Nursing Faculty Reports of their Intention to Design Instruction to Support Student Learning in Community College Classrooms

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The purpose of this exploratory case study was to describe community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms. Specifically, Ajzen’s (1985) Theory of Planned Behavior (TPB) was the conceptual framework used to analyze nursing faculty members’ reports of their attitudes, normative beliefs, and control beliefs related to the three Universal Design for Learning (CAST, 2011) principles. Ajzen theorized that individuals base their behaviors on intention and intentions are based on the individuals’ attitudes toward the behavior, their perceptions of how others wanted them to perform the behavior, and their behavioral control to perform the behavior.

A two-method approach was used to answer the research questions. Study volunteers were e-mailed an internet based survey. The survey participants were also asked to participate in a telephone interview. Twenty-eight faculty members from community colleges in Connecticut completed the survey; eight of whom volunteered to participate in a telephone interview. Procedures associated with quantitative and qualitative research were used to analyze the data, which consisted of survey data and verbatim transcripts of the telephone interviews. This analysis yielded 40 findings. Conclusions were drawn and recommendations for practice and future research were generated. Study participants’ reports of their intention to use design instruction based on the UDL strategies reflected positive attitudes from the faculty. The effect of social norms from peers and others were also positive. Lastly, the participants indicated that they believed they had the control to use the strategies and the confidence to do so. According to Ajzen’s (1985) TPB, behavior follows intention, which suggests that study participants would be inclined to use the UDL strategies that support learning for a broad range of students in the community college classroom.
University of Hartford
Doctoral Program in Educational Leadership

Nursing Faculty Reports of Their Intention to Design Instruction to Support Student Learning in Community College Classrooms

Submitted by:
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September 1, 2016

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Dissertation submitted to the Doctoral Examining Committee
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in partial fulfillment of the requirements for the degree of
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DEDICATION

To my parents, Henry and Nancy who always believed in me. Mom, you have given me the faith and strength to persevere in life. You are the best role model I could have. I know daddy is looking down from heaven and is proud of me.

To my daughters, Shannon and Kara, our family has made many sacrifices during this process and I appreciate the ways you motivated me and cheered me on. Always follow your dreams, you can do anything you set your mind to. I love you to the moon and back!
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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

This exploratory case study examined the phenomenon of community college nursing faculty members’ intentions to design instruction to support learning for the broad range of students in their classrooms. Designing instruction to meet the diverse and varied learning needs of students in the community college classroom, or universally designed instruction, is a proactive approach to making learning and instruction accessible to “all students—regardless of gender, race, place of origin, first language, learning style, culture, background knowledge, disability and other characteristics” (Burgstahler, 2008, p. 24). The number of empirical investigations centered on approaches for universally designing instruction in postsecondary settings has been increasing steadily since the 1990s (Chodock & Dolinger, 2009; Izzo, Murray, & Novak, 2008; Silver, Bourke, & Strehorn, 1998) with much of the research focused on the preparation of teachers for K-12 settings (Evans, Williams, King, & Metcalf, 2010; Schelly, Davies, & Spooner, 2011). Of all the approaches, Universal Design for Learning (Center of Applied Special Technology [CAST], 2011) was chosen for this study as the means to investigate the design of instruction that makes instruction and learning accessible to all students in the community college classrooms because the model is grounded in neurological research (Meyer & Rose, 2000; Rose, 2001). Further, it is referred to by name in the Higher Education Opportunity Act of 2008. These points are discussed further in Chapter 2.

Ajzen’s (1985) Theory of Planned Behavior (TPB) served as the conceptual framework for this study. This theory is based on the assumption that humans are rational beings and use information analytically to direct their behavior. According to TPB, three factors—behavioral beliefs, normative beliefs, and control beliefs—work together to explain how people develop
their intentions to act in a particular situation (Ajzen, 1985). *Intention* is an indication of a person’s readiness to perform or not perform a certain behavior; this has been found to be a strong determinant of that person’s action (Ajzen, 1991; Ajzen & Sheikh, 2013; Armitage & Conner, 2001; Francis et al., 2004; Jones, Fahrenwald, & Ficek, 2013).

In the state of Connecticut, there are 12 community colleges serving four geographic regions (Connecticut State Colleges and Universities Board of Regents, 2012). The retention rate for first-year students who entered the community college system in the fall of 2012 was less than 70% for full-time students. In addition, the graduation rates for students at community colleges who began their program in the fall of 2008 were less than 20% and most community colleges in Connecticut have a graduation rate in the single digits (Connecticut State Colleges and University Board of Regents, 2012).

In 2012, concerned about community college retention and graduation rates, the Connecticut legislature passed Public Act No. 12-40, An Act Concerning College Readiness and Completion. The law required the state’s public universities and community colleges to restructure the delivery of remedial or developmental education. Among various provisions, the Act mandated that learning support be embedded in regular, college-level, credit-bearing courses. The law also required that colleges turn the remedial content into a co-requisite rather than a pre-requisite. At its most basic level, Public Act 12-40 has challenged faculty to rethink teaching and its relationship to students’ learning. Faculty consideration should now be given to purposefully designing curricula, implementing instruction, and assessing learning to support learning for a broad range of students in classrooms (CAST, 2011).

The United States is experiencing a nationwide shortage of registered nurses and community colleges are the nation’s largest provider of Associate Degree Nursing (ADN)
programs that prepare a majority of registered nurses entering the workforce (American Association of Community Colleges [AACC], 2011b; Viterito & Teich, 2002). Therefore, the population of interest in this study is full- and part-time nursing faculty working at the six Connecticut community colleges that offer an ADN program. The colleges are Capital Community College, Gateway Community College, Naugatuck Valley Community College, Norwalk Community College, Northwestern Connecticut Community College, and Three Rivers Community College. The sample comprised faculty who volunteered to participate in the study.

Two data collection methods were used: an Internet-based survey and telephone interviews. The Internet-based survey was developed following Ajzen’s (2006a) recommendations for constructing a TPB questionnaire. Specifically, the survey items queried respondents about their behavioral beliefs, normative beliefs, and control beliefs related to using varied and flexible means for (a) representing and teaching important course concepts, (b) engaging students in learning, and (c) having students demonstrate their knowledge or skills. To complement information gathered from the survey, follow-up telephone interviews were conducted with a subsample of volunteers who had completed the survey. The semi-structured interview guide developed for use in this study was modeled after interview questions used in a TPB related study conducted by Renzi and Klobas (2008).

The remainder of this chapter contains a discussion of the context for the study, the statement of the problem, an explanation of Ajzen’s (1985) TPB, the research questions, the definitions of terms, and the significance of the study. This context discussion provides an overview of the nursing shortage, Associate Degree Nursing programs, community colleges, academic support for community college students, and community college faculty. Chapter 2 contains a review of empirical literature that examined the various models for designing
instruction to support student learning and research utilizing TPB in postsecondary educational settings. Chapter 3 of this dissertation contains the research design and methodology. Chapter 4 contains an overview of the study methodology, a description of the study participants, procedures and data analysis results. Chapter 5 presents a summary of the findings followed by a list of findings organized by research question. Conclusions are presented and recommendations for practice are addressed.

**The Nursing Shortage and Associate Degree Nursing Programs**

The United States is experiencing a national shortage of registered nurses (American Association of Colleges of Nursing [AACN], 2014; American Nurses Association [ANA], 2014; Viterito & Teich, 2002). The Bureau of Labor Statistics (BLS; 2014) has reported that there will be a shortage of approximately 526,800 nurses by 2022. Recent data show the employment projection for Registered Nurses to grow 19%, making nursing the top occupation for job growth through 2020 (BLS, 2014). The demand for nurses is predicted to continue indefinitely because of factors including an aging population with concomitant increases in the need for health services (AACN, 2014), nurses’ job dissatisfaction and burnout resulting in nurses leaving the profession (McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011), and a projected “tsunami” of registered nurse (RN) retirements (McMenamin, 2014, p. 1). To meet the increased demand for nurses, the profession has made a concerted effort to expand nursing programs, enroll students, and retain them through graduation (Brandon & All, 2010; Harris, Rosenberg, & O’Rourke, 2014; National League for Nursing [NLN], 2005; Seago, Keane, Chen, Spetz, & Grumbach, 2012; Shelton, 2012). Nevertheless, a shortage of nursing faculty and clinical
education sites pose obstacles to meeting the demands (AACN, 2014; ANA, 2014; NLN, 2003; Viterito & Teich, 2002).

Important to the study, ADN programs prepare a majority (57%) of new registered nurses entering the workforce (AACC, 2011b) and community colleges are the nation’s largest provider of ADN programs (Viterito & Teich, 2002). On the one hand, public 2-year degree-granting institutions graduate their full time students in about half the time than do public 4-year degree granting institutions (Snyder & Dillow, 2013). On the other hand, the percentage of students who complete an associate degree within 150% of the normal time for completion, the standard for reporting, is about half that of 4-year public institutions (Snyder & Dillow, 2013). The mean national persistence rate for public community colleges is 22.5% for obtaining a degree in three years, and the retention rate is 55.2% (ACT Institutional Data File, 2013). This is due at least in part to the demographics of the community college student.

**Community Colleges and Their Students**

Community colleges emerged in the early 20th century with a mission to develop a well-trained workforce for the nation’s industries (Cohen, Brawer, & Kisker, 2014). According to the AACC (2010), “No other segment of higher education is more responsive to its community and workforce needs than the community college” (para. 1). A majority of community colleges have maintained a career preparation mission while also offering transfer opportunities for students (Dougherty & Townsend, 2006).

Community colleges have a philosophy of open access (AACC, 2010; Mullin, 2010; Shannon & Smith, 2006) meaning, “the doors are open to anyone and everyone who seeks higher education” (AACC, 2011a, p. 2). The non-competitive or open admission policies allow
students to enroll with only a high school diploma or a General Education Development (GED) certificate (Cohen et al., 2014). Today, there are 1,132 community colleges in the United States with 12.8 million students enrolled (AACC, 2014). In the Fall 2012 semester, community colleges enrolled over 45% of all undergraduate students in the United States (AACC, 2014).

The community college student population includes students with a variety of backgrounds and educational levels (AACC, 2014) and differs from the population of students at most four-year institutions (Center for Community College Student Engagement [CCSE], 2012; Kisher & Outcalt, 2005; Shannon & Smith, 2006). The average age of a community college student is 28 (AACC, 2014); four-year colleges typically serve students younger than 25 years of age (National Center for Educational Statistics [NCES], 2013). In the Fall 2011 semester, 58% of community college students attended school full time compared to 78% of the students at four-year institutions (NCES, 2013). A greater number of undergraduate students who identified themselves as Black, Hispanic, or Native Hawaiian/Pacific Islander were attending community colleges than were attending four-year colleges (NCES, 2013). Four-year public postsecondary institutions have nearly double the percentage of students that complete their degree program within 150% of the normal time for completion, which is the standard for reporting. Recent data from NCES (Snyder & Dillow, 2013) showed that for 4-year public institutions, 57% of all full time students in the 2005 cohort completed a bachelor’s degree within 6 years of starting their degree. For 2-year degree granting public institutions, 20% of all full-time students in the 2005 cohort completed a degree within 3 years of starting the degree (Snyder & Dillow, 2013).

A sizable proportion of community college students come from low-income and minority groups and are the first in the family to attend college (Mullin, 2010). Community college student demographics revealed that 51% of enrolled students identified as White, 19% as
Hispanic, 14% as Black, 6% as Asian, 1% as Native American, and 5% as other (AACC, 2014). During the 2011-2012 academic year, over 58% of community college students were receiving financial aid (AACC, 2014).

Notably, 36% of community college students were first generation college students (AACC, 2014), meaning they were the first in their family to attend college. Often, first generation college students are from low-income or minority backgrounds (AACC, 2014; Engle, 2007). Compared to college students whose parents obtained a college degree, first generation students are apt to be less well prepared for the rigors of college level work, have less knowledge of the college going process, and experience less support from family members (Engle, 2007; Shannon & Smith, 2006). Students who are unprepared or underprepared for the rigors of college-level work are those individuals who, upon enrollment, lack the knowledge and skills needed to be academically successful and who require additional support to complete college-level coursework (Bailey, Jeong, & Cho, 2010; Bautsch, 2011; Jaggers, Edgecombe, & Stacey, 2014). In combination, these factors may partially explain why less than 50% of community college students obtain a degree within 6 years of enrollment (CCCSE, 2012).

