are slower, places with vital

economies move faster, places with a high degree of industrialization move faster, and that

individualistic cultures move faster than collectivistic ones.

In educational contexts, Parrish and Linder-VanBerschot (2010) proposed that students

who are more clock focused would prefer such situations as: instructional activities to begin and

end on time; strict deadlines and consequences; specific ways to do an activity, or procedures; and learners working quietly toward a predetermined end goal. Students who are more event focused, on the other hand, would prefer such situations as: instructional activities continuing as long as deemed useful; continuing to work and improve with less strict adherence to deadlines; the ability to change or skip established procedures; and the ability to talk, express, and potentially ignore predetermined plans or goals. In this way, for students completing an ePortfolio project, it can often be a challenge to balance students' desires for a product-focused project with strict deadlines and plans versus students' desires for a process-focused project without strict deadlines and predetermined goals or purposes.

Students' ePortfolio projects often represent both sides (and in between) of this spectrum. Some instructors use ePorfolio projects as a means for compiling or highlighting specific work items, skills, and goals, while others aim for the project to engage students in a reflective process, giving students the opportunity to express themselves in a unique way. For the latter, there has been much discussion on students' creation of ePortfolios that can "go with" them after they leave a course or program; in essence, to be used as a virtual resume or portfolio that can be shared with future employers or colleagues. In consideration of the statistical analysis for this study, it can be suggested that as students lean more toward a focus on event time on the Clock time/Event time dimension, they will be more likely to find a project or assignment to be valuable or useful to them. This seems to be more aligned with the latter concept of the ePortfolio, for which students leave with a product that was in fact process, not product-focused in the first place.

Based on the coefficient output of the regression, for every 1-point increase in response average on the Clock time/Event time dimension, students' average perceptions of

Value/Usefulness are expected to increase by 0.2960 on average on a Likert scale. Therefore, the more clock time-focused the student, the less the student will perceive an ePortfolio project to be valuable or useful; the more event time-focused, the more the student will perceive an ePortfolio project to be valuable or useful.

 Linear time/Cyclical time. The last of the three culturally based learning preferences for which analysis revealed a significant relationship (p=0.0221) with the motivational belief of Value/Usefulness also involved the concept of time. This preference is titled the Linear time/Cyclical time dimension, and addresses the variability in the way that individuals address time, as a cycle or pattern, or as a path with destinations. In previous research, Levine (1997) discussed the concept of the psychological duration of time, diving into the way that people experience time. The concept of the pace of life is taken one step further, discussing rhythms of time, sequences of time, and synchronies of time. Hall (1983) described the concept of monochronic vs. polychronic time, considering those who prefer to do one thing at a time monochronic (M-time) (e.g., United States, Northern Europe) or those who prefer to do multiple things at once polychronic (P-time) (e.g., Latin America, Middle East).

 According to Hofstede et al. (2010), in terms of education, in societies that are more short-term orientation focused, "(a) students attribute success and failure to luck; (b) weaker mathematics and science results of fourteen-year-olds due to less effort; (c) no special skills for mathematics; and (d) talent for theoretical, abstract sciences" (p. 275). In societies that are more long-term focused, however, "(a) students attribute success to effort and failure to lack of it; (b) better mathematics and science results of fourteen-year-olds due to harder work; (c) In East Asia, better at mathematics; and (d) talent for applied, concrete sciences. Whereas long-term orientation represents "the fostering of virtues oriented toward future rewards—in particular,

perseverance and thrift" (Hofstede et al., 2010, p. 239), short-term orientation represents "the fostering of virtues related to past and present—in particular, respect for tradition, preservation of 'face', and fulfilling social obligations" (p. 239).

In educational contexts, Parrish and Linder-VanBerschot (2010) summarized that students who are more linear time-focused would prefer: time to be managed; for learning to involve prerequisites and to proceed along a path with clear milestones; goal setting as a part of the learning process; quick, decisive actions; seizing of opportunities; leaving the past "in the past" and focusing on the future; avoidance of repetition and embracing of progression; and emphasis on the immediate feeling of relevance for a task. On the other hand, students who are more cyclical time-focused would prefer: to adapt to time; for learning to involve to practicing toward perfection; to gain as much as possible from a situation by adapting, with less focus on preset goals; to avoid rushing, but use time as a chance to observe and reflect; to make wiser decisions each time an opportunity comes around (with the potential for an opportunity to present itself multiple times, in a cycle); a focus on the past as part of the repeating cycle of life, pertinent for the future; the valuing of repetition for learning; and the emphasis on patience for students to discover relevance as they proceed.

It is clear that this dimension has relevance in students' experiences with Value/Usefulness on an ePortfolio project in a number of different ways. For students completing an ePortfolio project, there are often challenges, such as: seeing the relevance in the creation or future use of an ePortfolio, the goals associated with the development of an ePortfolio, the learning process associated with developing an ePortfolio (or lack thereof), the choice or requirement to emphasize past experiences versus a focus on future experiences; and the experience of repetition over the course of development of an ePortfolio.

Students' ePortfolio projects again, often involve all parts of this spectrum. Depending on the predetermined purpose for students' creation of ePortfolios, instructors emphasize different goals and enhance different aspects of relevance for students. Some instructors may explicitly tell students how the ePortfolio should be relevant to them, while others may allow students to determine that relevance for themselves. Some instructors may emphasize a focus on students' pasts to be a clear influence on their ePortfolio product, while others may allow students to create a new path, beginning with their time or experiences in one specific course or program.

In consideration of the statistical analysis for this study, it can be suggested that as students lean more toward a focus on cyclical time on the Linear time/Cyclical time dimension, they will be more likely to find a project to be valuable or useful to them. This seems to be aligned with the concept of ePortfolio as an open-ended tool or process, allowing students to determine their own personal goals and relevance for the project. It is also aligned with a value on past experiences, which is often evident in the reflective component of ePortfolio development.

Based on the coefficient output of the regression, for every 1-point increase in response average on the Linear time/Cyclical time dimension, students' average perceptions of Value/Usefulness are expected to increase by 0.4563 on average on a Likert scale. Therefore, the more linear time-focused the student, the less the student will perceive an ePortfolio project to be valuable or useful; the more cyclical time-focused, the more the student will perceive an ePortfolio project to be valuable or useful.

Study Limitations

One of the limitations of this study involved a lack of personal contact with either potential or actual student participants. Because the researcher had direct contact with the

instructors of the student participants, the researcher was reliant on self-selecting instructor participants as well as self-selecting student participants. This made it impossible to know or control how many participants would receive the invitation email, on top of the already defined uncertainty of how many students would choose to participate. Some of the instructors that agreed to participate during the recruitment phase did not respond to the actual invitation email, which asked that they: (a) verify that they received the email, and (b) verify that they distributed the email to their students. Along the same lines, when asked to remind students a second time by sending out the recruitment email again, some instructors responded and agreed to do so, while others did not. It is not known to the researcher how many of the 313 students received only the initial email, both the initial email and the reminder email, or no email at all.

Another limitation of this study involved the ability to provide an incentive for participation. Because the researcher did not have direct contact with the student participants, and given the IRB approved anonymity requirement of this study, the researcher did not offer any incentive for student participants. In this way, the researcher was dependent on the instructors to encourage their students to participate.

Both of the previous limitations contributed to a limitation of this study involving final sample size. Out of the 313 students who were committed to be invited through instructors, 38 student participants submitted a survey, and only 35 were complete in all sections. Even though a minimum of only 30 students was necessary for the statistical analyses that were used in this study, a sample size of 35 was still small considering the topic of analysis.

One of the limitations that may have contributed to the small sample size was the length of the survey. The survey had 68 questions. Students were advised that the survey should take them no longer than 15-30 minutes to complete. In addition to the length of the survey, the

survey was to be completed at the end of the fall semester following the completion of their ePortfolio project. This was most likely a busy time for both students and instructors.

Finally, one of the limitations of this study was that the data were collected in the fall semester. Although twelve instructors committed to participate by inviting their students (313 students total), a few instructors that were invited to participate advised that their ePortfolio projects were due in the spring semester each year. It is possible that more students could have been invited in the spring semester, particularly for ePortfolio projects that are program completion-focused.

Implications

The findings of this study demonstrate the possible importance of understanding students' cultural backgrounds when designing projects with adaptable goals, structuring opportunities, and varying timelines. Instructional designers may want to consider incorporating culturally based learning factors during the design phase of an instructional activity. It's possible that the more that is known about how students with one or more of the study's culturally based learning preferences interact with motivational supports, the more we can appropriately design and structure for individual student motivation on a range of learner-centered, open-ended projects and assignments.

The purpose of asking RQ3 was to discover if there were culturally based learning preferences that warranted further study based on their relationship with the individual motivational beliefs. The findings from this study identified three preferences that may be relevant to researchers in their quest to investigate the impact of students' cultural backgrounds on their perceptions of motivational supports in the face-to-face or online classroom. Researchers may choose to take note of the direct impact of these three specific culturally based learning

preferences on the motivational belief of Value/Usefulness. In spite of the insignificant results of culturally based learning preferences as moderators in the relationship between Autonomy Support and motivational beliefs, researchers may choose to focus on cultural preferences as individual variables and investigate their effects on specific outcomes (e.g. motivational beliefs) of relevance to future studies. Another consideration for further research in this area is to have direct contact with student participants to have the opportunity to encourage participation and therefore increase sample size.

Recommendations for Further Research

Based on the findings of this study, it is recommended that further study of this topic area focus on individual culturally based learning preferences and their potential impact on specified outcomes. This may enable researchers to focus on the manipulation of various instructional design and teaching strategies and investigate their potential to have an effect on specific outcomes.

Additionally, in the event that a researcher desires to investigate the eight culturally based learning preferences as moderating factors of an established relationship between two variables, it is recommended that researchers extend the duration of the study over an entire academic year with the potential that more faculty would self-select to participate and/or more students would have a completed ePortfolio, thus be eligible to self-select to participate. It may be beneficial to obtain a response number greater than 35, as well as for the sample to include students from a greater number of regions in the U.S. It may also be beneficial to invite instructors and students from other countries to participate in order to ensure a wider range of influences on culturally based learning preferences for each dimension.

Another recommendation for future study is to ask instructors to provide information regarding: the structures included in their ePortfolio project design; explicit goals, timelines, and relevance presented to students; the type/purpose of ePortfolio project students are asked to complete; and the requirements that are expected of students with the project. This information may allow the researcher to make more specific judgments on the potential impact of culturally based learning preferences on specific outcomes, such as motivation. Without this information, it is only possible to make generalized assumptions regarding what is known about typical ePortfolio use in higher education.