Nursing Students in Community Colleges

The demographics of students enrolled in associate degree nursing programs are similar to those of nontraditional students enrolled in community colleges. They are typically older, have dependent care responsibilities, have not attended school for several years, are employed either full time or part-time while attending nursing classes, and are likely to be academically underprepared for college-level work (Jeffreys, 2007, Shelton, 2012). More specifically, a majority of associate degree nursing students are female and 50% of all students reported being
over the age of 30 [NLN, 2013]. The demographics of nursing students pose challenges for community college nursing faculty as they attempt to address the varied learning needs of a diverse community college student body to support each student’s academic success. Shelton (2000) reported that nursing students who were academically successful had higher total perceived faculty, psychological, and functional support than students who withdrew, emphasizing faculty support as an effective strategy to student learning (Shelton, 2000). Faculty support in the form of feedback has been found to contribute to student learning and persistence (Shelton, 2012).

**Academic Support for Community College Students**

The literature is rich with descriptions of strategies community colleges use to support student learning and to address retention and graduation rates. The strategies include remedial or developmental courses (Bautsch, 2011; Handel & Williams, 2011; Levin & Calcagno, 2008), differentiated instruction (Center for Applied Special Technology [CAST], 2011; McGuire & Scott, 2006; Palmer & Caputo, 2005; Scott, McGuire, & Shaw, 2003; Tomlinson, 2001), collaborative learning (Noone, 2008; Osterholt & Barratt, 2010; Schaefer & Zygmunt, 2003), and learning communities (Barbatis, 2010; Engstrom & Tinto, 2008; Tinto, 2003).

Community colleges are the primary providers of developmental education for students who are not academically prepared for credit-bearing coursework upon enrollment (Bailey et al., 2010; Bautsch, 2011; CCCSE, 2012). Data consistently show that community college students, although highly motivated (CCCSE, 2012), are quite often academically unprepared for college-level coursework, may need basic skill review, and may require remedial education in at least one area, usually English or mathematics (Bailey et al., 2010; CCCSE, 2012; Papay & Griffin, 2013). In the 2011 academic year, 66% of community college students were required to enroll in
Levin and Calcagno (2008) contended that institutions “spend large amounts of resources on remediation and other programs designed to make up for the deficiencies of their diverse students” (p. 183). Researchers have argued that remedial courses are costly to stakeholders and promote an ineffective pedagogy (Handel & Williams, 2011; Levin & Calcagno, 2008). The research is also clear that requiring students to enroll in remedial courses does not fully mitigate the academic support needs of these students (Bailey, 2009; Handel & Williams, 2011; Levin & Calcagno, 2008). Other types of academic supports are needed to support student learning, help students’ realize their personal goals, and benefit the nation’s workforce. One high leverage area of support is in the area of instruction.

Some innovative instructional models include Universal Design for Instruction (Scott, McGuire, & Shaw, 2001), Differentiated Instruction (Tomlinson, 2001), Universal Instructional Design (Palmer & Caputo, 2005), and Universal Design for Learning (UDL; CAST, 2011). Universal Design for Learning, for example, is an instructional approach to designing course instruction, materials, and content to support people of all learning styles (CAST, 2011). Research has shown when faculty members universally design instruction, students reported the strategies were beneficial to their learning (CAST, 2011; Parker, Embry, Scott, & McGuire, 2003; Rao & Tanner, 2011).
Differentiated instructional models have the potential to support the learning of a broad range of students in the classroom. Tomlinson (2001) described differentiated instruction as a process in which an instructor provides multiple options for students to obtain information and demonstrate their learning. Using this model, one way that educators can differentiate instruction is by recognizing students’ varied background knowledge and learning needs and planning the instruction for the range of student needs (Hall, Strangman, & Meyer, 2003). A professor who is successfully implementing a differentiated classroom makes adjustments to the course to ensure learning is engaging for all students based on knowledge of the students.

Another promising practice for supporting community college students’ learning is collaborative learning. Osterholt and Barratt (2010) contended that collaborative learning has significant benefits for students in developmental courses and requires “meshing student learning and content coverage with an interdependent participatory community front and center” (p. 23). Collaborative learning environments require faculty to transform instruction from a teacher-centered approach to student-centered learning. Student-centered learning has been shown to foster critical thinking, an important outcome for graduate nurses (Schaefer & Zygmont, 2003). In addition, students with diverse learning needs may be more comfortable in learning environments that are collaborative rather than competitive (Noone, 2008).

**Community College Faculty and Teaching**

Community college faculty must adapt their pedagogy and provide varied, flexible curricula, instruction, and assessment to make teaching and learning accessible to the broad range of students in their classrooms (Eagan, 2007; Eddy, 2010; Shannon & Smith, 2006; Twombley & Townsend, 2008). The diverse backgrounds of community college students create
challenges for faculty with regard to assessment of student learning, teaching underprepared students, and instructional design strategies (Bailey, 2009; CCCSE, 2012 Eddy, 2010; Poorman, Mastorovich, & Webb, 2008). The multiple roles of nursing faculty in community colleges can be overwhelming and faculty may lack the expertise needed to assist students with diverse learning needs (Noone, 2008; Poorman et al., 2008). As such, faculty members may struggle to adapt their teaching to meet the diverse learning needs of their students (Hansen & Beaver, 2012). Community college faculty members have a strong commitment to their work (Eagan, 2007; Twombly & Townsend, 2008) and are interested in classroom-focused professional development that includes learning how to assess student learning outcomes and integrate technology in the classroom (Eddy, 2010). Faculty development programs are in place at community colleges to support faculty in meeting the demands of educating an increased number of students with diverse learning needs (Eagan, 2007; Eddy, 2010).

**Problem Statement**

The nursing shortage in the United States is projected to continue through 2020 (AACN, 2011; ANA, 2014; Viterito & Teich, 2002). Increasing nursing student enrollments and graduating qualified registered nurses are major concerns for the profession, and for the nation at large, because of the increased need for a skilled heath care workforce. ADN programs prepare a majority (57%) of new registered nurses entering the workforce (AACC, 2011b) and community colleges are the nation’s largest provider of ADN programs (Viterito & Teich, 2002).

The retention rate for community colleges is 55.2% (ACT Institutional Data File, 2013), however, and many factors contribute to the low retention rate and the time to degree completion. These factors include the students’ backgrounds and status as first generation
college students (Mullin, 2010). Additionally, some community college students are unprepared to take on the challenges of college-level work (Barbatis, 2010; Engle, 2007; Engstrom & Tinto, 2008; Levin & Calcagno, 2008; Jaggers et al., 2014) and must work full or part-time (AACC, 2014). Like most community college students, the student entering an ADN program is typically older, has family responsibilities, is working at least part-time, has been away from the college environment for years, and is likely to be academically underprepared for college-level work (Seago et al., 2012; Shelton, 2012). These facts, in combination, can create challenges for community college nursing faculty as they attempt to address the varied learning needs of a diverse community college student body and support each student’s academic success.

In 2003, the National League for Nursing [NLN] called for student-centered, interactive, and innovative curricula in nursing programs. Interactive pedagogical strategies foster self-regulated and meaningful learning. The League recommended that best practices be identified and the science of nursing education developed through pedagogical research (NLN, 2003). In addition, the NLN challenged nurse educators to base curriculum and teaching practices on evidence based research (NLN, 2005). To do this, nursing faculty must collaborate and be willing to adjust their practice. Surprisingly, research focused on learning and teaching in nursing education is scant (Brandon & All, 2010; Salamonson, Koch, Weaver, Everett, & Jackson, 2010; Schaefer & Zygmont, 2003; Shelton, 2012), with few studies focused exclusively on nursing faculty in community colleges (Allison-Jones & Hirt, 2004; Baker, Fitzpatrick, & Griffin, 2011; Hansen & Beaver, 2012; Poorman et al., 2008).

The national nursing shortage and the need to work with an increasingly diverse student population are challenges that nursing educators need to confront (NLN, 2005; Poorman et al., 2008; Schaefer & Zygmont, 2003). Nursing faculty in ADN programs, which are offered
through community colleges that are the primary supplier of new nurses entering the workforce, must find effective ways to reach the greatest number of students. A study that added their voices to the conversation about nurse education not only filled a gap in the extant literature but also had the potential to inform practice.

Therefore, this exploratory case study examined the phenomenon of community college nursing faculty members’ intention to design instruction to support learning for the broad range of students in their classrooms. Specifically, participants were queried about their behavioral beliefs, normative beliefs, and control beliefs related to the Universal Design for Learning (CAST, 2011) principles of using varied and flexible means for (a) representing and teaching important course concepts, (b) engaging students in learning, and (c) having students demonstrate their knowledge or skills. Ajzen’s (1985) TPB provided the conceptual framework for this study because it offered perspective into the predictability of human behavior. The research of Ajzen (1985, 1991, 2006) and others (Armitage & Conner, 2001; Conner & Armitage, 1998; Francis et al., 2004; Teo, 2012) provided evidence that an important predictor of a person’s behavior is intention, and intention serves as a precursor to behavior. TPB has been applied in education studies focused on faculty beliefs about teaching students with disabilities (Casebolt & Hodge, 2010), to describe community college adjunct faculty members’ intention to integrate technology into teaching (Paver, Walker, & Hung., 2014; Renzi & Klobas, 2008), and teacher behavior toward the use of Universal Instructional Design (Kalivoda, 2003).

Related nursing education studies have investigated nursing faculty simulation development (Jones et al., 2013), the integration of tobacco education among advanced practice nursing faculty (Heath & Crowell, 2007), and the use of research one-year post graduation (Forsman, Wallin, Gustavsson, & Rudman, 2012). The findings from these works generally
showed that perceived behavioral control and intentions to perform a specific behavior were
determinants of the behavior, with the relative importance of intention and perceived behavioral
control varying depending on the behavior.

**Conceptual Framework**

This study aimed to describe community college nursing faculty members’ intention to
design instruction to support learning for the broad range of students in their classrooms. Ajzen’s
(1985) TPB was the conceptual framework selected to guide this study. The TPB is an extension
of Fishbein and Ajzen’s (1975) earlier Theory of Reasoned Action (TRA), which posited that
people base their beliefs on intentions, attitudes toward a behavior, and their perceptions of how
others want them to perform the behavior (Ajzen, 1991). The TPB expanded on TRA by adding
the concept of perceived behavioral control as an explanation for influences on intention and
behaviors that are more complex. Recognizing that human behavior can be deliberate and
planned, this theoretical framework uses three factors, behavioral beliefs, normative beliefs, and
control beliefs, to explain how people develop their intentions to act out a behavior (Ajzen,
1985). Behavior is an observable response (i.e., what a person does) in a specific situation with
respect to a specific target behavior (Ajzen & Madden, 1986, p. 459). A basic principle of each
of the three constructs (attitude, subjective norm, and perceived behavioral control) is the
person’s belief system. Ajzen (1991) explained

Intention, perception of behavioral control, attitude toward the behavior and subjective
norm each reveals a different aspect of the behavior, and each can serve as a point of
attack in attempts to change it. The underlying foundation of belief provides the detailed
descriptions needed to gain substantive information about a behavior’s determinants. It is
at the level of beliefs that we can learn about the unique factors that induce one person to
engage in the behavior of interest and to prompt another to follow a different course of action. (pp. 206–207)

Ajzen’s (1985) TPB has practical application in a variety of situations to predict and influence human intentions to perform a desired behavior. The significant research of Ajzen (1986, 1991, 2006) and others (Armitage & Conner, 2001; Conner & Armitage, 1998; Francis et al., 2004; Teo, 2012) provided evidence that an important predictor of a person’s behavior is intention, and that intention serves as a precursor to behavior. The likelihood that a person will perform a certain behavior (i.e., do something or act in a certain way) is the combined strength of these three concepts (Ajzen, 1991). In the case of this study, faculty members’ intentional use of instructional design strategies in the college classroom is a combination of the individuals’ (a) evaluation of performing the behavior (attitudes), (b) perception of the social pressure to perform or not perform the behavior (norms), and (c) perceptions of his or her ability to perform the behavior (controls).

The schematic representation in Figure 1 depicts the interaction among the TPB constructs (attitudes, norms, and control) and how all three come together to form intention and predict a person’s actual behaviors. An individual would be expected to act on his or her intentions and act on a behavior to the degree the person actually has control over a specific situation (Ajzen, 1985). Finally, a person’s perceived behavioral control is derived from the perception of factors that either help or hinder the behavior.
With regard to college faculty and the design of instructional strategies for use in the classroom, faculty members with positive attitudes toward the diverse learning needs of their students will be more likely to use instructional approaches and concepts in the classrooms to assist learning for those students who have challenges. Each of the components of TPB is described in Table 1, summarizing the constructs and components of Ajzen’s (1985) TPB.

*Figure 1. Interactions among Ajzen’s (2006b) TPB constructs.*
### Table 1

**Summary of the Constructs and Components of the Theory of Planned Behavior**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>An individual’s positive or negative feelings about performing a behavior (Teo, 2012).</td>
</tr>
<tr>
<td>Behavioral Beliefs</td>
<td>Beliefs that influence attitudes towards the behavior (Ajzen, 1991).</td>
</tr>
<tr>
<td>Attitude Toward the Behavior</td>
<td>The degree, either favorable or unfavorable, of a person’s appraisal of the behavior in question (Ajzen, 1991).</td>
</tr>
<tr>
<td>Norms</td>
<td>The degree to which a person’s social environment has an influence on intention and behavior (Ajzen, 1991).</td>
</tr>
<tr>
<td>Normative Beliefs</td>
<td>Beliefs that comprise the underlying determinants of subjective norms (Ajzen, 1991).</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>The perceived social pressure to perform or not to perform the behavior (Ajzen, 1991).</td>
</tr>
<tr>
<td>Control</td>
<td>The extent to which a person feels able to perform the behavior (Francis et al., 2004).</td>
</tr>
<tr>
<td>Control Beliefs</td>
<td>The beliefs that provide the basis for perceptions of behavioral control (Ajzen, 1991).</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>The perceived ease or difficulty of performing the behavior (Ajzen, 1991).</td>
</tr>
<tr>
<td>Intention</td>
<td>The indication of a person's readiness to perform a certain behavior (Ajzen, 2006b).</td>
</tr>
<tr>
<td>Actual Behavioral Control</td>
<td>The extent to which a person has the skills, resources, and other prerequisites needed to perform a given behavior (Ajzen, 2006b).</td>
</tr>
<tr>
<td>Behavior</td>
<td>The observable response in a certain situation with respect to a given target (Ajzen, 2006b).</td>
</tr>
</tbody>
</table>
Attitudes

The attitude component of TPB refers to an individual’s beliefs, either positive or negative, about performing the behavior (Ajzen, 2006b). There are two factors of interest—behavioral beliefs and attitude toward the behavior. For this study, faculty attitudes toward the use of instructional strategies were collected.

Behavioral beliefs. According to Ajzen (1991), “we form beliefs about an object by associating it with certain attributes, i.e., with other objects, characteristics, or events” (p. 191). In addition, Ajzen (2006a) described behavioral beliefs as “the subjective probability that behavior will produce a given outcome” (para. 1). Ajzen noted that these beliefs may or may not be true, but the person believes them to be true until proven otherwise.

Attitudes toward the behavior. Behavioral beliefs lead to either positive or negative attitudes toward behaviors (Ajzen, 1985). Individuals learn to favor behaviors they believe have largely desirable consequences and form unfavorable attitudes toward behaviors they associate with mostly undesirable consequences (Ajzen, 1991). Nursing faculty members’ attitudes, either positive or negative, toward the use of instructional strategies were measured.

Norms

Norms describe the degree to which a person’s social environment has an influence on intention and behavior (Ajzen, 1991). There are two types of norms.

Normative beliefs. Normative beliefs are the behavioral expectations an individual perceives from spouse, friends, family, co-workers, or any other stakeholders that comprise the underlying determinants of subjective norms (Ajzen, 1991, p. 189).
**Subjective norm.** Subjective norms are the perceived social pressures one feels to perform or not perform a behavior (Ajzen, 1991, p. 188). The strength of a subjective norm is calculated by weighing a person’s strength of the belief by motivation (Ajzen, 2006a). To clarify, a person is more likely to perform behaviors that the person feels others would support than those others would not support. The norms and beliefs that are affecting faculty members with regard to the use of instructional strategies in their classroom will be the key variables for this study.

**Control**

The control component of the TPB framework is the extent to which an individual believes he or she has control over performing the behavior and the individual’s ability to actually perform it (Ajzen, 1991).

**Control beliefs.** Ajzen (1991) defined control beliefs as the “presence or absence of requisite resources and opportunities” (p. 196) or, in other words, the factors that may facilitate or impede an individual’s performance of the behavior (Ajzen, 2006b). Control beliefs may arise from a person’s experiences or from information obtained from others (Ajzen, 1991).

**Perceived behavioral control.** The knowledge we have about perceived behavioral control originated from Bandura’s concept of perceived self-efficacy (as cited in Ajzen, 1991). Perceived behavioral control refers to the individual’s perceptions of his or her ability to perform the intended behavior (Ajzen, 2006b). Ajzen (1991) explained, “the strength of each control belief is weighted by the person’s perceived power to facilitate or prohibit execution of the behavior” (p. 196).
Intention

Intention is described as an indication of a person’s readiness to perform a given behavior (Ajzen, 2006b). Intention is based on three factors: attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor being weighted for its importance in relation to the behavior and population of interest (Ajzen, 2006b). Community college nursing faculty members’ intention to design instruction to support learning for the broad range of students in their classrooms will be investigated.

Actual Behavioral Control

Actual behavioral control refers to the degree to which a person has the skills and resources necessary to perform the given behavior (Ajzen, 2006b). Successful performance of the given behavior is dependent on favorable intention and a sufficient level of behavioral control.

Behavior

Behavior is the obvious observable response to the factors leading to intention in a particular situation with a specific target (Ajzen, 2006b). In the TPB model, behavior is the function of intentions and perceived behavioral control (Ajzen, 2006b).

In sum, Ajzen’s (1985) TPB provides a suitable framework for examining the instructional strategies nursing faculty in community colleges intentionally use to support the learning of students in their classroom. The theory is well researched and has been applied in numerous studies in both education and health sciences. Health related research included studies focused on physical activity and diabetes (Blue, 2007), integrated behavioral health (Montano &
Kasprzyk, 2008), and physical and psychological health after cancer diagnosis (Andrykowski, Beacham, Schmidt, & Harper, 2006). Examples of research in which nurses were the focus included adherence to hand hygiene (O’Boyle, Henley, & Larsen, 2001), infection control practices by nurses (Smith, Kirksey, Becker, & Brown, 2011), nursing faculty simulation development (Jones et al., 2013), the integration of tobacco education among advanced practice nursing faculty (Heath & Crowell, 2007), and the use of research one-year post graduation (Forsman et al., 2012). Education related research included studies focused on faculty beliefs toward the use of Universal Instructional Design (Kalivoda, 2003), teacher intentions to use technology (Paver et al., 2014; Teo, 2012), and teacher behavior toward constructivist learning theory (Wang & Ha, 2013).

**Research Questions**

This study was guided by one primary research question: What are community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms? The four research sub-questions for this study were:

1. What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

2. What are community college nursing faculty members’ reports of the norms that drive their intention to design instruction to support learning for a broad range of student in their classrooms?
3. What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

4. What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

**Definition of Terms**

For the purposes of this study, the following conceptual definitions of key terms were used.

*Associate Degree Nursing (ADN) program.* Consists of 2 years of college level nursing curriculum. These programs qualify the graduate to sit for the national licensing exam to be a Registered Nurse (RN).

*Attitude toward a behavior.* The degree to which a person has a favorable or unfavorable evaluation or appraisal of a behavior (Ajzen, 1991).

*Community college.* A publicly funded, non-residential, 2-year institution of higher education.

*Intention.* An indication of an individual’s readiness to perform a behavior (Ajzen, 2006a).

*Nursing faculty.* Full- and part-time nursing faculty, who teach at least one course at a community college in Connecticut.

*Design instruction.* The purposeful and planned design of curricula, implementation of instruction, and assessment of learning so all students have equal access to information and instruction (CAST, 2011).
Means of action and expression. The multiple and varied ways students interact with their learning environment and demonstrate their knowledge and skill (CAST, 2011).

Means of engagement. The multiple and varied ways for students to facilitate self-regulation, sustain effort and persistence, and recruit interest (CAST, 2011).

Means of representation. The multiple and varied ways faculty can provide curriculum to students so they can perceive and comprehend information (CAST, 2011).

Perceived behavioral control. The perceived ease or difficulty of performing a behavior (Ajzen, 1991).

Subjective norm. The perceived social pressure to perform or not to perform a behavior (Ajzen, 1991).

Significance of the Study

This exploratory case study examined the phenomenon of community college nursing faculty members’ intention to design instruction to support learning for the broad range of students in their classrooms. This study was significant for three reasons. First, this study applied Ajzen’s (1985) TPB in a new context. Although the theory has been applied in numerous studies in both education (Forsman et al., 2012; Kalivoda 2003; Paver et al., 2014; Renzi & Klobas, 2008) and the health sciences (Blue, 2007; Heath & Crowell 2007; Jones et al., 2013; Montano & Kasprzyk, 2008; O’Boyle et al., 2001), there appears to be no research that has applied TPB to community college nursing faculty and their behavioral beliefs, normative beliefs, and control beliefs related to using varied and flexible means in the design of instruction to support the learning for the students in their classrooms. This study extended the use of TPB
Second, the research on community college faculty is scant (Eagan, 2007; Eddy, 2010; Paver et al., 2014; Twombley & Townsend, 2008). Moreover, few studies have focused exclusively on nursing faculty in community colleges (Allison-Jones & Hirt, 2004; Baker et al., 2011; Hansen & Beaver, 2012; Poorman et al., 2008). This study aimed to address this gap in the knowledge base by sampling community college nursing faculty. The results expanded the voice of this understudied group and provided insight into their intentions toward the use of instructional strategies.

Third, the results of the study have the potential to inform practice. There is little research on instructional strategies used by nursing faculty in the classroom. This research shed light on teaching practices of nursing instructors in higher education, specifically in community college settings, and provided insight into the intentions and attitudes faculty members had toward the use of instructional strategies. Study findings may inform nurse leaders who are in a position to influence change in faculty behavior. For example, a finding associated with the subjective norms construct that suggested that peer pressure enhances the use of a particular instructional strategy may inspire faculty dialogue, which can enhance course curriculum. Nurse educators are required to balance their roles as skilled classroom educators, competent clinical practitioners, researchers, and collegial members of the academic world. The information obtained from this study with regard to the types of instructional strategies used by faculty has the potential to help community college administrators, faculty, and staff as they strive to support nursing students to persevere to degree completion. Perseverance and degree completion may help mitigate the nursing shortage.
CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction to the Chapter

This exploratory case study examined the phenomenon of community college nursing faculty members’ intentions to design instruction to support learning for the broad range of students in their classrooms. Universal Design for Learning (CAST, 2011) was the instructional design model of interest. Ajzen’s (1985) TPB was the conceptual framework, or theoretical lens, through which faculty intentions were analyzed. This theory is based on the assumption that humans are rational beings and use information analytically directing their behavior. Three factors—behavioral beliefs, normative beliefs, and control beliefs—work together to explain how people develop their intentions to act in a particular situation (Ajzen, 1985).

This chapter contains a review of relevant literature that sets the context for the study and demonstrates how the study fits into the existing body of knowledge. Three conceptual areas were selected for inclusion, community college students, various models of instructional design, and TPB. Specifically, the reader is provided with selected research under these broad themes.

As suggested by Creswell (2009), the study-by-study review of the literature described herein was gathered through a systematic search of four library databases—Academic Search Premier, ProQuest Education Journals, ERIC, and ProQuest Psychology Journals. Various combinations of search terms including college students, faculty perceptions, higher education, nursing faculty, postsecondary, instructional design, universal design, Universal Design for Learning, and Universal Design for Instruction. No search limits were applied to the year of publication. Titles and abstracts were reviewed to exclude articles that were not applicable to the purpose of this study. The remaining articles were reviewed in full and considered for inclusion.
The works reviewed herein are representative of the related works located. Relevant TPB literature reviewed here was identified in the same way.