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Appendices

Appendix A: IRB Research Protocol

VirginiaTech	**Institutional Review Board** Research Protocol

Once complete, upload this form as a Word document to the IRB Protocol Management System: https://secure.research.vt.edu/irb

Section 1: General Information

1.1 DO ANY OF THE INVESTIGATORS OF THIS PROJECT HAVE A REPORTABLE CONFLICT OF INTEREST? (http://www.irb.vt.edu/pages/researchers.htm#conflict)

☒ **No**
☐ **Yes,** explain:

1.2 WILL THIS RESEARCH INVOLVE COLLABORATION WITH ANOTHER INSTITUTION?

☒ **No,** go to question 1.3
☐ **Yes,** answer questions within table

IF YES
Provide the name of the institution [for institutions located overseas, please also provide name of country]**:**
Indicate the status of this research project with the other institution's IRB: ☐ Pending approval ☐ Approved ☐ Other institution does not have a human subject protections review board ☐ Other, explain:
Will the collaborating institution(s) be engaged in the research? (http://www.hhs.gov/ohrp/policy/engage08.html) ☐ No ☐ Yes
Will Virginia Tech's IRB review all human subject research activities involved with this project? ☐ No, provide the name of the primary institution: ☐ Yes *Note: primary institution = primary recipient of the grant or main coordinating center*

1.3 IS THIS RESEARCH SPONSORED OR SEEKING SPONSORED FUNDS?

☒ **No,** go to question 1.4
☐ **Yes,** answer questions within table

IF YES
Provide the name of the sponsor [if NIH, specify department]:
Is this project receiving federal funds? ☐ No ☐ Yes **If yes,**

> **Does the grant application, OSP proposal, or "statement of work" related to this project include activities involving human subjects that are _not_ covered within this IRB application?**
> ☐ No, all human subject activities are covered in this IRB application
> ☐ Yes, however these activities will be covered in future VT IRB applications, these activities include:
> ☐ Yes, however these activities have been covered in past VT IRB applications, the IRB number(s) are as follows:
> ☐ Yes, however these activities have been or will be reviewed by another institution's IRB, the name of this institution is as follows:
> ☐ Other, explain:
>
> **Is Virginia Tech the primary awardee or the coordinating center of this grant?**
> ☐ No, provide the name of the primary institution:
> ☐ Yes

1.4 DOES THIS STUDY INVOLVE CONFIDENTIAL OR PROPRIETARY INFORMATION (OTHER THAN HUMAN SUBJECT CONFIDENTIAL INFORMATION), OR INFORMATION RESTRICTED FOR NATIONAL SECURITY OR OTHER REASONS BY A U.S. GOVERNMENT AGENCY?

For example – government / industry proprietary or confidential trade secret information

☒ **No**
☐ **Yes,** describe:

1.5 DOES THIS STUDY INVOLVE SHIPPING ANY TANGIBLE ITEM, BIOLOGICAL OR SELECT AGENT OUTSIDE THE U.S?

☒ **No**
☐ **Yes**

Section 2: Justification

2.1 DESCRIBE THE BACKGROUND, PURPOSE, AND ANTICIPATED FINDINGS OF THIS STUDY:

> Educators and instructional designers in the United States (U.S.) face the challenge of designing instruction for students who differ in culturally based learning preferences. Higher education institutions in the U.S. not only have many international students enrolled (Institute of International Education, Inc., 2013), but many students who are native to the U.S. come from culturally blended families and have differing lengths of generational influences on their cultural preferences.
>
> It is challenging for educators to effectively motivate students, particularly for learning tasks in which the control for learning is placed in the hands of individual students (e.g., learner-centered instruction). Motivational support cannot be appropriately structured without consideration of the major factors influencing individual beliefs (e.g., cultural orientation). For this reason, it is necessary to investigate how knowing and assessing students' culturally based learning preferences can aide in the design of learner-centered instructional tasks. This investigation will allow designers to better know how those orientations influence instructional supports (e.g., support for autonomy), and is especially pertinent for the areas in which individual differences such as culture have been noted to impact educational outcomes (e.g., motivational beliefs, behavior change, performance).
>
> The purpose of this study will be to identify how students' perceptions of autonomy support on an ePortfolio project relate to their motivational beliefs on the project. This relationship will be examined with particular focus on the investigation of the potential moderating role of students' individual culturally based learning preferences. Participants will self-elect to participate from a convenience sample that encompasses

varying levels of higher education instruction, subject areas taught, age group of students, nature of the course (required or elective), and levels of experience of instructors of students in higher education. The students will be from courses that implement an ePortfolio project. The independent (predictor) variable will be defined as student perceived autonomy support. The dependent (outcome) variable will be defined as student motivational beliefs. The eight moderating variables will be defined according to Parrish and Linder-VanBerschot's (2010) Cultural Dimensions of Learning Framework.

Given the wide use of ePortfolio in higher education, an ePortfolio was chosen as the educational tool through which this study will be investigated. Through this study, it is hoped that instructional designers will learn how to design learner-centered instruction, such as working ePortfolio projects, in a way that motivates students of all cultural orientations in the most effective way possible. With the proper support in place, students can benefit from increased intrinsic motivation, therefore experiencing positive effects on motivational beliefs and performance outcomes.

This study will investigate the research questions:
RQ1: How does students' perception of the autonomy support from an instructor on a project relate to their motivational beliefs on the project?
RQ2: What is the moderating role of students' culturally based learning preferences on the relationship between percieved autonomy support and motivational beliefs on the project?

2.2 EXPLAIN WHAT THE RESEARCH TEAM PLANS TO DO WITH THE STUDY RESULTS:
For example - publish or use for dissertation

Use for dissertation, publish, and present at professional conferences.

Section 3: Recruitment

3.1 DESCRIBE THE SUBJECT POOL, INCLUDING INCLUSION AND EXCLUSION CRITERIA AND NUMBER OF SUBJECTS:
Examples of inclusion/exclusion criteria - gender, age, health status, ethnicity

Students of higher education instructors who implement ePortfolio projects in their courses will be the population from which the data will be collected. Higher education instructors who implement working ePortfolio projects from all over the U.S. will be invited to participate, through whom students will be contacted to complete the survey. Instructors will be contacted by email through ePortfolio networks, ePortfolio Centers and Teaching and Learning Centers on campuses, and/or individually through networking and through contacts at Masters of Education programs on campuses. Instructors will teach a variety of subjects.

3.2 WILL EXISTING RECORDS BE USED TO IDENTIFY AND CONTACT / RECRUIT SUBJECTS?
Examples of existing records - directories, class roster, university records, educational records

☐ **No,** go to question 3.3
☒ **Yes,** answer questions within table

IF YES
Are these records private or public?
☒ Public
☐ Private, describe the researcher's privilege to the records:
Will student, faculty, and/or staff records or contact information be requested from the University?
☒ No
☐ Yes, provide a description under Section 14 (Research Involving Existing Data) below.

3.3 DESCRIBE RECRUITMENT METHODS, INCLUDING HOW THE STUDY WILL BE ADVERTISED OR INTRODUCED TO SUBJECTS:

Data for this study will be collected through online surveys. The instructors will be contacted through email and will self-elect to participate. Students of those instructors will then be contacted by email by way of a forwarded email from their instructor, and will self-elect to respond. The students will be given a link to complete their survey between December 1 and December 30, 2015.

This study will be supported by self-reported data collected from a convenience sample. Participants for this study will self-select to participate. There will be a variety of different age groups, class sizes, and class subjects represented in the population. Each subject will complete a survey one time, and no treatment will be administered. Student subjects will complete a survey that includes sections for: demographic information, culturally based learning preferences, perception of autonomy support, and motivational beliefs.

3.4 PROVIDE AN EXPLANATION FOR CHOOSING THIS POPULATION:
Note: the IRB must ensure that the risks and benefits of participating in a study are distributed equitably among the general population and that a specific population is not targeted because of ease of recruitment.

As we set out to introduce students to new technologies and to scaffold the development of new learner-centered skills, it is important that students are willing and open to behaving and interacting with the learning environment in new ways. Over the past few decades, with an increasing focus on 21st century skills (K-12) and learning with technology, there has been a focus on designing learner-centered instruction that allows students to interact with technology throughout the learning process. Students more and more experience the use of technology for a variety of purposes in their educational careers. In this particular study, the context of the study will involve the development of an ePortfolio.

Many universities, programs, and courses have implemented the ePortfolio as a tool for students to reflect, compile, or showcase a culmination of work, experience, or learning over a period of time. In fact, as noted by Clark and Eynon (2009):

according to a 2008 study by the Campus Computing Project, just over 50 percent of public and private universities and public four-year colleges now offer some form of an e-portfolio to their students. Across all higher education sectors, the study shows, the use of e-portfolios has tripled since 2003. (p. 18)

Over the last decade, there has been a steady increase in the research and implementation of the electronic portfolio (ePortfolio) as an educational tool. While there are many uses and definitions for an electronic portfolio, Lorenzo and Ittelson (2005) defined an ePortfolio as "a digitized collection of artifacts including demonstrations, resources, and accomplishments that represent an individual, group, or institution" (p. 2) or "personalized, Web-based collections of work, responses to work, and reflections that are used to demonstrate key skills and accomplishments for a variety of contexts and time periods" (p. 2). An extension of the paper-based portfolio, three main purposes are often described in ePortfolio research, often termed "types" of portfolios. These types, coined by Danielson and Abrutyn (1997), are: working (also process or learning); showcase; and assessment. A "working ePortfolio" may focus on a formative approach to learning and reflection, whereas the other two types are more summative in nature (a "showcase ePortfolio" may focus on a student's best work and an "assessment ePortfolio" on archived work according to course objectives).

Of specific interest for the investigation of the use of ePortfolio as a tool for reflection and learner-centered instruction is the working (process-focused) ePortfolio. The emphasis on learning, reflection, and understanding in this type of ePortfolio project can facilitate the development of a number of skills including critical thinking and deeper learning. Parkes, Dredger, and Hicks (2013) note that "within any university program, encouraging reflective practice is important to preparing thinking practitioners who show that they can adapt to new technologies, new standards, and new environments" (p. 99). The benefit of this reflection is far reaching, as noted by Gray (2008):

technology is also introducing far-reaching changes into learners' lifestyles. The social software revolution may yet provide the greatest challenge to institutionally managed e-portfolio systems and data management

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processes. In a Web 2.0 world, there is increasing recognition that reflection on experiences of importance to learners can occur and be located and shared with others in learning environments beyond the jurisdiction of an institution. (p. 24)

Given the wide use of ePortfolio in higher education, an ePortfolio was chosen as the educational tool through which this study will be investigated. Through this study, it is hoped that instructional designers will learn how to design learner-centered instruction, such as working ePortfolio projects, in a way that motivates students of all culturally based learning preferences in the most effective way possible. With the proper support in place, students can benefit from increased intrinsic motivation, therefore experiencing positive effects on motivational beliefs and performance outcomes.

Section 4: Consent Process

For more information about consent process and consent forms visit the following link: http://www.irb.vt.edu/pages/consent.htm

If feasible, researchers are advised and may be required to obtain signed consent from each participant unless obtaining signatures leads to an increase of risk (e.g., the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting in a breach of confidentiality). Signed consent is typically not required for low risk questionnaires (consent is implied) unless audio/video recording or an in-person interview is involved. If researchers will not be obtaining signed consent, participants must, in most cases, be supplied with consent information in a different format (e.g., in recruitment document, at the beginning of survey instrument, read to participant over the phone, information sheet physically or verbally provided to participant).

4.1 CHECK ALL OF THE FOLLOWING THAT APPLY TO THIS STUDY'S CONSENT PROCESS:

☐ Verbal consent will be obtained from participants
☐ Written/signed consent will be obtained from participants
☒ Consent will be implied from the return of completed questionnaire. Note: The IRB recommends providing consent information in a recruitment document or at the beginning of the questionnaire (if the study only involves implied consent, skip to Section 5 below)
☐ Other, describe:

4.2 PROVIDE A GENERAL DESCRIPTION OF THE PROCESS THE RESEARCH TEAM WILL USE TO OBTAIN AND MAINTAIN INFORMED CONSENT:

The consent information and agreement process will be included in the online survey. Contact information will be provided as part of the consent information, which will be accessible electronically.

4.3 WHO, FROM THE RESEARCH TEAM, WILL BE OVERSEEING THE PROCESS AND OBTAINING CONSENT FROM SUBJECTS?

Jacquelyn Woodyard will be overseeing the process and obtaining consent from subject with oversight and advising from Katherine Cennamo.

4.4 WHERE WILL THE CONSENT PROCESS TAKE PLACE?

The consent process will take place as part of the online survey. This will occur prior to data analysis and prior to asking students any questions regarding the study.

4.5 DURING WHAT POINT IN THE STUDY PROCESS WILL CONSENTING OCCUR?
Note: unless waived by the IRB, participants must be consented before completing any study procedure, including screening questionnaires.

Students will consent to take part in the study through an informed consent process included in the online survey, prior to data analysis and prior to asking students any questions regarding the study. Students may

> withdraw at any time after having given consent by exiting the survey.

4.6 IF APPLICABLE, DESCRIBE HOW THE RESEARCHERS WILL GIVE SUBJECTS AMPLE TIME TO REVIEW THE CONSENT DOCUMENT BEFORE SIGNING:

Note: typically applicable for complex studies, studies involving more than one session, or studies involving more of a risk to subjects.

> **Students will be able to access a digital copy of the consent form, which will be inlcuded in the online survey and can be viewed online for the duration of their choice. Students will be provided with contact information to contact the PI or co-investigator prior to completing the survey (contact information will be provided as part of the consent information, which will be accessible electronically).**

☐ Not applicable

Section 5: Procedures

5.1 PROVIDE A STEP-BY-STEP THOROUGH EXPLANATION OF ALL STUDY PROCEDURES EXPECTED FROM STUDY PARTICIPANTS, INCLUDING TIME COMMITMENT & LOCATION:

> **Students will begin the survey and first complete the Perceived Autonomy Support: The Learning Climate Questionnaire (LCQ). This instrument questions students regarding their perceptions of their teacher's actions in the classroom environment. The students will answer 15 questions according to a seven point Likert scale from one to seven, one being "strongly disagree," four being "neutral," and seven being "strongly agree." The questionnaire will be adapted to ensure consideration of the ePortfolio project as students answer the questions.**
>
> **Next, students will complete the Intrinsic Motivation Inventory (IMI), including subscales regarding such motivational beliefs as: effort/importance, value/usefulness, and felt pressure and tension. This instrument questions students on their motivational beliefs on a task. The students will answer 17 questions according to a seven point Likert scale from one to seven, one being "not at all true," four being "somewhat true," and seven being "very true." The questionnaire will be adapted to ensure consideration of the ePortfolio project as students answer the questions. Additionally, students will select their final letter grade on the assignment from a multiple choice menu of A-F or P/F letter grades with corresponding grade percentage groupings to account for differences in grading scales.**
>
> **Next, students will complete the Survey on Culturally Based Learning Preferences, designed by Parrish and Linder-VanBerschot (2009). This survey questions participants regarding their culturally based learning preferences, including: Equality/Authority; Individualism/Collectivism; Nurture/Challenge; Stability seeking/Uncertainty acceptance; Logic argumentation/Being reasonable; Causality/Complex systems (Analysis/Holism); Clock time/Event time; and Linear time/Cyclical time. Students will answer 36 questions according to a ten point semantic differential scale from one to ten, one being "strongly agree with the left-hand statement," ten being "strongly agree with the right-hand statement," and the selection of other numbers indicating "lesser degrees of agreement with one side or the other."**
>
> **Finally, students will complete a section of the survey including questions about the participant's demographic information, including: sex, ethnicity or country/culture with which they most identify, and undergraduate vs. graduate student status.**
>
> **The surveys will be scored and participants will be assigned a quantitative average score that reflects: (a) the extent to which students lean toward either direction of each of the eight cultural dimensions; (b) the extent to which students perceive their teacher is supportive of their autonomy on an ePortfolio project; and (c) the extent to which students experienced each motivational belief, including effort/importance, value/usefulness, and felt pressure and tension.**
>
> **The survey should take no longer than 15-30 minutes to complete. Students may take the survey online, from the location of their choice.**

5.2 DESCRIBE HOW DATA WILL BE COLLECTED AND RECORDED:

Data for this study will be collected through online surveys. The instructors will be contacted through email in November, 2015 and will self-select to participate. Students of those instructors will then be contacted by email and will self-elect to respond. The students will be given a link to complete their survey following the conclusion of their ePortfolio project, between December 1 and December 30, 2015.

This study will be supported by self-reported data collected from a convenience sample. Participants for this study will self-elect to participate. There will be a variety of different age groups, class sizes, and class subjects represented in the population. Each subject will complete a survey one time, and no treatment will be administered. Student subjects will complete a survey that includes sections for: demographic information, culturally based learning preferences, perception of autonomy support, and motivational beliefs on an ePortfolio project.

The surveys will be scored and participants will be assigned a quantitative average score that reflects: (a) the extent to which students lean toward either direction of each of the eight cultural dimensions; (b) the extent to which students perceive their teacher is supportive of their autonomy on an ePortfolio project; and (c) the extent to which students experienced each motivational belief, including effort/importance, value/usefulness, and felt pressure and tension.

Following data collection, data will be analyzed using multiple linear regression and two-way ANOVA tests as recommended by Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis (LISA) to answer both research questions. To address RQ1, a multiple linear regression analysis will be performed. Individual correlations will be plotted to assess for relationships between students' perceptions of autonomy support and each of the three motivational beliefs. Level of perception of autonomy support will be plotted on the x-axis, and each motivational belief (effort/importance, value/usefulness, and felt pressure/tension) will be plotted on the y-axis.

To address RQ2, a two-part analysis process will be used. First, a Stepwise Regression analysis will be performed to determine if and which moderating variables have a significant effect on each of the dependent variables and which do not. A full model Stepwise Regression will be run for each of the three dependent variables. The full model will examine the interactions between eight moderating variables (cultural orientation), the independent variable (level of perception of autonomy support), and an additional variable (country of origin). The result of each Stepwise Regression analysis will present a best model, revealing which of the eight moderating variables are most important in predicting each of the dependent variables. From each resulting equation, the moderating variables that most significantly predict the dependent variable will be determined and selected for further analysis.

Next, each of the selected moderating variables that result in the best model for each stepwise regression will be analyzed using a two-way ANOVA. The two-way ANOVA will be used to better understand how varying levels of each of the selected moderating variables affect the dependent variable. Separate ANOVAs will be used to investigate each moderating variable that is determined to be significantly influential for each of the three dependent variables. Each two-way ANOVA will produce an interaction plot, with the level of perception of autonomy support plotted on the x-axis, and each of the three motivational beliefs on the y-axis. The three levels of the selected moderating variable (low, average, and high) will be plotted to determine if the interaction between the independent variable and the selected moderating variable is significant. This analysis will add to further discussion of how varying levels of selected moderating variables (cultural orientation) are related to the dependent variable (motivational belief) of significance. Data will be graphed on a scatter plot to show the relationship between students' perceptions of autonomy and individual motivational beliefs. The subject's level of perception of autonomy support will be graphed on the x-axis against the subject's reported level of motivational beliefs. The data will then be tested using multiple regression analysis and correlations to identify if the relationship between each set of factors is strengthened or weakened according to differences among each of the eight cultural dimensions.

5.3 DOES THE PROJECT INVOLVE ONLINE RESEARCH ACTIVITES (INCLUDES ENROLLMENT, RECRUITMENT, SURVEYS)?

View the "Policy for Online Research Data Collection Activities Involving Human Subjects" at
http://www.irb.vt.edu/documents/onlinepolicy.pdf

☐ **No,** go to question 6.1
☒ **Yes,** answer questions within table ⟶

IF YES
Identify the service / program that will be used:
☐ www.survey.vt.edu, go to question 6.1
☐ Blackboard, go to question 6.1
☐ Center for Survey Research, go to question 6.1
☒ Other
IF OTHER:
Name of service / program: **Qualtrics**
URL: **https://virginiatech.qualtrics.com/ControlPanel/**
This service is…
☒ Included on the list found at: http://www.irb.vt.edu/pages/validated.htm
☒ Approved by VT IT Security
☒ An external service with proper SSL or similar encryption (https://) on the login (if applicable) and all other data collection pages.
☐ None of the above (note: only permissible if this is a collaborative project in which VT individuals are only responsible for data analysis, consulting, or recruitment)

Section 6: Risks and Benefits

6.1 WHAT ARE THE POTENTIAL RISKS (E.G., EMOTIONAL, PHYSICAL, SOCIAL, LEGAL, ECONOMIC, OR DIGNITY) TO STUDY PARTICIPANTS?

> The potential risks to study participants is minimal. One potential risk is the loss of participants' personal time due to completing the online survey. Students will consider and recall their experiences with the instructor and ePortfolio assignment; if the experience was negative, recalling those experiences may involve minor emotional risks. This study does not target negative experiences.

6.2 EXPLAIN THE STUDY'S EFFORTS TO REDUCE POTENTIAL RISKS TO SUBJECTS:

> Potential risks to subjects are reduced given the nature of the online survey and the choice for participants to opt out of participation at any time. Students self-elect to participate in this study. The survey was created in a way that uses similar Likert-type questions for two of the three main sections. The survey was designed to be as brief as possible to meet the purpose of the study.

6.3 WHAT ARE THE DIRECT OR INDIRECT ANTICIPATED BENEFITS TO STUDY PARTICIPANTS AND/OR SOCIETY?

> This study will add to the research investigating the role of culture in higher education learning environments. We plan to share the results through dissertation publication and scholarly publication and presentation. This study may benefit society by helping to inform educators and instructional designers to design ePortfolio instruction in a way that is most efficiently motivating to people of varying cultural orientations. This information will add to the literature on autonomy support, learner-centered instruction, ePortfolio use in higher education, and motivational beliefs of students on tasks, and cultural orientation effects on education. The participants in this study will not benefit directly; we offer no compensation for participation. No promise or guarantee of benefits has been made to encourage students to participate or for them to provide consent. Through their participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects. A potential benefit of this study is the betterment of future ePortfolio project design for

motivation of students in higher education.