The first section of this chapter contains a review of characteristics of community college students, including demographics and academic preparedness. Then, local mandates to improve community college student retention and degree completion are described, specifically the passage in 2012 of Public Act No. 12-40, an Act Concerning College Readiness and Completion. This change in practice sets the stage for a review of the literature on faculty and teaching practices. The second section contains two empirical studies that focused on nursing faculty (Poorman et al., 2008; Schaefer & Zygmont, 2003). The third section provides a review of various models of instructional design used in postsecondary settings along with empirical research for each model (Allsopp, Minskoff, & Bolt, 2005; Izzo et al., 2008; McGuire & Scott, 2006; Parker et al., 2003; Rao & Tanner, 2011; Santangelo & Tomlinson, 2009; Schelly et al., 2011). The final section reports on studies related to Icek Ajzen’s (1985) TPB theory and the rationale for its use in this study of the instructional strategies used by nursing faculty in community colleges.

Community College Students

To facilitate an understanding of the characteristics, background, and academic preparedness of community college students, several key sources of information on the makeup of U.S. community college students were examined. Data from the AACC (2014), CCCSE (2012), the NCES (2013) and two studies (Engle, 2007; Shannon & Smith, 2006) were reviewed. These reports and research provided important insight into the diverse background of community college students in the United States and the challenges they face with learning.
In the fall of 2012, community colleges enrolled over 45% of all undergraduates in the United States, serving 4.7 million part-time students and 3.3 million full-time students (AACC, 2014). Although community colleges enroll a significant percentage of undergraduates, many of these students never graduate (NCES, 2012; Shannon & Smith, 2006). In addition, less than 50% of community college students obtain a degree within 6 years of enrollment (CCCSE, 2012). Some of the factors that may partially contribute to this low completion rate include open admission policies, academically underprepared students, and other unique student characteristics (Engle, 2007; NCES, 2013; Shannon & Smith, 2006).

**Student Characteristics and Academic Preparedness**

Recent data about the demographics of community college student revealed that the median age of a community college student is 22, with 45% of students between 22 and 39 years of age (AACC, 2013). In addition, as many as 40% of community college students nationwide are first generation college students, meaning they are the first in their family to attend college. It is important to note that first generation college students often do not have the same support systems as students whose parents attended college (AACC, 2013). Furthermore, many community college students have additional non-academic responsibilities at home, including work and dependent care (AACC, 2013; CCCSE, 2012). More specifically, 67% of full-time and 78% of part-time students reported that they worked at least one hour per week while taking classes. Additionally, 29% of full time students and 37% of part-time students reported they completed 11 or more hours of dependent care per week (CCSSE, 2012). It can be concluded that community college students have less time to spend on their coursework, which may contribute to low academic success and retention in community colleges.
The racial and ethnic composition of students in the Fall semester of 2012 was reported to be 62% White, 12% Latino/Hispanic, 11% Black, 4% Asian, 2% Native American and 4% Other (CCSSE, 2012). In addition, students from minority groups were more likely to be identified as being academically underprepared (CCCSE, 2012; Engle, 2007) and were therefore required to enroll in at least one remedial course (CCCSE, 2012). The issue of underprepared students is significant as it has numerous implications from both student and faculty perspectives. Students who are underprepared for the rigors of college-level work may feel discouraged, which can lead to motivational problems and attrition. Moreover, students who are academically underprepared create challenges for faculty (Bailey et al., 2010; CCCSE, 2012; Shannon & Smith, 2006).

In Connecticut, the state in which this was conducted, there are 12 community colleges of varying size located in rural, suburban, and urban areas of the state. In the Fall 2013 semester, full-time equivalent student enrollments ranged from a low of 816 at Northwestern Connecticut Community College in Winsted to a high of 4,747 at Gateway Community College in New Haven. The total enrollment for all 12 schools, including full- and part-time students, was 57,321 (Connecticut State Colleges and Universities, 2013). Table 2 contains information on enrollments and geographic locations for each of the state’s 12 community colleges.
Table 2

Connecticut Community College Enrollment and Location: Fall Semester 2013

<table>
<thead>
<tr>
<th>Community College</th>
<th>Student Enrollment</th>
<th>Full-Time Equivalent</th>
<th>Location</th>
<th>Geographic Locale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asnuntuck</td>
<td>1,715</td>
<td>1,034</td>
<td>Enfield</td>
<td>Northcentral Suburban</td>
</tr>
<tr>
<td>Capital*</td>
<td>4,178</td>
<td>2,273</td>
<td>Hartford</td>
<td>Central Urban</td>
</tr>
<tr>
<td>Gateway*</td>
<td>8,320</td>
<td>4,747</td>
<td>New Haven</td>
<td>Southwestern Urban</td>
</tr>
<tr>
<td>Housatonic</td>
<td>5,813</td>
<td>3,245</td>
<td>Bridgeport</td>
<td>Southwestern Urban</td>
</tr>
<tr>
<td>Manchester</td>
<td>7,584</td>
<td>4,450</td>
<td>Manchester</td>
<td>Central Suburban</td>
</tr>
<tr>
<td>Middlesex</td>
<td>2,905</td>
<td>1,713</td>
<td>Middletown</td>
<td>Central Urban</td>
</tr>
<tr>
<td>Naugatuck*</td>
<td>7,317</td>
<td>4,378</td>
<td>Waterbury</td>
<td>Western Urban</td>
</tr>
<tr>
<td>Northwestern*</td>
<td>1,549</td>
<td>816</td>
<td>Winsted</td>
<td>Northwestern Rural</td>
</tr>
<tr>
<td>Norwalk*</td>
<td>6,659</td>
<td>3,881</td>
<td>Norwalk</td>
<td>Southwestern Urban</td>
</tr>
<tr>
<td>Quinebaug</td>
<td>1,934</td>
<td>1,097</td>
<td>Danielson</td>
<td>Northeastern Rural</td>
</tr>
<tr>
<td>Three Rivers*</td>
<td>4,757</td>
<td>2,754</td>
<td>Norwich</td>
<td>Southeastern Urban</td>
</tr>
<tr>
<td>Tunxis</td>
<td>4,590</td>
<td>2,592</td>
<td>Farmington</td>
<td>Central Suburban</td>
</tr>
</tbody>
</table>

*Note. Colleges with an asterisk (*) are ones from which nursing faculty were recruited.

Connecticut’s community colleges serve proportionately more students who self-identify as White than students from any other racial or ethnic group. This is not surprising and mirrors the state’s demographics—Connecticut’s largest racial/ethnic group is White (71.2%), followed by Hispanic (13.4%) and Black (9.4%). However, the racial and ethnic makeup of each college varies, with some colleges being more diverse than others. The diverse student demographics...
and academic preparation of community college students have significant implications for student learning (CCCSE, 2014; Mullin, 2010; NCES, 2013; Shannon & Smith, 2006).

In 2012, Connecticut’s legislature passed Public Act No 12-40, An Act Concerning College Readiness and Completion, which mandated the state’s public universities and community colleges rethink the delivery of remedial or developmental education. As a result, the Connecticut State Colleges and Universities, Board of Regents (2013) adopted a new strategic plan. The first two goals of the strategic plan related to student success and learning outcomes and included increasing the number of students who complete college-level English and math within one year, increasing the number of students who successfully complete their first year of college, and increasing the overall graduation rate of all students. Understanding faculty members’ intentional use of instructional design strategies, such as the principles of Universal Design for Learning (CAST, 2011), can help achieve the goal of learning in the community college classroom.

In sum, enrollment data suggests that community college students come from diverse academic, ethnic, and personal backgrounds, and these characteristics may affect their ability to succeed in the postsecondary setting. Community college students tend to be older (AACC, 2013; CCCSE, 2012), first generation (AACC, 2013), and come from minority backgrounds (CCCSE, 2012). Many attend college part-time and have additional non-academic responsibilities such as work and taking care of family (CCCSE, 2012). In addition, this student population is diverse in its academic preparation and readiness for college-level course work. The problem of students being underprepared and needing to take remedial coursework creates additional challenges for students and faculty (CCCSE, 2012; Shannon & Smith, 2006). Overall,
these characteristics have significant implications for learning and student success in the classroom.

**Research Examining Nursing Faculty and Their Support of Students’ Learning**

Research specifically focused on the teaching styles of nursing faculty appears to be very limited. The systematic search described earlier uncovered two empirical investigations. A study by Schaeffer and Zygmont (2003) and one by Poorman et al. (2008) are reviewed next and presented in chronological order. The findings indicated that nursing faculty members are committed to students and struggle with ways to support the broad range of students in their classrooms.

Schaefer and Zygmont (2003) believed “the principles of adult learning and teaching styles used to improve critical thinking skills are consistent with student-centered learning” (p. 239). Student-centered learning focuses on the needs of the student and the knowledge that needs to be conveyed. These researchers conducted a study of 187 BSN faculty members who were randomly selected from across the United States to complete the Principles of Adult Learning Scale (PALS) to assess teaching style. High scores on this scale indicate a higher student-centered style.

Results of this study suggested two significant findings. First, the longer the faculty member had been teaching, the lower the score for flexibility for developing student-centered teaching and second, the total mean score for PALS was lower than the norm for the instrument, indicating that study participants were more teacher-centered than student-centered. Although faculty members used a variety of teaching methods in an attempt to meet individual student learning styles and to promote learning, these learning activities may take place in settings where
the academic environment makes it impossible to achieve a student centered approach (Schaefer & Zygmont, 2003). Moreover, the use of multiple methods of teaching suggested that faculty recognized that students learn differently. However, there was no indication that the methods selected were intentionally chosen to meet the students’ needs. Rather, “the instructional strategies seem to have been chosen because they were perceived to be the right thing to do to improve critical thinking” (Schaefer & Zygmont, 2003, p. 243). Using a student-centered approach establishes a collaborative relationship between the student and teacher in which both participants are engaged in the process of learning.

The purpose of the study by Poorman et al. (2008) was to examine how professors helped students who struggled academically. The authors of this qualitative study interviewed thirty female nursing faculty from 18 different schools of nursing in the eastern United States (15 Baccalaureate degree, 10 Associate degree, and five diploma). Seven participants had taught from 5 to 10 years, 7 had taught from 11 to 15 years, and 16 had been teaching for over 16 years.

Results of the Poorman et al. (2008) study revealed a pattern of attending. This pattern was expressed as faculty being present for the students who struggled and providing students with that which was perceived as helpful for them. Participants talked about how they listened to students in order to truly understand their thinking and experiences. In addition to being a supportive presence, two significant themes were identified: (a) finding the right level of involvement and (b) living with our own judgments. Faculty worried that students expected them to be more than educators and that struggling students would get lost due to the increased demands on faculty time including committee work, service, and scholarship. Findings from this study indicated that the common experiences of the educators who worked with struggling students could provide ways of working with struggling students that other nurse educators could
embrace to foster student success (Poorman et al., 2008). Implications for nursing education include finding a balance in supporting the student with the instructor’s presence. Establishing a collaborative and equitable relationship, in which students and faculty members engage in conversation, can enhance growth for students and satisfaction for faculty.

In sum, empirical works examining the teaching styles of nursing faculty are scant. Findings from the works of Schaefer and Zygmont (2003) and Poorman et al. (2008) suggested that nursing faculty members are committed to their students and struggle with ways to meet students varied learning needs. The authors proposed that the nursing curricula should be student-centered and provide interactive learning opportunities. Moreover, instructors should use multiple strategies to evaluate students’ abilities and learning needs. The establishment of collaborative partnerships between faculty and students benefits learning. The findings of these studies and the characteristics of community college students have important implications for full- and part-time nursing faculty teaching in ADN programs and how they approach the design, implementation, and assessment of teaching and learning. Understanding faculty intentions to use strategies, such as the principles of Universal Design for Learning (CAST, 2011), to provide learning support, can help to inform faculty practices and support student learning and success.

Models of Designing Instruction to Support All Learners

There are a variety of educational models that college instructors can use to design instruction that supports learning for the broad range of students in the community college classroom. Innovative instructional models that have been applied in the postsecondary setting include differentiated instruction (Tomlinson, 2001), Universal Design for Instruction (Scott et al., 2001), Universal Instructional Design (Palmer & Caputo, 2005), and Universal Design for
Learning (CAST, 2011). A brief explanation of each of these four models is presented next, along with related peer-reviewed reports of empirical studies conducted in postsecondary settings.