Section 7: Full Board Assessment

7.1 DOES THE RESEARCH INVOLVE MICROWAVES/X-RAYS, OR GENERAL ANESTHESIA OR SEDATION?

☒ No
☐ Yes

7.2 DO RESEARCH ACTIVITIES INVOLVE PRISONERS, PREGNANT WOMEN, FETUSES, HUMAN IN VITRO FERTILIZATION, OR MENTALLY DISABLED PERSONS?

☒ **No,** go to question 7.3
☐ **Yes,** answer questions within table

IF YES
This research involves: ☐ Prisoners   ☐ Pregnant women ☐ Fetuses ☐ Human in vitro fertilization   ☐ Mentally disabled persons

7.3 DOES THIS STUDY INVOLVE MORE THAN MINIMAL RISK TO STUDY PARTICIPANTS?
Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily activities or during the performance of routine physical or psychological examinations or tests. Examples of research involving greater than minimal risk include collecting data about abuse or illegal activities. Note: if the project qualifies for Exempt review (http://www.irb.vt.edu/pages/categories.htm), it will not need to go to the Full Board.

☒ No
☐ Yes

IF YOU ANSWERED "YES" TO *ANY ONE* OF THE ABOVE QUESTIONS, 7.1, 7.2, OR 7.3, THE BOARD MAY REVIEW THE PROJECT'S APPLICATION MATERIALS AT ITS MONTHLY MEETING. VIEW THE FOLLOWING LINK FOR DEADLINES AND ADDITIONAL INFORMATION: http://www.irb.vt.edu/pages/deadlines.htm

Section 8: Confidentiality / Anonymity

For more information about confidentiality and anonymity visit the following link: http://www.irb.vt.edu/pages/confidentiality.htm

8.1 WILL PERSONALLY IDENTIFYING STUDY RESULTS OR DATA BE RELEASED TO ANYONE OUTSIDE OF THE RESEARCH TEAM?
For example – to the funding agency or outside data analyst, or participants identified in publications with individual consent

☒ No
☐ **Yes,** to whom will identifying data be released?

8.2 WILL ANY STUDY FILES CONTAIN PARTICIPANT IDENTIFYING INFORMATION (E.G., NAME, CONTACT INFORMATION, VIDEO/AUDIO RECORDINGS)?
Note: if collecting signatures on a consent form, select "Yes."

☒ **No,** go to question 8.3
☐ **Yes,** answer questions within table ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯↓

IF YES
Describe if/how the study will utilize study codes:
If applicable, where will the key [i.e., linked code and identifying information document (for instance, John Doe = study ID 001)] **be stored and who will have access?**   *Note: the key should be stored separately from subjects' completed data documents and accessibility should be limited.*
The IRB strongly suggests and may require that all data documents (e.g., questionnaire responses, interview responses, etc.) do not include or request identifying information (e.g., name, contact information, etc.) from participants. If you need to link subjects' identifying information to subjects' data documents, use a study ID/code on all data documents.

8.3 WHERE WILL DATA BE STORED?

Examples of data - questionnaire, interview responses, downloaded online survey data, observation recordings, biological samples

Data will be stored on password protected computers; if information is printed, it will be stored in a locked file cabinet belonging to Jacquelyn Woodyard. Some data will be accessible on www.qualtrics.com; it will be password protected, on a secure webpage, and only accessible to the PI and co-investigator.

8.4 WHO WILL HAVE ACCESS TO STUDY DATA?

The PI and co-investigator: Jacquelyn Woodyard and Katherine Cennamo

8.5 DESCRIBE THE PLANS FOR RETAINING OR DESTROYING THE STUDY DATA

Data will be retained for five years for use in this study and/or for future publications and presentations. After five years, the materials will be deleted and/or shredded and discarded.

8.6 DOES THIS STUDY REQUEST INFORMATION FROM PARTICIPANTS REGARDING ILLEGAL BEHAVIOR?

☒ **No,** go to question 9.1
☐ **Yes,** answer questions within table ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯↓

IF YES
Does the study plan to obtain a Certificate of Confidentiality?   ☐ No   ☐ Yes (Note: participants must be fully informed of the conditions of the Certificate of Confidentiality within the consent process and form)   *For more information about Certificates of Confidentiality, visit the following link:*   *http://www.irb.vt.edu/pages/coc.htm*

Section 9: Compensation

For more information about compensating subjects, visit the following link: http://www.irb.vt.edu/pages/compensation.htm

9.1 WILL SUBJECTS BE COMPENSATED FOR THEIR PARTICIPATION?

☒ **No,** go to question 10.1
☐ **Yes,** answer questions within table ──────────┐
                                                  ▼

IF YES
What is the amount of compensation?
Will compensation be prorated? ☐ Yes, please describe: ☐ No, explain why and clarify whether subjects will receive full compensation if they withdraw from the study? *Unless justified by the researcher, compensation should be prorated based on duration of study participation. Payment must <u>not</u> be contingent upon completion of study procedures. In other words, even if the subject decides to withdraw from the study, he/she should be compensated, at least partially, based on what study procedures he/she has completed.*

Section 10: Audio / Video Recording

For more information about audio/video recording participants, visit the following link: http://www.irb.vt.edu/pages/recordings.htm

10.1 WILL YOUR STUDY INVOLVE VIDEO AND/OR AUDIO RECORDING?

☒ **No,** go to question 11.1
☐ **Yes,** answer questions within table ──────────┐
                                                  ▼

IF YES
This project involves: ☐ Audio recordings only ☐ Video recordings only ☐ Both video and audio recordings
Provide compelling justification for the use of audio/video recording:
How will data within the recordings be retrieved / transcribed?
How and where will recordings (e.g., tapes, digital data, data backups) be stored to ensure security?
Who will have access to the recordings?
Who will transcribe the recordings?
When will the recordings be erased / destroyed?

Section 11: Research Involving Students

11.1 DOES THIS PROJECT INCLUDE STUDENTS AS PARTICIPANTS?

☐ **No,** go to question 12.1
☒ **Yes,** answer questions within table ───────────┐
                                                    ▼

IF YES
Does this study involve conducting research with students of the researcher? ☒ No ☐ Yes, describe safeguards the study will implement to protect against coercion or undue influence for participation: *Note: if it is feasible to use students from a class of students not under the instruction of the researcher, the IRB recommends and may require doing so.*
Will the study need to access student records (e.g., SAT, GPA, or GRE scores)? ☒ No ☐ Yes

11.2 DOES THIS PROJECT INCLUDE <u>ELEMENTARY</u>, <u>JUNIOR</u>, OR <u>HIGH SCHOOL</u> STUDENTS?

☒ **No,** go to question 11.3
☐ **Yes,** answer questions within table ───────────┐
                                                     ▼

IF YES

Will study procedures be completed during school hours?
☐ No
☐ Yes
 	
   If yes,
 	
      Students not included in the study may view other students' involvement with the research during school time as unfair. Address this issue and how the study will reduce this outcome:
 	
      Missing out on regular class time or seeing other students participate may influence a student's decision to participate. Address how the study will reduce this outcome:

Is the school's approval letter(s) attached to this submission? ☐ Yes ☐ No, project involves Montgomery County Public Schools (MCPS) ☐ No, explain why: *You will need to obtain school approval (if involving MCPS, click here: http://www.irb.vt.edu/pages/mcps.htm). Approval is typically granted by the superintendent, principal, and classroom teacher (in that order). Approval by an individual teacher is insufficient. School approval, in the form of a letter or a memorandum should accompany the approval request to the IRB.*

11.3 DOES THIS PROJECT INCLUDE <u>COLLEGE</u> STUDENTS?

☐ **No,** go to question 12.1
☒ **Yes,** answer questions within table ───────────┐
                                                     ▼

IF YES
Some college students might be minors. Indicate whether these minors will be included in the research or

actively excluded:
☐ Included
☒ Actively excluded, describe how the study will ensure that minors will not be included: **During the consent process, participants must acknowledge that they are 18 or older in order to give consent and participate in the study.**

Will extra credit be offered to subjects?
☒ No
☐ Yes

　If yes,

　　　What will be offered to subjects as an equal alternative to receiving extra credit without participating in this study?

　　　Include a description of the extra credit (e.g., amount) to be provided within question 9.1 ("IF YES" table)

Section 12: Research Involving Minors

12.1 DOES THIS PROJECT INVOLVE MINORS (UNDER THE AGE OF 18 IN VIRGINIA)?
Note: age constituting a minor may differ in other States.

☒ **No,** go to question 13.1
☐ **Yes,** answer questions within table

IF YES
Does the project reasonably pose a risk of reports of current threats of abuse and/or suicide? ☐ No ☐ Yes, thoroughly explain how the study will react to such reports: *Note: subjects and parents must be fully informed of the fact that researchers must report threats of suicide or suspected/reported abuse to the appropriate authorities within the Confidentiality section of the Consent, Assent, and/or Permission documents.*
Are you requesting a waiver of parental permission (i.e., parent uninformed of child's involvement)? ☐ No, **both** parents/guardians will provide their permission, if possible. ☐ No, **only one** parent/guardian will provide permission. ☐ Yes, describe below how your research meets **all** of the following criteria (A-D): 　　Criteria A - The research involves no more than minimal risk to the subjects: 　　Criteria B - The waiver will not adversely affect the rights and welfare of the subjects: 　　Criteria C - The research could not practicably be carried out without the waiver: 　　Criteria D - (Optional) Parents will be provided with additional pertinent information after 　　　　participation:
Is it possible that minor research participants will reach the legal age of consent (18 in Virginia) while enrolled in this study? ☐ No ☐ Yes, will the investigators seek and obtain the legally effective informed consent (in place of the minors' previously provided assent and parents' permission) for the now-adult subjects for any ongoing interactions with the subjects, or analysis of subjects' data? If yes, explain how: *For more information about minors reaching legal age during enrollment, visit the following link:* *http://www.irb.vt.edu/pages/assent.htm*

> *The procedure for obtaining assent from minors and permission from the minor's guardian(s) must be described in **Section 4** (Consent Process) of this form.*

Section 13: Research Involving Deception

For more information about involving deception in research and for assistance with developing your debriefing form, visit our website at http://www.irb.vt.edu/pages/deception.htm

13.1 DOES THIS PROJECT INVOLVE DECEPTION?

☒ **No,** go to question 14.1
☐ **Yes,** answer questions within table ─────────┐

IF YES
Describe the deception:
Why is the use of deception necessary for this project?
Describe the debriefing process:

Provide an explanation of how the study meets <u>all</u> the following criteria (A-D) for an alteration of consent:
    Criteria A - The research involves no more than minimal risk to the subjects:
    Criteria B - The alteration will not adversely affect the rights and welfare of the subjects:
    Criteria C - The research could not practicably be carried out without the alteration:
    Criteria D - (Optional) Subjects will be provided with additional pertinent information after participation
           (i.e., debriefing for studies involving deception):
 	
By nature, studies involving deception cannot provide subjects with a complete description of the study during the consent process; therefore, the IRB must allow (by granting an alteration of consent) a consent process which does not include, or which alters, some or all of the elements of informed consent.