**Differentiated Instruction**

Differentiated Instruction is a student-centered approach to learning that dates back to the early 1950s (Washburn, 1953). Differentiated instruction uses flexible instructional and assessment strategies and instructional materials that are responsive to learner differences. Differentiated instructional models have the potential to support the learning of a broad range of students in the classroom. Tomlinson (2001) described differentiated instruction as a process in which an instructor provides multiple options for students to obtain information and express what they know. More specifically, teachers provide options for three elements of the curriculum: (a) content, the input or knowledge that students receive or what students learn; (b) process, how students make sense of what they learn; and (c) product, how students demonstrate what they know. In this model, educators differentiate instruction by recognizing students’ varied background knowledge and learning needs and plan the instruction to ensure learning is engaging for all students (Hall et al., 2003).

According to Tomlinson (2001) and Santangelo and Tomlinson (2009), instructors can differentiate instruction by providing multiple ways for students to obtain information and to demonstrate knowledge. Differentiating content may involve introducing new topics, incorporating multiple ways of representing material, or providing reading content based on student interests, readiness levels, or learning styles. In this model, instructors assume that students have different learning needs, and thereby plan the instruction for those learning needs.
Research examining differentiated instruction at the postsecondary level. A systematic review of the literature regarding the use of differentiated instruction in higher education uncovered two empirical studies conducted at postsecondary institutions in the United States that are applicable to this research (Allsopp et al., 2005; Santangelo & Tomlinson, 2009). These two studies are described and presented in chronological order.

Allsopp et al. (2005) conducted a three-year quasi-experimental study researching the effect that individualized instruction had on academic performance in students with Attention Deficit Hyperactivity Disorder (ADHD). The purpose of the study was to analyze strategy instruction and its impact on a sample of 46 students with ADHD or Learning Disabilities (LD) over the course of a semester. Study participants received individualized instruction provided by graduate students enrolled in the Masters of Education Program in Special Education at James Madison University. These authors strived to determine the components of the program that were effective and those that the students found helpful. Instructional strategies were individualized based on student needs and included (a) organizing, (b) test taking, (c) study skills, (d) note taking, (e) reading, (f) writing, (g) mathematics, and (h) advancing thinking.

The researchers (Allsopp et al., 2005) collected data through surveys and interviews. Graduate instructors answered survey questions to (a) determine the participants’ ability to learn and independently apply the strategies, (b) evaluate the effectiveness of the strategies, and (c) describe the strategies that were the most effective. In addition, student participants were queried to determine whether the individualized instruction was academically beneficial, and to rate the effectiveness of their instructor, the strategies used, and describe those that were the most helpful. Quantitative data revealed that the students improved their GPAs over the prior
semester and sustained the increase over time (Allsopp et al., 2005). Two factors that were identified as the source of the improvements in GPAs were the students’ independent use of the strategies and the supportive relationship that developed between the graduate-instructor and the student (Allsopp et al., 2005). Additionally, two factors that were related to students not demonstrating improvement were academic or cognitive deficits and medication or emotional issues.

Santangelo and Tomlinson (2009) conducted a study to explore the effect of using differentiated instruction in an introductory graduate course. Participants included 25 students from a large state university. Demographic data gathered from students revealed varied levels of background knowledge, preferred learning modality, and preference for working in a group (Santangelo & Tomlinson, 2009).

Multiple differentiated instruction strategies were used to support student learning (Santangelo & Tomlinson, 2009). The instructor provided multiple and varied means to present content, which included offering supplemental reading material, multiple formats of the same material (e.g., electronic and paper formats), guided reading questions, and highlighted texts to students who requested them. In addition, differentiated tiered activities were made available based on student preference and allowed students to work independently, in small groups, or with partners.

Data sources included pre-assessment questionnaires, course assignments, and class-based activities to determine student mastery of course objectives (Santangelo & Tomlinson, 2009). Students’ perspectives about the course were obtained through the Student Instructional Report II, a standardized course evaluation tool. Santangelo and Tomlinson (2009) determined that all of the students mastered each of the course objectives, and the results indicated that
differentiated instruction had a positive effect on student learning. More specifically, students found differentiation to be a beneficial practice that increased the quality of instruction. In addition, students perceived the course to be beneficial in terms of addressing their (a) diverse ways of learning; (b) diverse interests, experiences, and goals; and (c) diverse personal circumstances. Study participants described differentiation as beneficial because college students have diverse learning needs, interests, experiences, and goals. This study results emphasized the importance of establishing clear course objectives and communication between student and instructor. Further, the authors found that differentiated instruction required time and a high degree of effort on the part of the instructor in preparing, instructing, and assessing student learning.

In sum, the literature regarding differentiated instruction in the postsecondary setting is limited. The Allsopp et al. (2005) study and the one by Santangelo and Tomlinson (2009) indicated faculty members’ use of multiple and varied instructional strategies improved student learning by creating a student-centered learning approach. In addition, differentiated instruction was beneficial, and with time and effort it can have a positive impact on student learning, as reported by students and faculty in the postsecondary setting.

**Legislative Mandates and Universally Designed Instruction**

The history of universal design can be traced to legislation intended to address fair and equitable access to public spaces for people with physical disabilities (CAST, 2011). These laws include Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the Americans with Disabilities Act of 2008, which require public spaces to be designed or reconfigured to accommodate the needs of individuals with disabilities (CAST,
The principles of universal design originated in the field of architecture in response to these legislative mandates (CAST, 2011). Additional federal legislation, including the Individuals with Disabilities Education Improvement Act (IDEA, 2004) and the Higher Education Opportunity Act (HEOA, 2008), have impacted how curriculum is designed and implemented to address equality and access for students with disabilities in K-12 and postsecondary settings.

The definition of universal design is found in the Assistive Technology Act of 1998. Section 3 states that universal design is:

a concept or philosophy for designing and delivering products and services that are usable by people with the widest range of functional capabilities, which include products and services that are directly usable without requiring assistive technologies and products and services made usable with assistive technologies. (Assistive Technology Act, 1998)

The current literature approaches the concept of universal design as model of designing instruction that is beneficial for all students. As a result, the universal design principles apply to a broad range of students, including those who are academically underprepared, minority, and first generation (Kalivoda, 2003; Palmer & Caputo, 2005). Many researchers and organizations have developed models of universal design in education with the focus of creating curriculum that is helpful to assist a broad range of students. Each model is described below and an overview of the key characteristics of each is found in Table 3.
Table 3

*Comparison of the Principles and Guidelines for the Three Major Universal Design Models*

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>History</td>
<td>Developed by staff at the University of Guelph in Ontario, Canada. Began as a project to develop material and resources to be used by faculty to create curriculum that would better meet the needs of students with disabilities.</td>
<td>Developed by researchers at the University of Connecticut who wanted to develop a model based on the universal design concept that would help faculty teach the diverse group of students that attend postsecondary institutions.</td>
</tr>
<tr>
<td>Theoretical Foundation</td>
<td>Neurological research and “three spatially and functionally distinguishable brain systems”—recognition, strategic, and affective (Meyer &amp; Rose, 2000, p. 40).</td>
<td>Original research and “Seven Principles for Good Practice in Undergraduate Education” (Chickering &amp; Gamson, 1987).</td>
</tr>
</tbody>
</table>

**Universal Design Models**

The three major universal design models, Universal Design for Instruction (Scott et al., 2001), Universal Instructional Design (Palmer & Caputo, 2005), and Universal Design for Learning (CAST, 2011) are described in this section. In each case, the researchers wanted to create models that would help faculty teach a diverse group of students. They believed developing instructional strategies could meet a variety of students’ learning needs.

**Universal Design for Instruction.** In 1999, a group of researchers from the University of Connecticut (UCONN) began to study how universal design could be applied to postsecondary education (Scott et al., 2001). Faculty from UCONN’s Center on Postsecondary Education and Disability (CPED) wanted to create a model based on universal design concepts
that would assist college faculty in teaching diverse groups of students, including those with disabilities. These researchers (Scott et al., 2001) evaluated Universal Design for Learning (CAST, 2011) and other works and determined that none of the three principles met their needs. Subsequently, the authors (Scott et al., 2001) established the nine principles of Universal Design for Instruction (UDI), which are summarized in Table 4.

Table 4

*Principles of Universal Design for Instruction (Scott et al., 2001)*

<table>
<thead>
<tr>
<th>Principles</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle 1: Equitable use</td>
<td>Instruction is designed to be easily used and accessed by students with diverse abilities. When possible, use the same methods and tools for all students and create alternatives when necessary.</td>
</tr>
<tr>
<td>Principle 2: Flexibility in use</td>
<td>Instruction is designed to meet the needs of a wide range of student abilities. Includes providing a choice of methods for students to use in order to support various types of learners.</td>
</tr>
<tr>
<td>Principle 3: Simple and intuitive instruction</td>
<td>Instruction is designed to be straightforward and not unnecessarily complex, regardless of the student’s experience level or knowledge.</td>
</tr>
<tr>
<td>Principle 4: Perceptible information</td>
<td>Instruction is designed so that all necessary information is communicated to students, regardless of the student’s sensory abilities.</td>
</tr>
<tr>
<td>Principle 5: Tolerance for error</td>
<td>Instruction is flexible to accommodate individual student pace and skill level.</td>
</tr>
<tr>
<td>Principle 6: Low physical effort</td>
<td>When possible and appropriate, instruction is designed to reduce or eliminate physical effort to assess the material.</td>
</tr>
<tr>
<td>Principle 7: Size and space for approach and use</td>
<td>Instruction is designed to use an appropriate space, as well as considering the physical abilities of different types of students.</td>
</tr>
<tr>
<td>Principle 8: A community of learners</td>
<td>Classroom environment is welcoming and encourages communication between students and faculty.</td>
</tr>
<tr>
<td>Principle 9: Instructional climate</td>
<td>Instruction is created so that it is welcoming of all students. High expectations are set for all students.</td>
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</table>
Universal Instructional Design. In 2005, Palmer and Caputo developed an instructional model at the University of Guelph in Ontario, Canada through its Teaching Support Services (TSS). The TSS staff were charged with creating material and resources that could be used by faculty to create curricula that would serve the needs of students with disabilities. The strategies and techniques they recommended for students with disabilities were found to be helpful for all students. They established the model of Universal Instructional Design (UID) and created seven principles. Using these principles, instructors can develop curriculum that meets the needs of a broad range of students. The seven principles are outlined in Table 5.
Table 5

*Principles of Universal Instructional Design (Palmer & Caputo, 2005)*

<table>
<thead>
<tr>
<th>Principles</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle 1: Be reasonable and fair</td>
<td>Designing curriculum in a way that most, and ideally all, students can use the same means to fulfill the requirements of the course. Students find the class to be a safe and inviting learning environment.</td>
</tr>
<tr>
<td>Principle 2: Provide flexibility in use, participation and presentation</td>
<td>Presenting material in a variety of formats, ensuring physical access to materials, and providing a variety of opportunities and modalities for student assessment.</td>
</tr>
<tr>
<td>Principle 3: Be straightforward and consistent</td>
<td>Designing curriculum to be straightforward and consistent with student expectations; distractions and unnecessary complexity are reduced or eliminated. Materials are intuitive.</td>
</tr>
<tr>
<td>Principle 4: Be explicitly present and readily perceived</td>
<td>Using materials are in a way that maximizes clarity of the lesson and decreases difficulty in receiving the information.</td>
</tr>
<tr>
<td>Principle 5: Provide a supportive learning environment</td>
<td>Respecting students, in all of their diversity; fostering an open and welcoming environment that respects individual differences.</td>
</tr>
<tr>
<td>Principle 6: Minimize unnecessary physical effort or requirements</td>
<td>Reducing any unnecessary physical effort so that students of different physical strengths and abilities can complete the course.</td>
</tr>
<tr>
<td>Principle 7: Ensure learning spaces that accommodate both students and instructional methods</td>
<td>Creating a classroom, whether virtual or physical, that is inviting, accommodating, and accessible to all students.</td>
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</table>

**Universal Design for Learning.** In 1984, CAST, a non-profit organization that specializes in expanding learning opportunities for all individuals, developed a model called Universal Design for Learning (CAST, 2011). Universal Design for Learning is based on three principles: (a) provide multiple means of representation, (b) provide multiple means of action and expression, and (c) provide multiple means of engagement (CAST, 2011).
The first principle (CAST, 2011), provide multiple means of representation, means to provide content and information in a variety of formats to meet the different learning styles of individuals. In this model, multiple representations (audio, visual, or tactile) are used to assist learning to provide students with multiple opportunities to make connections with prior knowledge or skills.

The second principle of Universal Design for Learning (CAST, 2011) is to provide multiple means of action and expression. This principal includes allowing students to choose from a variety of ways to demonstrate their learning. For example, students may demonstrate their knowledge using videos, posters, or papers based on their own interests and skills. Additionally, this principle identifies the importance for faculty members to help students develop goals and identify strategies to attain the goals.

The third principle of Universal Design for Learning (CAST, 2011) is to provide multiple means of engagement; this means to provide students with multiple and flexible opportunities to sustain interest in a topic and monitor their skill and knowledge development (CAST, 2011). Providing students with a variety of learning experiences can increase motivation and decrease barriers that can impact learning. Hence, faculty members must be open to providing these principles of multiple and flexible opportunities for student learning to occur. Table 6 outlines the principles and guidelines of Universal Design for Learning (CAST, 2011).
Table 6

*Principles and Guidelines of Universal Design for Learning (CAST, 2011)*

<table>
<thead>
<tr>
<th>Principles and Guidelines</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle I: Provide Multiple Means of Representation</td>
<td>Provide material in a variety of formats, including physical, symbolic, and linguistic examples.</td>
</tr>
<tr>
<td>Guideline 1: Provide options for perception</td>
<td>Offer content and material in multiple, flexible formats (audio, visual, tactile).</td>
</tr>
<tr>
<td>Guideline 2: Provide options for language, mathematical expressions, or symbols</td>
<td>Clarify language, mathematical expressions, or symbols and scaffold understanding with alternative or multiple representations.</td>
</tr>
<tr>
<td>Guideline 3: Provide options for comprehension</td>
<td>Build on or supply background knowledge, emphasize important ideas, and support cognitive and metacognitive strategies.</td>
</tr>
<tr>
<td>Principle II: Provide Multiple Means of Action and Expression</td>
<td>Provide multiple and varied opportunities for students to demonstrate their knowledge and skills.</td>
</tr>
<tr>
<td>Guideline 4: Provide options for physical action</td>
<td>Use varied and alternative ways for students to physically interact with instructional materials or complete instructional tasks.</td>
</tr>
<tr>
<td>Guideline 5: Provide options for expression and communication</td>
<td>Offer multiple media, tools, opportunities, and formats for students to demonstrate their knowledge and understanding of a subject.</td>
</tr>
<tr>
<td>Guideline 6: Provide options for executive functions</td>
<td>Support students’ goal-setting, planning, resources management, and progress monitoring.</td>
</tr>
<tr>
<td>Principle III: Provide Multiple Means of Engagement</td>
<td>Provide students with multiple and varied opportunities to develop and sustain interest in a topic, and to monitor their skill and knowledge development.</td>
</tr>
<tr>
<td>Guideline 7: Provide options for recruiting interest</td>
<td>Present relevant learning activities with authentic opportunities for students to make choices, while reducing threats and negative distractions.</td>
</tr>
<tr>
<td>Guideline 8: Provide options for sustaining effort and persistence</td>
<td>Build in reminders, vary the level of task demand, and foster collaboration among students.</td>
</tr>
<tr>
<td>Guideline 9: Provide options for self-regulation</td>
<td>Foster self-reflection present opportunities for students to monitor their knowledge and skill development.</td>
</tr>
</tbody>
</table>
Research Examining Universally Designed Instruction at the Postsecondary Level.

This section provides a systematic review of literature on curriculum design, instruction, and assessment that meet the needs of the diverse student body in postsecondary classrooms. More specifically, the literature presented herein covers empirical research related to models of universally designed instruction in postsecondary settings. Universal design was defined broadly as encompassing Universal Design for Instruction (Scott et al., 2001), Universal Design for Learning (CAST, 2011), and Universal Instructional Design (Palmer & Caputo, 2005). Five articles were selected for inclusion. They are organized by themes and reviewed chronologically within each theme. Three articles focused on students’ perceptions of faculty use of universal design principles are presented first (McGuire & Scott, 2006; Parker et al., 2003; Rao & Tanner, 2011). Then, two studies centered on faculty training in the use of universal design are reviewed (Izzo et al., 2008; Schelly et al., 2011).

Parker et al. (2003) examined perspectives of disability service providers using qualitative methods. The study was conducted using two focus groups to collect data (Parker et al., 2003). The participants were 16 disability service providers from two- and four-year institutions to determine their perspectives on Universal Design for Instruction principles and their role in providing Universal Design for Instruction on their campuses.

The study identified strengths and weaknesses of UDI. The strengths included creating a supportive environment that improved retention of a diverse student population, providing inclusive instruction to all students, and reducing stigmas for students with learning disabilities (Parker et al., 2003). Weaknesses included faculty resistance to UDI, limited student self-advocacy, training needs and lack of a legal policy to implement the principles of the model (Parker et al., 2003). Service providers identified ways their roles could enhance Universal
Design for Instruction implementation including (a) providing information to college leaders and (b) collecting data on faculty who support and use the principles of the model. Participants reported the belief that Universal Design for Instruction would not be widely implemented on their campuses unless administrators and committees endorsed it (Parker et al., 2003).

McGuire and Scott (2006) conducted research from 1999-2005 with college students with learning disabilities. The researchers took a qualitative approach and conducted focus groups with 25 college students with learning disabilities attending three universities in the Northeast to elicit students’ perspectives about effective instructional techniques. The researchers (McGuire & Scott, 2006) addressed the perceptions regarding attributes of a good college course, teaching methods, strategies that promote learning, and challenges and barriers experienced by the students.

Students reported the attributes of instructors that were described as promoting learning included: (a) being approachable and available, (b) focusing on the subject, and (c) making personal connections with students (McGuire & Scott, 2006). Effective teaching methods were described as (a) setting clear expectations, (b) providing information in multiple formats, (c) creating a welcoming environment, (d) giving frequent feedback, (d) supporting individual learning needs, and (e) effective assessment strategies. The researchers determined that UDI provided a framework for inclusive college instruction that provides a practical approach for the diverse student population in the college setting.

A study conducted by Rao and Tanner (2011) examined the effects of using the eight principles of UID and the three principles of UDL in an online learning environment to determine the elements that students reported to be the most valuable to their learning. The purpose of this study was to examine how the principles of UID and UDL could be applied to
online courses and to determine which of these principles students perceived as the most useful (Rao & Tanner, 2011).

Surveys were conducted with 25 students over four semesters with the same instructor (Rao & Tanner, 2011). Closed-ended questions were used to quantify the effects and open-ended questions were used to develop themes. Student reports on effective Universal Design for Learning elements included providing options and choices, varied instructional strategies, and instructor feedback. A majority of students (92%) agreed that short weekly assignments were useful and practical and 96% agreed that consistent weekly instructor feedback supported learning (Rao & Tanner, 2011). Unexpectedly, three students in the course disclosed learning disabilities as the course progressed. These students expressed gratitude to the instructor for providing universally-designed supports. This result illustrated the benefit of universal design instruction for college students with learning disabilities.

With regard to universally designed instruction and faculty development, Izzo et al. (2008) presented the results of two studies conducted at a large Midwestern university to develop faculty training materials on the use of Universal Design for Learning in higher education. In study 1, the researchers surveyed 271 faculty members and teaching assistants to assess the instructional climate for students with disabilities. The researchers followed up with focus groups comprised of 92 faculty members and teaching assistants. The results of the survey showed that universal design was the preferred topic for faculty training. The focus groups referenced Universal Design for Learning strategies as important for successful teaching. In addition, three themes emerged about instructional practices that meet the needs of diverse learners: (a) perceived uncertainty about how to meet learning needs, (b) instructional strategies used to support learning, and (c) the need for training to promote educational access.
Based on the findings from the survey and focus groups, which identified professional development needs, the researchers developed the Faculty and Administrator Modules in Higher Education (FAME) professional development curriculum. FAME is an online training program that consists of five instructional modules for faculty designed to increase their understanding of teaching practices. Izzo et al.’s (2008) second study assessed the FAME modules with 63 faculty members and administrators. The results of this study emphasized seven guidelines for the integration of universal design principles, which included the importance of developing a trusting environment, setting clear goals, providing multiple ways to access course content, using a variety of methods for instruction, integrating supports for student learning, allowing for multiple means of demonstration, and staying up to date on instructional technologies. Over 90% of participants reported their confidence in meeting the instructional needs of students with disabilities increased after applying the FAME curriculum.

Schelly et al. (2011) conducted a quantitative study to gather empirical evidence relating to the benefits of Universal Design for Learning for student retention and outcomes. The investigation was conducted at Colorado State University and five instructors participated in the training. The instructors were all Ph.D. graduate students who taught sections of an Introduction to Psychology course. The instructor training consisted of one-hour weekly group meetings during which time faculty received training on the UDL principles and mentoring from an assistant professor. Survey participants were students enrolled in the Introduction to Psychology course (Schelly et al., 2011). A total of 1,223 students completed both pre- and post-surveys, a completion rate of 76%. This study measured student perceptions of faculty instructional changes based on three UDL principles implemented by instructors after professional
development training. The results indicated that training for professors may increase implementation of Universal Design for Learning principles in college courses.

The students reported a significant increase in the use of Universal Design for Learning strategies after the training on 14 of the 24 questions pertaining to Universal Design for Learning (Schelly et al., 2011). Instructors presented information in multiple formats significantly more after training. Instructors also provided more electronic equivalents of paper handouts and supplemented with visual aids following the training. In addition, students reported that more reading assignments were available online. These results revealed two important areas of faculty development that had the most impact with regard to student instruction. The first was the importance of presenting information in a variety of ways and providing course material in a variety of formats. The second area involved faculty summarizing key concepts before, during, and after their presentations.

These studies (Izzo et al., 2008; Schelly et al., 2011) brought to light two important ideas about faculty training and the application of universal design concepts in higher education. First, when faculty received training on how to apply the principles of universal design in the classroom setting, there was a positive impact on student instruction. Second, after faculty training on universal design concepts, faculty members were more likely to use these strategies in their classrooms.

**Synthesis of selected research on universally designed instruction.** The findings from these studies (Izzo et al., 2008; McGuire et al., 2006; Parker et al., 2003; Rao & Tanner, 2011; Schelly et al., 2011) supported the use of universal design principles in the post-secondary setting to benefit college students with diverse learning needs. When faculty integrated these
principles into their instruction, students reported the strategies were beneficial to the learning (McGuire et al., 2006; Parker et al., 2003; Rao & Tanner, 2011). In addition, these studies revealed faculty training was wanted and necessary to assist instructors in the adaptation of universally designed methods of instruction (Izzo et al., 2008; Schelly et al., 2011). The studies in this section highlighted the importance of understanding the student’s perspective with regard to learning (McGuire & Scott, 2006) as well as faculty willingness to use universal design principles (Izzo et al., 2008; Rao & Tanner, 2011; Schelly et al., 2011). A major theme in the literature is the need for increased faculty training in order to implement universal design models in the college setting (Izzo et al., 2008; Schelly et al., 2011). Student findings suggested that universally designed instruction strategies helped create a welcoming environment and application of the principles were beneficial to their learning (Parker et al., 2003; Rao & Tanner, 2011).

Limitations from these studies were low rates of return and small sample sizes, which limited generalizability. Additionally, self-reporting can create respondent bias. The literature search revealed an increased number of recent studies using universal design models in higher education, including studies that investigated faculty awareness training about Universal Design for Learning. This increased research base suggests that Universal Design for Learning is becoming an important instructional strategy, which is a positive step toward helping students succeed in college.

After a review of the universal design literature and its application in higher education, Universal Design for Learning (CAST, 2011) was the model chosen for this study based on the following rationale. The model is grounded in neurological research (Meyer & Rose, 2000; Rose, 2001) and The Higher Education Opportunity Act of 2008 specifically refers to Universal
Design for Learning (HEOA, 2008), and provides a definition of Universal Design for Learning in Section 103(a):

the term ‘universal design for learning’ means a scientifically valid framework for guiding educational practice that (A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills and in the ways students are engaged; and (B) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient.

Therefore, Universal Design for Learning was selected to operationalize the survey tools for this study. While the literature base on universally designed instruction continues to build, what is available has not addressed faculty attitudes and beliefs toward the use of this approach to designing instruction. In addition, there is a gap in the literature with regard to faculty in community college settings and more specifically nursing faculty.