The IRB requests that the researcher use the title "Information Sheet" instead of "Consent Form" on the document used to obtain subjects' signatures to participate in the research. This will adequately reflect the fact that the subject cannot fully consent to the research without the researcher fully disclosing the true intent of the research.

Section 14: Research Involving Existing Data

14.1 WILL THIS PROJECT INVOLVE THE COLLECTION OR STUDY/ANALYSIS OF EXISTING DATA DOCUMENTS, RECORDS, PATHOLOGICAL SPECIMENS, OR DIAGNOSTIC SPECIMENS?

Please note: it is not considered existing data if a researcher transfers to Virginia Tech from another institution and will be conducting data analysis of an on-going study.

☒ **No,** you are finished with the application
☐ **Yes,** answer questions within table ─────────┐

IF YES

From where does the existing data originate?
Provide a detailed description of the existing data that will be collected or studied/analyzed:
Is the source of the data public? ☐ No, continue with the next question ☐ Yes, you are finished with this application
Will any individual associated with this project (internal or external) have access to or be provided with existing data containing information which would enable the identification of subjects: ▪ **Directly** (e.g., by name, phone number, address, email address, social security number, student ID number), or ▪ **Indirectly through study codes** even if the researcher or research team does not have access to the master list linking study codes to identifiable information such as name, student ID number, etc or ▪ **Indirectly through the use of information that could reasonably be used in combination to identify an individual** (e.g., demographics) ☐ No, collected/analyzed data will be completely de-identified ☐ Yes, **If yes,** *Research will not qualify for exempt review; therefore, if feasible, written consent must be obtained from individuals whose data will be collected / analyzed, unless this requirement is waived by the IRB.* **Will written/signed or verbal consent be obtained from participants prior to the analysis of collected data?** -select one-

This research protocol represents a contract between all research personnel associated with the project, the University, and federal government; therefore, must be followed accordingly and kept current.

Proposed modifications must be approved by the IRB prior to implementation except where necessary to eliminate apparent immediate hazards to the human subjects.

Do not begin human subjects activities until you receive an IRB approval letter via email.

It is the Principal Investigator's responsibility to ensure all members of the research team who interact with research subjects, or collect or handle human subjects data have completed human subjects protection training prior to interacting with subjects, or handling or collecting the data.

---------END---------

Appendix B: IRB Recruitment Document

1: Email to ePortfolio networks, Centers for Teaching and Learning, ePortfolio Centers, program directors, and individual instructors (pre-commitment):

ePortfolio Research - Invitation to Participate

Dear (CENTER NAME/NETWORK NAME/DIRECTOR NAME/INSTRUCTOR NAME),

We need your help at the conclusion of this Fall 2015 semester!

We are evaluating how undergraduate and graduate students' perceptions of autonomy support on an ePortfolio project relate to their motivational beliefs on the project. We are investigating this relationship with particular focus on the investigation of the moderating role of students' culturally based learning preferences.

If you implement an ePortfolio project in your course, to be completed by students this fall semester 2015 (or by December 31, 2015), we are requesting your commitment to invite your students to participate in this online survey study.

We will be examining students' perceptions regarding ePortfolio projects from numerous courses in various higher education institutions. The study is open to any undergraduate or graduate student, regardless of class size, or discipline. Students must be 18 years of age or older to participate. We intend to use these data for dissertation, scholarly publication, and presentation.

If you are willing at this time to potentially invite your students to participate in this study following the completion of their ePortfolio project this fall 2015, please respond to Jackie Woodyard at ███████████.

If you respond with potential commitment, we will send you an email in December, 2015 including the link to the study to be forwarded to your students. The survey has been designed to be as brief as possible, and will take students no longer than 15-30 minutes to complete.

Through your participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects.

Thank you for your consideration. Feel free to contact us with any questions you have regarding this study.

Sincerely,

Jacquelyn Woodyard (Principal Investigator), Virginia Tech ███████████
Phone contact: ███████████

Katherine Cennamo, PhD (Co-investigator), Virginia Tech ███████████

2: Email to be forwarded to students by instructor:

Dear student,

We are evaluating how undergraduate and graduate students' feelings about support on an ePortfolio project relate to their motivational beliefs on the project. We are investigating this relationship with particular focus on how students' culturally based learning preferences influence students' motivation.

Please follow the link below to participate in a voluntary survey regarding your perceptions of autonomy support on your ePortfolio project from the course instructor from which you received this email. In addition, within the survey you will be asked to provide your voluntary consent to participate in this study. The risks associated with your participation in this study are considered to be minimal. The survey results will be confidential and not connected to you, your instructor, or your institution. Please note: We offer no compensation for your participation in this study. No promise or guarantee of benefits has been made to encourage you to participate or for you to provide consent.

Through your participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects. A potential benefit of this study is the betterment of future ePortfolio project design for motivation of students in higher education.

Survey link: https://virginiatech.qualtrics.com/SE/?SID=SV_eR4lja0caJgHbaR

We will be examining students' perceptions regarding ePortfolio projects from numerous courses in various higher education institutions. Your responses to this survey will remain anonymous, and data will be compiled and reported in the aggregate. The study is open to any undergraduate or graduate student, regardless of class size or discipline. You must be 18 years of age or older to participate in this study. We intend to use these data for dissertation, scholarly publication, and presentation.

The decision to participate or not will not have any effect on your grades or evaluation from your course instructor. Your course instructor will not know which students from your class participated in the study. Please note: the data collected in this study is survey-based, and does not include your actual ePortfolio.

Through your participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects.

Thank you for your consideration! For more information, contact:
Jacquelyn Woodyard (Principal Investigator), Virginia Tech
Phone contact:

Katherine Cennamo, PhD (Co-investigator), Virginia Tech

Appendix C: IRB Consent Document

<div align="center">

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

</div>

Title of Project:
Autonomy Supportive Instruction as it relates to Students' Motivational Beliefs on an ePortfolio Project: The Moderating Role of Culturally Based Learning Preferences

Investigator(s):
Jacquelyn Woodyard, Principal Investigator, Virginia Tech   Email: ███████████
Phone contact: ████████████

Katherine Cennamo, PhD, Co-investigator, Virginia Tech   Email: ███████████

I. Purpose of this Research Project

The purpose of this study is to identify how students' perceptions of autonomy support on an ePortfolio project relate to their motivational beliefs on the project. This relationship will be examined with particular focus on the investigation of the potential moderating role of students' culturally based learning preferences. We will be examining students' perceptions regarding ePortfolio projects from numerous courses in various higher education institutions. The study is open to any undergraduate or graduate student, regardless of age, class size, or discipline. We intend to use these data for dissertation, scholarly publication, and presentation.

II. Procedures

Should you consent to participate, we will collect data about your ePortfolio development process, including:
- Your perception of autonomy support on the ePortfolio project
- Your motivational beliefs on the ePortfolio project, including: effort/importance, value/usefulness, and felt pressure and tension
- Your culturally based learning preferences

The questionnaires you will be asked to complete were designed to be as brief as possible and will take no longer than 15-30 minutes to complete.

- First, you will complete the Perceived Autonomy Support: The Learning Climate Questionnaire (LCQ). This instrument questions students regarding their perceptions of their teacher's actions in the classroom environment. You will answer 15 questions according to a seven point Likert scale from one to seven, one being "strongly disagree," four being "neutral," and seven being "strongly agree."

- You will then complete the Intrinsic Motivation Inventory (IMI), including subscales regarding such motivational beliefs as: effort/importance, value/usefulness, and felt pressure and tension. This instrument questions students on their motivational beliefs

on a task. You will answer 17 questions according to a seven point Likert scale from one to seven, one being "not at all true," four being "somewhat true," and seven being "very true."

· Next, you will complete the Survey on Culturally Based Learning Preferences, designed by Parrish and Linder-VanBerschot (2009). This survey questions regarding your culturally based learning preferences, including: Equality/Authority; Individualism/Collectivism; Nurture/Challenge; Stability seeking/Uncertainty acceptance; Logic argumentation/Being reasonable; Causality/Complex systems (Analysis/Holism); Clock time/Event time; and Linear time/Cyclical time. You will answer 36 questions according to a ten point semantic differential scale from one to ten, one being "strongly agree with the left-hand statement," ten being "strongly agree with the right-hand statement," and the selection of other numbers indicating "lesser degrees of agreement with one side or the other."

· Lastly, you will complete an introductory section of the survey including questions about your demographic information.

· The surveys will be scored and you will be assigned a quantitative average score that reflects: (a) the extent to which you lean toward either direction of each of the eight cultural dimensions; (b) the extent to which you perceive your instructor is supportive of your autonomy on an ePortfolio project; and (c) the extent to which you experienced each motivational belief, including effort/importance, value/usefulness, and felt pressure and tension.

The survey will be completed one time, following completion of your ePortfolio project. You may take the survey online, from the location of your choice (between December 1 and December 30, 2015).

III. Risks

The risks associated with your participation in this study are considered to be minimal. The survey results will be confidential and not connected to you, your instructor, or your institution.

IV. Benefits

No promise or guarantee of benefits has been made to encourage you to participate or for you to provide consent. Through your participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects. A potential benefit of this study is the betterment of future ePortfolio project design for motivation of students in higher education.

V. Extent of Anonymity and Confidentiality

This study will include a section regarding demographic information. This study will not ask for your name or email address; the data will be collected anonymously. Security is of the highest

priority. We will employ appropriate measures to insure the security of paper and electronic files. Data will only be reported in the aggregate with a sufficient number of cases such that individuals cannot be identified directly or indirectly.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent.

VI. Compensation

We offer no compensation for your participation in this study.

VII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

VIII. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991.