**Theory of Planned Behavior**

The Theory of Planned Behavior, developed by Icek Ajzen (1985) and based on Fishbein and Ajzen’s Theory of Reasoned Action (Ajzen, 1991), is a behavioral model frequently applied across many disciplines to predict behavior. Behavioral intentions may be explained with a high level of accuracy by assessing three components: attitudes toward the behavior, subjective norms related to the behavior, and perceived control over the behavior (Ajzen, 1991). The theory is well supported with empirical evidence. Armitage and Connor (2001) investigated the efficacy of TPB. The researchers reviewed 185 independent studies and found that the theory helped
account for the variance in behavior and intention. In addition, the construct of perceived behavioral control accounted for significant amounts of variance in intention and behavior (Armitage & Connor, 2001).

A number of recent studies have applied TPB in a variety of disciplines including education and health sciences. Health related research includes studies relating physical activity and diabetes (Blue, 2007), integrated behavioral health (Montano & Kasprzyk, 2008), and physical and psychological health after cancer diagnosis (Andrykowski et al., 2006). These studies found that a person’s attitude was related to intention. Empirical research in which nurses are the focus of study include the use of TPB about adherence to hand hygiene (O’Boyle et al., 2001), diabetes and health related behaviors (Blue, 2007), and infection control by nurses (Smith et al., 2011). These studies found that nurses’ intentions to adhere to guidelines were significantly associated with their self-reported behavior. Education research using TPB focused on teacher intentions to create lessons using computer technology (Paver et al., 2014; Teo, 2012). These studies concluded that teacher attitudes toward the use of technology had a greater impact on their intent to use educational technology than either subjective norms or perceived behavioral control.

**Select Research on Theory of Planned Behavior**

A sample of six relevant studies applying Ajzen’s (1985) TPB are presented in chronological order (Forsman et al., 2012; Heath & Crowell, 2007; Jones et al., 2013; Kalivoda, 2003; Paver et al., 2014; Renzi & Klobas, 2008). The purpose of reviewing these studies was to demonstrate how the theory is utilized and how it is applicable to this research.
In 2003, research conducted by Kalivoda (2003) used TPB in a qualitative study to understand faculty attitudes and behaviors toward the use of Universal Instructional Design. The sample included 12 faculty members who participated in open-ended interviews relating to their beliefs about providing UID to students with disabilities. The questions focused on three specific areas: salient behavioral beliefs, referents, and control beliefs. The most frequently cited advantage in providing UID was accommodating diverse learning styles. Additional advantages included the use of various teaching styles and increased use of technology as a teaching tool. Faculty reported both advantages and disadvantages of UID. The most frequently cited disadvantage was the belief that proving UID would not be fair to all students. In addition, some faculty believed that providing UID lowered academic standards, would be inappropriate for certain courses, and compromised the learning experience (Kalivoda, 2003).

The findings from this study (Kalivoda, 2003) suggested that the use of UID could improve learning for students with disabilities. However, factors beyond faculty control prevented them from using UID methods. For example, faculty time constraints and committee obligations may delay initiation of new instructional methods. Kalivoda (2003) suggested that obstacles to implementation should be remedied to improve education. Further, faculty identified the need for professional development and instructional support with the implementation of UID concepts (Kalivoda, 2003). A limitation of the study was the small sample size, which limited generalizability.

The purpose of a study by Heath and Crowell (2007) was to examine influencing factors associated with nursing faculty intentions to integrate tobacco education into advanced practice nursing coursework. The TRA (Ajzen & Fishbein, 1980) model was used to gain an understanding of faculty attitudes about tobacco education, what other faculty thought about
tobacco education, and the control to integrate tobacco education among Advanced Practice Nursing (APN) faculty in the United States. A total of 161 APN faculty members with specialties in obstetrics, clinical nurse specialist, and anesthesia, completed the 88-item survey. This quantitative approach investigated the relationships between external factors (e.g., demographics, amount of tobacco education integrated in APN curricula, and self-efficacy in teaching tobacco content) and TRA (Ajzen & Fishbein, 1980) components.

The study (Heath & Crowell, 2007) findings revealed that gender, level of education, years of academic teaching, and combined clinical and course responsibility were substantial factors that influenced whether APN faculty would incorporate tobacco education in the curriculum. The results also showed that behavioral beliefs (specifically, attitude about tobacco education) exhibited the strongest relationship with intention to include tobacco education in the curriculum. Overall, 62.7% of nurse practitioners reported high scores for intentions to integrate tobacco education, as compared with 37.5% of nurse midwives, 30.3% of clinical nurse specialists, and 8.7% of nurse anesthetists (Heath & Crowell, 2007). In addition, the results of the study indicated a significant relationship between the number of years of academic teaching and intention to increase tobacco education. Additionally, 65% of respondents described teaching 3 or less hours of tobacco education in an entire APN plan of study. Limitations to this study included low response rate, convenience sampling, and the use of a self-report survey that limited generalizability.

Renzi and Klobas (2008) used TPB (Ajzen, 1985) in a qualitative study to examine why some teachers transform their teaching and adopt Computer Supported Collaborative Learning (CSCL) while others use a Learning Management System (LMS) only to support their classroom teaching. Three behaviors were identified for this research: (a) the level of online social
interaction adopted by the teacher, (b) the presence of course activities based on online social
learning, and (c) the presence of CSCL and its integration in course design. The study was
conducted in Australia and Italy and a total of 26 university faculty members participated in
qualitative interviews.

The researchers (Renzi & Klobas, 2008) found marked differences in the attitudes,
subjective norms, and perceived behavioral control of the professors who adopted each of the
three behaviors. University faculty members who adopted CSCL perceived classroom teaching,
online teaching, and social interaction as related to one another (Renzi & Klobas, 2008). In
addition, teachers who utilized CSCL were able to circumvent LMS restrictions and develop
more online learning activities. It can be concluded based on the findings that teachers who
adopted the CSCL had both pedagogical skills and confidence in their ability to use technology.
In addition, teachers who used the LMS mainly as a mechanism for uploading teaching material
were more likely influenced by others. In order to increase the use of technology, additional
support and resources to design online activities is needed (Renzi & Klobas, 2008). A limitation
of the study is its generalizability to other geographic areas and transferability as compared to
quantitative research.

Swedish researchers investigated nursing students’ intentions to use research in clinical
practice (Forsman et al., 2012). A follow-up study included 1319 nursing students in their final
semester of undergraduate study and their first year of clinical practice to investigate whether
intention alone is a variable that can predict the use of research one year after graduation. Using
a national Longitudinal Analysis of Nursing Education (LANE) survey, quantitative data were
collected using a 25-page questionnaire. A statistical analysis comparing graduating senior’s
responses to the responses of the same students one-year post-graduation revealed a statistically
significant relationship between intention to use research prior to graduating and the use of research in clinical practice. The results showed a wide variation regarding intention to use research for graduating nursing students, with 44.4% of the students rating their intention to use research as relatively low (e.g., about half or less of their working shifts) and a small percentage (1.5%) reporting that they never intended to use research (Forsman et al., 2012). About one third of the students (34%) reported a higher degree of intended use of research (e.g., on more than half or on almost every working shift in their clinical practice). Forsman et al. found that intention had a direct effect on research use behavior for nurses in practice one year after graduation.

Jones et al. (2013) applied TPB to investigate nursing faculty and the use of simulation. The purpose of the study was to examine the efficacy of a summer simulation program on BSN nursing faculty member’s attitudes, subjective norms, and perceived behavioral control and their intent to use simulation as a teaching strategy. A 24-item online survey was administered pre-and post-intervention, a two-day Summer Simulation Training Fellowship (SSTF). This professional development workshop was designed to strengthen faculty members’ attitudes, build a sense of behavioral control, and communicate supportive social norms that were intended to improve intention to teach with high fidelity simulation manikins. Results indicated that intention to teach using simulation improved, as 78% of the faculty reported that they intended to use simulation with students in the next academic year. The SSTF program had a significant positive impact on all four measures, with the most impact being on perceived behavioral control (Jones et al., 2013). Limitations to this study include convenience sampling and small sample size.
Finally, Paver et al. (2014) surveyed community college adjunct faculty to analyze their intention to integrate technology into their instruction. A quantitative analysis of the data collected from a convenience sample of 130 faculty members showed statistically significant results and suggested that the conceptual framework was useful in explaining adjunct faculty intention to integrate technology into teaching. Findings showed that attitude had a statistically significant positive relationship with behavioral intention, which was consistent with other researchers’ findings that attitude was the strongest predictor of behavioral intention (Armitage & Connor, 2001; Francis et al., 2004). In addition, peer influence had a statistically significant positive relationship with subjective norm. The findings of this study suggested that community college administrators should consider developing strategies and programs for faculty that would enhance their intention to integrate technology into instruction. For example, the authors suggested designing a professional development program for faculty demonstrating the usefulness of technology tools for teaching and how those tools can be matched to existing teaching styles. In addition, the significance of peer influence could be promoted by providing opportunities for faculty members to dialogue with other faculty members about technology integration. Limitations of this study included respondent bias and variability in self-reported data.

**Synthesis of selected research on TPB.** Limited research has been conducted that used TPB with college faculty (Kalivoda, 2003; Paver et al., 2014; Renzi & Klobas, 2008). Even fewer studies applied the TPB framework to nursing (Forsman et al., 2012; Heath & Crowell, 2007; Jones et al., 2013). The findings of these studies demonstrated that attitude toward behavior has a strong influence on teachers’ intentions (Forsman et al., 2012; Heath & Crowell,
2007; Jones et al., 2013; Kalivoda, 2003; Paver et al., 2014; Renzi & Klobas, 2008). In addition, perceived behavioral control (Heath & Crowell, 2007; Jones et al., 2013; Paver et al., 2014) and subjective norms (Paver et al., 2014; Renzi & Klobas, 2008) had a significant influence on teachers’ intentions, as well. Many of these studies were limited by geographical representation (Forsman et al., 2012; Jones et al., 2013; Kalivoda, 2003; Paver et al., 2014; Renzi & Klobas, 2008) and sample size (Jones et al, 2013; Kalivoda, 2003), which may affect the generalizability of the results. With regard to the studies conducted abroad (Forsman et al., 2012; Renzi & Klobas, 2008), repeating the studies in the United States would serve to validate a broader applicability of pertinent findings.

In sum, the research focused on Ajzen’s (1985) TPB is plentiful. The studies reviewed here show how the model has been used in related research and suggest its applicability to the current study. Although TPB has been used in nursing and education, it has not been specifically employed to describe nursing faculty intention regarding instructional strategies to assist a broad range of students in the classroom. According to the tenets of TPB, nursing faculty intentions to use certain instructional strategies should be driven by their attitude toward the behavior, perceptions of the norms regarding the behavior, and perception of their control over performing the behavior. Enhancing the body of knowledge about nursing faculty perspectives with regard to instructional design adds to the body of research to assist faculty members as they design instruction for nursing student learning in the classroom setting. The results added the voice of this understudied group and may provide insight into their intentions toward the use of instructional strategies.
Chapter Summary

The purpose of this chapter was to review the literature related to the community college students, the various models of instructional design, and TPB as they relate to supporting learning for a broad range of nursing students in the community college setting. In each of these areas there are a limited number of empirical studies available. Although the literature is rich with studies related to TPB, there is limited research in which nursing faculty members form the sample. This study begins to address those gaps in the knowledge.

This exploratory case study examined the phenomenon of community college nursing faculty members’ intention to design instruction to support learning for the broad range of students in their classrooms. In order to meet the critical need for nurses in practice settings, college administrators and faculty need to design instruction that supports learning for all students. This information could aid faculty and administration in designing instruction to support this population of students through degree completion.

The next chapter describes the research design and methodology.
CHAPTER 3: METHODOLOGY

Introduction to the Chapter

The purpose of this chapter is to describe the research design and the methodology for
this study of community college nursing faculty members’ intention to design instruction to
support learning for the broad range of students in their classrooms. Ajzen’s (1985) Theory of
Planned Behavior was the conceptual framework, and Universal Design for Learning (CAST, 2011) served a means of illustrating the design of instruction that facilitates a proactive approach
to making learning and instruction accessible to all students. An exploratory case study design
was selected to answer the research question. This chapter is organized into the following
sections: restatement of the problem, research question, definition of terms, design of the study,
sampling strategies, data-collection and analysis procedures, protection of human subjects, and
limitations of the study. A discussion of the validity and reliability of the study design is also
presented.