IX. Subject's Consent

I have read the above Consent Form and conditions of this project. I am 18 years of age or older. I have had all my questions answered. I understand that the results of the study may be published and used for a dissertation. I hereby acknowledge the above and give my voluntary consent to participate in this study:

Appendix D: IRB Approval Document
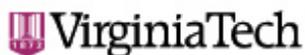
VirginiaTech

MEMORANDUM

DATE: November 30, 2015

TO: Katherine S Cennamo, Jacquelyn Claire Woodyard

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires July 29, 2020)

PROTOCOL TITLE: Autonomy Support and Motivation on an ePortfolio Project: The Moderating Role of Culturally Based Learning Preferences

IRB NUMBER: **15-477**

Effective November 30, 2015, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Amendment request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Exempt, under 45 CFR 46.110 category(ies) 2**
Protocol Approval Date: **October 8, 2015**
Protocol Expiration Date: **N/A**
Continuing Review Due Date*: **N/A**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

Appendix E: Qualtrics Survey Screenshots

Section for Informed Consent

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

Title of Project:
Autonomy Supportive Instruction as it relates to Students' Motivational Beliefs on an ePortfolio Project: The Moderating Role of Culturally Based Learning Preferences

Investigator(s):
Jacquelyn Woodyard, Principal Investigator, Virginia Tech   Email:
Phone Contact:

Katherine Cennamo, PhD, Co-investigator, Virginia Tech   Email:

I. Purpose of this Research Project

The purpose of this study is to identify how students' perceptions of autonomy support on an ePortfolio project relate to their motivational beliefs on the project. This relationship will be examined with particular focus on the investigation of the potential moderating role of students' culturally based learning preferences. We will be examining students' perceptions regarding ePortfolio projects from numerous courses in various higher education institutions. The study is open to any undergraduate or graduate student, regardless of age, class size, or discipline. We intend to use these data for dissertation, scholarly publication, and presentation.

II. Procedures

Should you consent to participate, we will collect data about your ePortfolio development process, including:
Your perception of autonomy support on the ePortfolio project
Your motivational beliefs on the ePortfolio project, including: effort/importance, value/usefulness, and felt pressure and tension
Your culturally based learning preferences

The questionnaires you will be asked to complete were designed to be as brief as possible and will take no longer than 15-30 minutes to complete.

First, you will complete the Perceived Autonomy Support: The Learning Climate Questionnaire (LCQ). This instrument questions students regarding their perceptions of their teacher's actions in the classroom environment. You will answer 15 questions according to a seven point Likert scale from one to seven, one being "strongly disagree," four being "neutral," and seven being "strongly agree."

You will then complete the Intrinsic Motivation Inventory (IMI), including subscales regarding such motivational beliefs as: effort/importance, value/usefulness, and felt pressure and tension. This instrument questions students on their motivational beliefs on a task. You will answer 17 questions according to a seven point Likert scale from one to seven, one being "not at all true," four being "somewhat true," and seven being "very true."

Next, you will complete the Survey on Culturally Based Learning Preferences, designed by Parrish and Linder-VanBerschot (2009). This survey questions regarding your culturally based learning preferences, including: Equality/Authority; Individualism/Collectivism; Nurture/Challenge; Stability seeking/Uncertainty acceptance; Logic argumentation/Being reasonable; Causality/Complex systems (Analysis/Holism); Clock time/Event time; and Linear time/Cyclical time. You will answer 36 questions according to a ten point semantic differential scale from one to ten, one being "strongly agree with the left-hand statement," ten being "strongly agree with the right-hand statement," and the selection of other numbers indicating "lesser degrees of agreement with one side or the other."

Lastly, you will complete a section of the survey including questions about your demographic information.

The surveys will be scored and you will be assigned a quantitative average score that reflects: (a) the extent to which you perceive your instructor is supportive of your autonomy on an ePortfolio project; (b) the extent to which you experienced each motivational belief, including effort/importance, value/usefulness, and felt pressure and tension; and (c) the extent to which you lean toward either direction of each of the eight cultural dimensions.
The survey will be completed one time, following completion of your ePortfolio project. You may take the survey online, from the location of your choice (between December 1 and December 30, 2015).

III. Risks

The risks associated with your participation in this study are considered to be minimal. The survey results will be confidential and not connected to you, your instructor, or your institution.

IV. Benefits

No promise or guarantee of benefits has been made to encourage you to participate or for you to provide consent. Through your participation in this study, we seek to learn more about the most efficient ways to motivate students of varying cultural orientations through the design and structuring of ePortfolio projects. A potential benefit of this study is the betterment of future ePortfolio project design for motivation of students in higher education.

V. Extent of Anonymity and Confidentiality

This study will include a section regarding demographic information. This study will not ask for your name or email address; the data will be collected anonymously. Security is of the highest priority. We will employ appropriate measures to insure the security of paper and electronic files. Data will only be reported in the aggregate with a sufficient number of cases such that individuals cannot be identified directly or indirectly.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent.

VI. Compensation

We offer no compensation for your participation in this study.

VII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

VIII. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991.

I have read the above Consent Form and conditions of this project. I am 18 years of age or older. I have had all my questions answered. I understand that the results of the study may be published and used for a dissertation. I hereby acknowledge the above and give my voluntary consent to participate in this study.

◯ Yes

◯ No

Section 1 Example

Virginia Tech — Invent the Future®

This questionnaire contains items that are related to your experience with your instructor in the preparation of your ePortfolio. Instructors have different styles in dealing with students, and we would like to know more about how you have felt about your encounters with your instructor in the preparation of your ePortfolio. Your responses are confidential. Please be honest and candid.

	1 Strongly Disagree	2	3	4 Neutral	5	6	7 Strongly Agree
I feel that my instructor provides me with choices and options in the preparation of my ePortfolio.	○	○	○	○	○	○	○
I feel understood by my instructor in the preparation of my ePortfolio.	○	○	○	○	○	○	○

Section 2 Example

Virginia Tech — Invent the Future®

In consideration of your ePortfolio assignment, for each of the following statements, please indicate how true it is for you, using the following scale:

	not at all true			somewhat true			very true
I think this ePortfolio project is important.	○	○	○	○	○	○	○
I was very relaxed in doing this Portfolio project.	○	○	○	○	○	○	○

Section 3 Example

Virginia Tech — Invent the Future®

In consideration of your learning preferences in general, select the number that best indicates the level to which you agree with one or the other statement. Selecting 1 indicates that you strongly agree with the left-hand statement, selecting 10 indicates that you agree strongly with the right-hand statement. Selecting other numbers indicate lesser degrees of agreement with one side or the other.

	1 2 3 4 5 6 7 8 9 10	
Students should feel comfortable engaging in dialogue if they disagree with their teacher—it is part of learning.	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Students should not openly disagree with or challenge their teacher—it disrupts learning.
Class discussions are for trying out new ideas, testing one's knowledge, and asking questions.	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Before class discussions, students should have mastered the course content so that they will have minimal questions.

Section for Demographic Information

Finally, please answer the following demographic questions:

Current Student Status:

○ Undergraduate

○ Graduate

○ Other

[   ]

Sex:

○ Male

○ Female

Ethnicity or Country/Culture with which you most identify:

[   ]

Survey Powered By Qualtrics

Appendix F: Perceived Autonomy Support: The Learning Climate Questionnaire

According to the description found at http://www.selfdeterminationtheory.org/pas-learning-climate/ for the Perceived Autonomy Support: The Learning Climate Questionnaire (2015):

> The LCQ has a long form containing 15 items and a short form containing 6 of the items. The questionnaire is typically used with respect to specific learning settings, such as a particular class, at the college or graduate school level. Thus, the questions are sometimes adapted slightly, at least in the instructions, so the wording pertains to the particular situation being studied–an organic chemistry class, for example. In these cases, the questions pertain to the autonomy support of an individual instructor, preceptor, or professor. If, however, it is being used to assess a general learning climate in which each student has several instructors, the questions are stated with respect to the autonomy support of the faculty members in general. (para. 1)

The following information is provided with the instrument in order to score the Perceived Autonomy Support: The Learning Climate Questionnaire (2015):

> Scores on both the 15-item version and the 6-item version are calculated by averaging the individual item scores. However, for the long version, before averaging the item scores, you must first "reverse" the score of item 13 (i.e., subtract the score on item 13 from 8 and use the result as the item score for this item–for example, the score of 3, when reversed would become 5). Higher average scores represent a higher level of perceived autonomy support. (p. 1)

Appendix G: Intrinsic Motivation Inventory

According to the description found at http://www.selfdeterminationtheory.org/intrinsic-motivation-inventory/ for the Intrinsic Motivation Inventory (2015):

> The Intrinsic Motivation Inventory (IMI) is a multidimensional measurement device intended to assess participants' subjective experience related to a target activity in laboratory experiments. It has been used in several experiments related to intrinsic motivation and self-regulation (e.g., Ryan, 1982; Ryan, Mims & Koestner, 1983; Plant & Ryan, 1985; Ryan, Connell, & Plant, 1990; Ryan, Koestner & Deci, 1991; Deci, Eghrari, Patrick, & Leone, 1994). The instrument assesses participants' interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, and perceived choice while performing a given activity, thus yielding six subscale scores. Recently, a seventh subscale has been added to tap the experiences of relatedness, although the validity of this subscale has yet to be established. (para. 1)

The following information is provided with the instrument in order to score the Intrinsic Motivation Inventory (2015):

> To score this instrument, you must first reverse score the items for which an (R) is shown after them. To do that, subtract the item response from 8, and use the resulting number as the item score. Then, calculate subscale scores by averaging across all of the items on that subscale. The subscale scores are then used in the analyses of relevant questions. (p. 5)

Appendix H: Survey on Culturally Based Learning Preferences

Survey on Culturally Based Learning Preferences

Patrick Parrish, The COMET Program
Jennifer A. Linder-VanBerschot, University of New Mexico

This survey has been designed for instructors, instructional designers, and students. Its purpose is to identify the learning preferences of the person taking the survey. There are no right or wrong answers. Indicate your individual learning preferences, not what you think others expect of you. Please read the instructions below before completing the survey.

INSTRUCTIONS: Circle the number that best indicates the level to which you agree with one or the other statement. Selecting 1 indicates that you strongly agree with the left-hand statement, selecting 10 indicates that you agree strongly with the right-hand statement. Selecting other numbers indicate lesser degrees of agreement with one side or the other.

0	**Example:** Class discussions are critical for learning.	1 2 **3** 4 5 6 7 8 9 10 Selecting **3** indicates that the left-hand statement describes your opinion best, but only to a moderate degree.	Students should observe in class and not interact unless asked to do so.
1	Students should feel comfortable engaging in dialogue if they disagree with their teacher—it is part of learning.	1 2 3 4 5 6 7 8 9 10	Students should not openly disagree with or challenge their teacher—it disrupts learning.
2	Class discussions are for trying out new ideas, testing one's knowledge, and asking questions.	1 2 3 4 5 6 7 8 9 10	Before class discussions, students should have mastered the course content so that they will have minimal questions.
3	Students should participate in the decision on what is discussed and what activities occur in class.	1 2 3 4 5 6 7 8 9 10	The teacher's assignments and activities defined in the syllabus should be followed without deviation.
4	Students should feel comfortable contributing to class discussion whenever they have something to add.	1 2 3 4 5 6 7 8 9 10	After the teacher has presented material, students should think about it carefully before contributing to class discussion.
5	Learning how to learn is the most important outcome of education.	1 2 3 4 5 6 7 8 9 10	Obtaining content knowledge is the most important outcome of education.
6	Learning how to express one's thoughts is the most important part of the learning process.	1 2 3 4 5 6 7 8 9 10	Understanding what experts have to say is the most important part of the learning process.

7	Becoming the best individual is an important motivation for learning.	1 2 3 4 5 6 7 8 9 10	Contributing to the community is the most important motivation for learning.
8	Improvement is more important than being the best.	1 2 3 4 5 6 7 8 9 10	Wanting to be the best student in the class is a valuable motivator.
9	Praise is good for every student, at any level of learning development.	1 2 3 4 5 6 7 8 9 10	To set a good example for other students, only the top tier of students should be praised.
10	Students have the opportunity to learn more when they work collaboratively.	1 2 3 4 5 6 7 8 9 10	Students have the opportunity to learn more when they work competitively.
11	Failure is an opportunity to learn.	1 2 3 4 5 6 7 8 9 10	Failure should always be avoided because it means students are not learning and time is wasted.
12	Students learn best when they feel safe and secure in the learning setting.	1 2 3 4 5 6 7 8 9 10	Students learn best when they feel challenged and pushed beyond their comfort zone.
13	A structured environment is necessary for learning.	1 2 3 4 5 6 7 8 9 10	An open-ended environment, where students can make their own decisions, is necessary for learning.
14	Students should answer questions only when they are confident that the answer is correct.	1 2 3 4 5 6 7 8 9 10	Students should focus on the thought process when responding to questions, not just correctness.
15	The teacher's role is to have all the answers.	1 2 3 4 5 6 7 8 9 10	The teacher's role is to stimulate students to come up with good answers.
16	There is always a *correct* or, at least, *best* answer, and students should be expected to find it.	1 2 3 4 5 6 7 8 9 10	Good thinking and problem-solving processes are more important than correct answers.
17	It is best to have a single source of information in a course to avoid conflicting information.	1 2 3 4 5 6 7 8 9 10	Multiple resources provide students with different perspectives from which they can form their own opinions or unique answers.
18	Guessing is okay as long as one eventually learns the correct answer.	1 2 3 4 5 6 7 8 9 10	Getting the correct answer means nothing if the student guessed.
19	Debate is more useful for learning.	1 2 3 4 5 6 7 8 9 10	Consensus-building is more useful for learning.
20	It is best to challenge others if you feel that you know the correct answer or course of action.	1 2 3 4 5 6 7 8 9 10	Correctness or what appears to be the best course of action can be sacrificed for the sake of good working relationships.
21	If there is a contradiction, argumentation should be used	1 2 3 4 5 6 7 8 9 10	If there is a contradiction, dialogue should be used to come

	to arrive at the right answer.		to consensus about an acceptable answer.
22	Learning goals and objectives are essential if learning is to occur.	1 2 3 4 5 6 7 8 9 10	Goals and objectives are secondary to taking advantage of learning opportunities as they present themselves.
23	Explanations are incomplete unless they clearly show the cause and effect.	1 2 3 4 5 6 7 8 9 10	Explanations are incomplete unless they identify all factors potentially influencing a situation, even if there is no clear cause and effect mentioned.
24	Pre-established knowledge and rules are a critical starting point for learning.	1 2 3 4 5 6 7 8 9 10	Because knowledge is continuously evolving, one can use practical situations as the starting point for learning.
25	Students are responsible for their success or failure in educational settings.	1 2 3 4 5 6 7 8 9 10	The instructional environment is the biggest influence on the success or failure of students.
26	Schedules are important; instructional activities should start and stop as planned.	1 2 3 4 5 6 7 8 9 10	It is important that schedules be adaptable to learning activities as they unfold.
27	Clear boundaries between class time and private time should be enforced.	1 2 3 4 5 6 7 8 9 10	Learning time should have no boundaries; it is important to take advantage of all opportunities for learning.
28	Students need strict deadlines and hard consequences if they miss those deadlines.	1 2 3 4 5 6 7 8 9 10	The process of learning should be flexible because constant improvement is the goal, no matter how long it takes.
29	Students learn more by working quietly and alone toward well defined goals.	1 2 3 4 5 6 7 8 9 10	Students learn more by discussing what they are learning with the teacher and the class.
30	Students learn best with structured objectives and clear benchmarks.	1 2 3 4 5 6 7 8 9 10	Students learn best when learning objectives are adaptable to both individual interests and situational opportunities.
31	Classroom time should be well-planned and well-managed.	1 2 3 4 5 6 7 8 9 10	Classroom time should be adaptable to meet the learning opportunities that arise each day.
32	Wasting time is the largest impediment to achievement.	1 2 3 4 5 6 7 8 9 10	Hurrying is counter-productive to achievement.
33	One should take advantage of all opportunities for improvement.	1 2 3 4 5 6 7 8 9 10	Opportunities for improvement should be taken only when one is prepared for them.
34	A focus on the future and meeting established goals is best for learning.	1 2 3 4 5 6 7 8 9 10	Frequent reflection about past experiences allows one to learn best from present experiences.

| 35 | Repetition slows down learning. | 1 2 3 4 5 6 7 8 9 10 | Repetition is valuable for learning. |
| 36 | Students should be shown the immediate relevance of what is being learned. | 1 2 3 4 5 6 7 8 9 10 | Students should be patient to discover the relevance of what is being learned. |

(Parrish & Linder-VanBerschot, 2009a)

Appendix I: Analysis of Survey on Culturally Based Learning Preferences

Analysis of Survey on Culturally Based Learning Preference

Patrick Parrish, The COMET Program
Jennifer A. Linder-VanBerschot, University of New Mexico

The chart below identifies the items that apply to each cultural dimension described in the Cultural Dimensions of Learning Framework (See Table 1 below). Revisit your answers for each set of items as grouped and determine if they tend to be more on the left or right side. If your answers average 1 to 3, then you would circle the dimension on the left. If your answers average 8 to 10, then you would circle the dimension on the right. If your answers average 4 to 7, or tend to be scattered, circle in between the two dimensions; you may not have a strong preference for one or the other (and this is okay). However, note all the items in which you assigned an extreme right or left rating and consider how strongly this determines your satisfaction in learning situations. Finally, revisit the Cultural Dimensions of Learning Framework to learn more about the dimensions.

Cultural dimension	Where you fall in the spectrum	
Equality and authority (Items 1-3)	More equality-oriented	More . . . . authority-oriented
Individualism and collectivism (Items 4-7)	More individualistic	More . . . . collectivist
Nurture and challenge (Items 8-12)	More nurturing	More . . . . challenging
Stability seeking and uncertainty acceptance (Items 13-18)	More stability-seeking	More . . . . uncertainty acceptance
Logic argumentation and being reasonable (Items 19-21)	More logical.	More . . . . reasonable
Causality and complex systems /Analysis and holism (Items 22-25)	More focus on causality.	More focus on . . . . .systems and situations
Clock time and event time (Items 26-29)	More clock focus.	More . . . . event focus
Linear time and cyclical time (Items 30-36)	More linear time oriented.	More cyclical . . . . time oriented

Draft 9

Questions to ask yourself:

o   Do these results feel accurate? In what situations might they not be accurate?

o   Do these preferences explain why I enjoy some learning experiences but not others?

o   How can I adapt my learning habits to reflect my learning preferences?

o   How can my instructor adapt his/her teaching style to reflect my learning preferences?

o   To what extent are my learning preferences similar to or different from the other members of the learning community?

(Parrish & Linder-VanBerschot, 2009b)

Figure I: The Cultural Dimensions of Learning Framework

The Cultural Dimensions of Learning Framework

Social Relationships

Cultural dimension **Equality and authority**	How this dimension is manifested in learning situations	
	More equality	**More authority**
How is inequality handled? How is status demonstrated and respect given? What interactions are appropriate for those of unequal status? (Hofstede & Hofstede, 2005; Lewis, 2006)	Teachers treated as equals to be engaged and even challenged	Teachers are treated as unchallenged authorities
	Students take responsibility for learning activities	Teachers are solely responsible for what happens in instruction
	Dialogue and discussion are critical learning activities	The teacher is the primary communicator

Cultural dimension **Individualism and collectivism**	**More individualistic**	**More collectivist**
Which prevails, the interests of the individual or the interest of the group? To what degree are interpersonal relationships valued? (Hofstede & Hofstede, 2005; Nisbett, 2003)	Expectation that students speak up Learning how to learn (cognitive skill) is primary (individual growth)	Students speak up in limited situations Learning how to do (content knowledge) is primary (social growth)
	Expression of student's point of view is valuable component of learning	Student expected to accommodate teacher's point of view
	Hard work is motivated by individual gain	Hard work is motivated by the greater good

Cultural dimension **Nurture and challenge**	**More nurturing**	**More challenging**
Which is the more important set of goals, cooperation and security or recognition and advancement? Which achieves better learning outcomes, supportive acts or challenging acts? (Hofstede & Hofstede, 2005)	Average is used as the norm	Best student is used as the norm
	All students are praised	Only excellence is praised
	Collaboration is cultivated	Competition is cultivated
	Failure is a growth opportunity	Failure is a highly discouraged, and can be considered disastrous
	More modesty	More assertiveness
	Seek good relationships and security	Seek challenge and recognition

Epistemological Beliefs

Cultural dimension **Stability seeking and uncertainty acceptance**	How this dimension is manifested in learning situations	
	More stability seeking	**More uncertainty acceptance**
How is uncertainty dealt with? Is it avoided or accepted? Is structure assumed more important than flexibility? What is the status of knowledge – established or in a process of development? (Hofstede & Hofstede, 2005; Nisbett, 2003)	Structured learning activities	Learning activities more open-ended (discussions, projects)
	Focus on getting right answers	Focus on process and justified opinions
	Ambiguity to be avoided	Ambiguity is a natural condition
	Teachers expected to have the answers	Teachers can say "I don't know"
	Single textbooks or teacher authority	Many resources used
	Luck is a factor in student success (e.g., guessing the right things to study for the test)	Demonstrated ability to think is the key to academic success, not right answers
	More stressed	Less stressed

Cultural dimension **Logic argumentation and being reasonable**	**More logical**	**More reasonable**
How are arguments developed? Which is more important, logical consistency or practical outcomes? How is	Focus on logical argumentation to find truth	Focus on achieving practical and socially acceptable outcomes
	Insistence on single truths based on logical	Acceptance of multiple truths based on

	reasoning	experience
disagreement managed? (Nisbett, 2003)	Debate/argumentation is a learning activity	Consensus building is a learning activity
	Being right is most important	Being virtuous is most important
	Willingness to challenge others when the teacher/students are presumed wrong or being inconsistent	Acceptance of contradictions for the sake of continuing, harmonious dialogue
Causality and complex systems (Analysis and holism) How is causality assigned typically? Is it assigned to a single, most likely source, or is it assigned to the broader context? (Nisbett, 2003)	**More focus on causality**	**More focus on systems and situations**
	More goal orientation expected of learners	More willing to work within situational constraints
	Knowledge tied to cause-effect explanations	Knowledge tied to explanations of systems and situations
	Focus on stable knowledge and rules	Focus on evolving and situational knowledge
	Learning success or failure attributed to student characteristics	Learning success or failure attributed to the situation

Temporal Perceptions

| Cultural dimension	How this dimension is manifested in learning situations	
Clock time and event time	**More clock focus**	**More event focus**
Do people conform to an external measure of time, or do they allow the event at hand to unfold on its own time? Which are more important, deadlines or relationships? (Levine, 1997)	Instructional activities start and stop promptly	Instructional activities are allowed to continue as long as they are useful
	Meetings outside of class time are limited to strict schedules	Boundaries between class and outside class time more fluid
	Strict deadlines and consequences for missing them	Work continues toward improvements with less regard for deadlines
	Likes procedures	Willing to bypass procedures
	Learners work quietly toward planned ends	Learners are talkative and expressive and may ignore plans
Linear time and cyclical time	**More linear time**	**More cyclical time**
	Time is to be managed	One adapts to time
Do people see time as a path and see goals as necessary destinations, or do they see time as a pattern of interlocking cycles into which they step in and out over the course of a life? (Hall, 1983; Lewis, 2006)	Learning proceeds along a linear path with clear prerequisites and milestones	Learning is seen as practice toward slowly increasing perfection
	Goal setting is essential to learning	Goals are secondary, one adapts to the situation to draw from it as much as possible
	Time is not to be wasted, actions should be quick and decisive if one cares about achievement	Time exists for observation and reflection, rushing is counter-productive to achievement
	Opportunities are not to be wasted. Chances don't present themselves twice	Because time is a series of cycles, opportunities recur. When they do, one may make wiser decisions
	The past is irrelevant. Future goals are what are important.	The past is influential since cycles repeat. One carries the past forward.
	Repetition can be seen as a being in a "rut" (not progressing)	Repetition is valuable for learning
	Students want to see immediate relevance	Students may be more patient to discover relevance

(Parrish & Linder-VanBerschot, 2010)

Figure II: RQ1 Correlation Trends
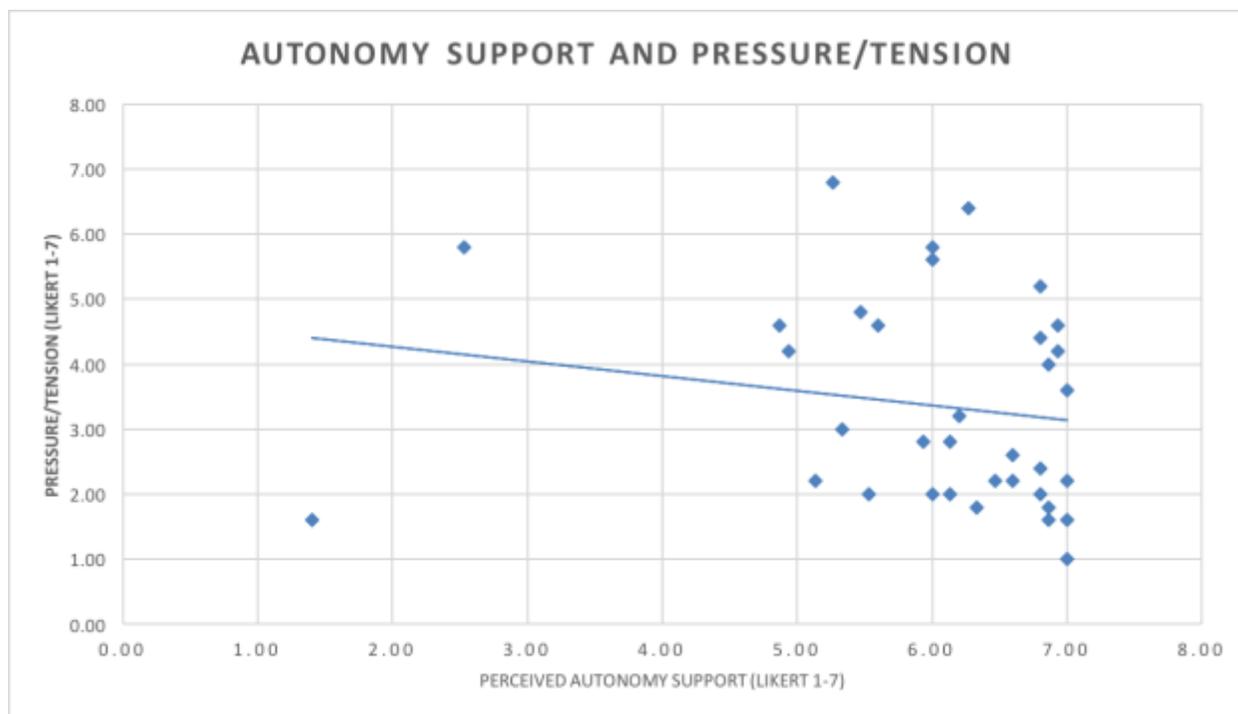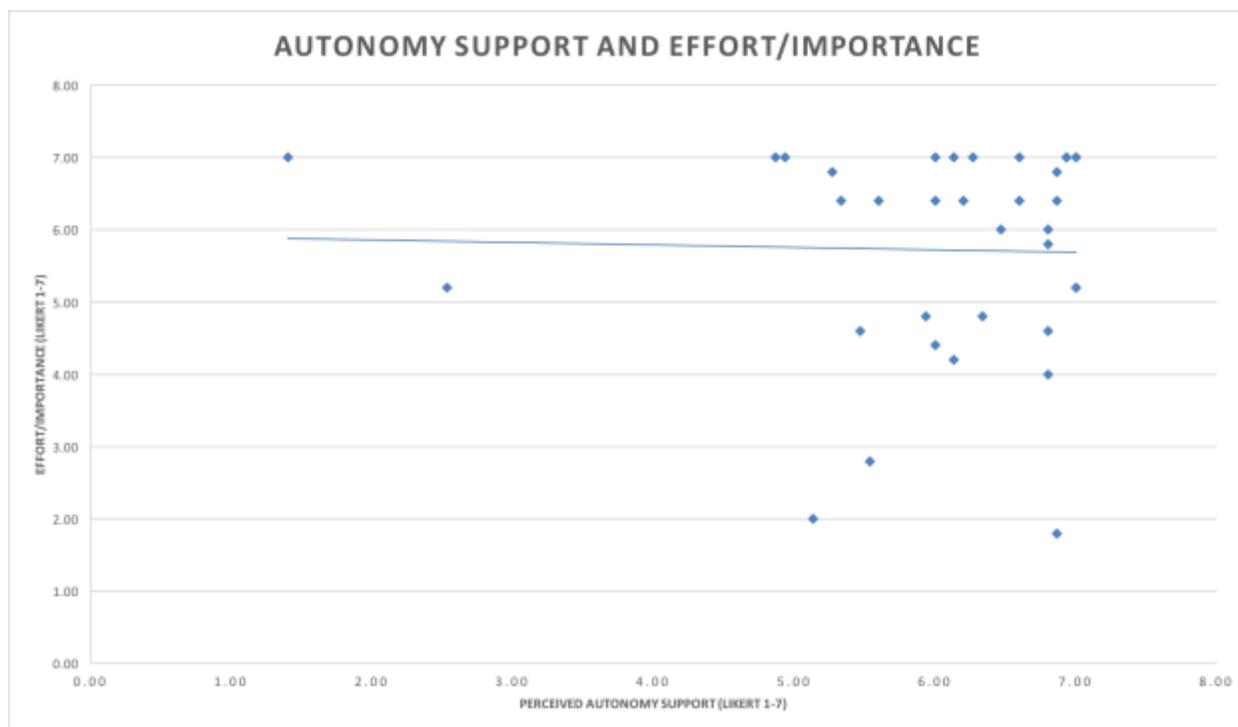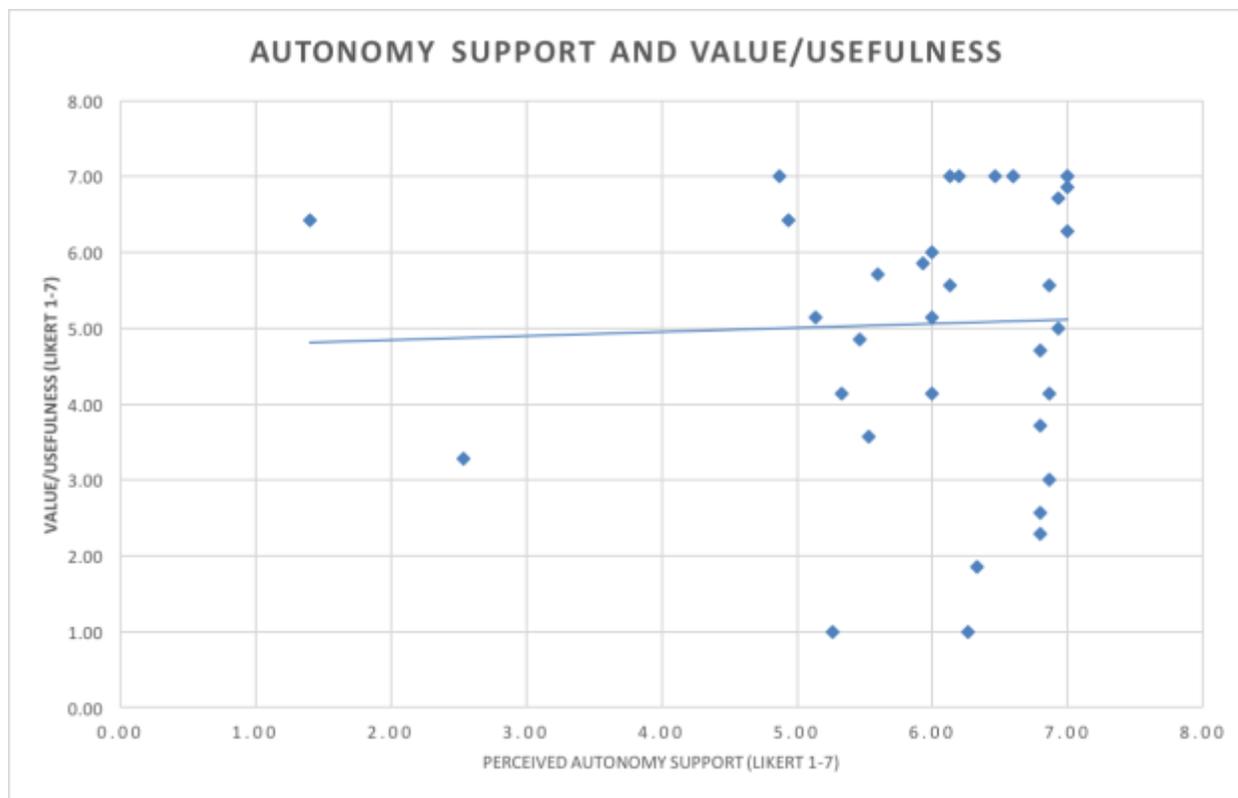
Figure III: Demographic Summative Tables