Restatement of the Problem

There is a nursing shortage in the United States that is projected to continue through 2020
(AACN, 2011; ANA, 2014; Viterito & Teich, 2002). ADN programs prepare a majority (57%)
of new registered nurses entering the workforce (AACC, 2011b), and community colleges are
the nation’s largest provider of ADN programs (Viterito & Teich, 2002). However, the retention
rate for community colleges is 55.2% (ACT Institutional Data File, 2013). Typically, a student
entering an ADN program is older, has family responsibilities, is working at least part-time, has
been away from the college environment for years, and is likely to be academically
underprepared for college-level work (Seago et al., 2012; Shelton, 2012). These facts, in
combination, can create challenges for community college nursing faculty as they attempt to address the varied learning needs of a diverse community college student body and support each student’s academic success.

The nursing profession is at a turning point in dealing with the challenges of the national nursing shortage and working with an increasingly diverse student population (NLN, 2005; Poorman et al., 2008; Schaefer & Zygmunt, 2003). The NLN (2003) supports student-centered, interactive, and innovative curricula using interactive pedagogical strategies to foster student learning. NLN (2003) believes that best practices should be identified and the science of nursing education developed through pedagogical research. In addition, AACN and the NLN have challenged nurse educators to transform curriculum and teaching practices to embrace evidence-based research, teamwork and critical judgement using innovative and effective pedagogies that engage all types of learners (AACN, 2008; NLN, 2005). Nursing faculty in ADN programs, which are offered through community colleges that are the primary supplier of new nurses entering the workforce, must find the best ways to reach the greatest number of students. A study that adds their voices to the conversation about nurse education not only filled a gap in the existing literature but also informed practice.

**Research Questions**

This study was guided by one primary research question: What are community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms? The four sub-questions for this study are:
1. What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

2. What are community college nursing faculty members’ reports of the norms that drive their intention to design instruction to support learning for a broad range of student in their classrooms?

3. What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

4. What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

**Definition of Terms**

For the purposes of this study, the following conceptual definitions of key terms were used.

*Associate Degree Nursing (ADN) program.* Consists of 2 years of college level nursing curriculum. These programs qualify the graduate to sit for the national licensing exam to be a Registered Nurse (RN).

*Attitude toward a behavior.* The degree to which a person has a favorable or unfavorable evaluation or appraisal of a behavior (Ajzen, 1991).

*Community college.* A publicly funded, non-residential, 2-year institution of higher education.
**Intention.** An indication of an individual’s readiness to perform a behavior (Ajzen, 2006b).

**Nursing faculty.** Full- and part-time nursing faculty, who teach at least one course at a community college in Connecticut.

**Design instruction.** The purposeful and planned design of curricula, implementation of instruction, and assessment of learning so all students have equal access to information and instruction (CAST, 2011).

**Means of action and expression.** The multiple and varied ways students interact with their learning environment and demonstrate their knowledge and skill (CAST, 2011).

**Means of engagement.** Providing multiple and varied ways for students to facilitate self-regulation, sustain effort and persistence, and recruit interest (CAST, 2011).

**Means of representation.** The multiple and varied ways faculty can provide curriculum to students so they can perceive and comprehend information (CAST, 2011).

**Perceived behavioral control.** The perceived ease or difficulty of performing a behavior (Ajzen, 1991).

**Subjective norm.** The perceived social pressure to perform or not to perform a behavior (Ajzen, 1991).

**Design of the Study**

An exploratory case study design was selected to answer the research question for this study. This design is suitable when the research is exploratory (Creswell, 2013). Yin’s (2014) method for conducting case study research was selected to guide this investigation as he is considered an expert in case study research (Creswell, 2009). A case study is defined by Yin as "an empirical inquiry that investigates a contemporary phenomenon in depth and within a real-
world context, especially when the boundaries between the phenomenon and context may not be clearly evident” (p. 16). In addition, case studies are the preferred method when the investigator is examining a contemporary issue over which the researcher does not have control (Yin, 2014). The phenomenon under investigation is community college nursing faculty members’ intentions to design instruction to support learning for the broad range of students in their classrooms.

Given the purpose of this study and the phenomenon being explored, this researcher determined a case study method using two instruments for data collection was appropriate.

Yin (2014) provided a rationale for single case study designs noting, “the single case study is an appropriate design under several circumstances . . . the selection of your case should be related to your theory or theoretical propositions of interest” (p. 51). Yin described five types of case studies. First, a critical case study can be used to test a theory that can make a significant contribution or explain the phenomenon. Second, a case study could be used in extreme or unusual situations that deviate from theoretical norms or everyday situations. Third, a common case can be used to explore circumstances and conditions of real-life or everyday situations. Fourth, the case might be revelatory and allow for exploration of a phenomenon by social scientists. Finally, a longitudinal study can be chosen by a researcher to examine a phenomenon over time.

This study of community college nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms represented a revelatory case, since it is a previously unstudied phenomenon that has the potential to provide information about faculty attitudes and beliefs toward the use of intentional design strategies used to promote learning for nursing students in the classroom. This researcher recruited participants from six community colleges with nursing programs in Connecticut. Understanding faculty members’
intentional use of instructional design strategies, such as the principles of Universal Design for Learning (CAST, 2011), can help add to the body of knowledge about how these faculty members design instruction and their intentional efforts to design instruction to meet the needs of a diverse student body. Yin’s (2014) procedures for upholding the quality of the design and the credibility of the findings when conducting case studies were followed and will be explained later in this chapter.

**Sampling Strategies**

According to Creswell (2013), when conducting qualitative research, the researcher should outline the characteristics of the population. Next, the researcher should consider the characteristics, the context of the study, and the purpose of the research to determine the plan for participant recruitment. Two non-probability sampling strategies—purposeful and convenience—were used to select the sample for this study. The goal of purposeful sampling is for the researcher to select participants from a specific setting because the individuals will best help the researcher understand the phenomenon being studied (Creswell, 2009). The phenomenon under investigation, community college nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms was conducted at six community colleges with nursing programs in Connecticut (Capital, Gateway, Naugatuck Valley, Northwestern, Norwalk, and Three Rivers). The target population was full and part-time faculty who teach at least one course at any of these six community colleges.

This study also used a sample of convenience, as the community colleges with nursing programs are located in the state in which the researcher lives. According to Creswell (2009), convenience sampling is a process by which the researcher selects participants because they are
willing and convenient to the researcher, which facilitates recruitment and the data collection process. This researcher gathered faculty e-mail addresses from the six community college websites and sent an invitation to participate in an Internet-based survey to those e-mail addresses. As part of the online survey, participants were asked to participate in a telephone interview. The faculty from the community colleges who volunteered to participate in the interview phase were contacted and telephone interviews were scheduled at a mutually agreeable time.

**Nursing Student Demographic Data**

Connecticut’s community college nursing programs are geographically spread across urban, suburban, and rural areas and represent small, mid-sized, and large municipalities. Table 7 outlines the enrollment at the six community colleges in Connecticut that have nursing programs and includes the geographic location and the total number of students enrolled at the colleges. In 2013, the total number of students enrolled in all six nursing programs was 556 (Connecticut State Colleges and Universities, 2014).

Table 7

*Connecticut Community College Nursing Program Enrollment Compared to General Student Enrollment: Fall Semester 2013*

<table>
<thead>
<tr>
<th>Community College</th>
<th>General Student Enrollment</th>
<th>Nursing Student Enrollment</th>
<th>CT City/Town</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>4,168</td>
<td>139</td>
<td>Hartford</td>
</tr>
<tr>
<td>Gateway</td>
<td>8,186</td>
<td>95</td>
<td>New Haven</td>
</tr>
<tr>
<td>Naugatuck</td>
<td>7,294</td>
<td>113</td>
<td>Waterbury</td>
</tr>
<tr>
<td>Northwestern</td>
<td>1,549</td>
<td>32</td>
<td>Winsted</td>
</tr>
<tr>
<td>Norwalk</td>
<td>6,556</td>
<td>81</td>
<td>Norwalk</td>
</tr>
<tr>
<td>Three Rivers</td>
<td>4,749</td>
<td>96</td>
<td>Norwich</td>
</tr>
</tbody>
</table>

The NLN (2013) reported that 50% of students enrolled in associate degree nursing programs in the U.S. are over the age of 30. Connecticut’s community colleges’ general student population
includes an almost equal percentage of students over and under 25. (Connecticut Board of Regents of Higher Education, 2014). Table 8 shows the average age of nursing students at the Connecticut community colleges.

Table 8

Average Age of Students Attending Connecticut Community College Nursing Programs: Fall Semester 2013

<table>
<thead>
<tr>
<th>Community College</th>
<th>Nursing Student Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>31.87</td>
</tr>
<tr>
<td>Gateway</td>
<td>32.26</td>
</tr>
<tr>
<td>Naugatuck</td>
<td>29.45</td>
</tr>
<tr>
<td>Northwestern</td>
<td>35.22</td>
</tr>
<tr>
<td>Norwalk</td>
<td>29.37</td>
</tr>
<tr>
<td>Three Rivers</td>
<td>30.50</td>
</tr>
</tbody>
</table>

The racial and ethnic composition of the community college nursing programs in Connecticut are presented in Table 9. A greater number of students self-identify as White than any other racial/ethnic group. This is consistent with the racial/ethnic composition of the community college system nationwide (Connecticut Board of Regents of Higher Education, 2014).

Table 9

Percentage of Connecticut’s Community College Nursing Students by Race/Ethnicity: Fall Semester 2013

<table>
<thead>
<tr>
<th>Community College</th>
<th>American Indian or Alaska Native</th>
<th>Asian</th>
<th>Black/African American</th>
<th>Hispanic/Latino</th>
<th>Native Hawaiian or other Pacific Islander</th>
<th>White</th>
<th>Two or more races</th>
<th>Unknown or chose not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>4.3</td>
<td>18</td>
<td>18</td>
<td>-</td>
<td>46.7</td>
<td>3.6</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>Gateway</td>
<td>7.4</td>
<td>12.6</td>
<td>16.8</td>
<td>1</td>
<td>49.5</td>
<td>7.4</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Naugatuck</td>
<td>0.9</td>
<td>8.8</td>
<td>19.5</td>
<td>1</td>
<td>63.7</td>
<td>6.2</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Northwestern</td>
<td>3.1</td>
<td>3.1</td>
<td>6.3</td>
<td>-</td>
<td>81.3</td>
<td>6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norwalk</td>
<td>3.7</td>
<td>11.1</td>
<td>28.4</td>
<td>-</td>
<td>49.4</td>
<td>1.2</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Three Rivers</td>
<td>4.2</td>
<td>5.2</td>
<td>5.2</td>
<td>-</td>
<td>78.1</td>
<td>5.2</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>
Data Collection Activities

This section contains a description of the methods that were used to collect data. It begins with a description of the instruments followed by the procedures for recruiting participants. This is followed by a discussion of the data collection procedures.

Instruments

Two methods of data collection were used to answer the research questions: an Internet-based survey and a telephone interview. This researcher developed the instruments under the guidance of her research advisor because none were available that fit the purpose of the study. The purpose of the instruments was to elicit descriptions of community college nursing faculty members’ intentions to design instruction to support learning for the broad range of students in their classrooms. Creswell (2013) outlined steps to follow when designing an instrument: “specify the purpose of the instrument, review the literature, write the questions, and test the questions” (pp. 162-166). Each of these steps was followed. Literature related to instructional design and Ajzen’s (1985) TPB were reviewed prior to the development of the instruments and provided the foundation for the instruments. Both instruments were pilot tested. The development and description of each tool is described next.

Description of the Internet-based survey. The survey tool (Appendix A) for this study included four sections. The survey began with a welcome page and the informed consent followed. The items (2-31) in the first three sections were created using Ajzen’s (2006a) advice for constructing a TPB questionnaire such that the items are aligned with the core components of Ajzen’s (1985) TPB framework. Specifically, the items query respondents about their attitudes that drive their intention to design instruction to support student learning, the subjective norms
that drive their behavior in these situations, the behavioral controls that guide their behaviors, and their actual control over their behavior in the classroom related to design of instruction.

For items 2-31, study participants are asked to select a number on a 6-point scale with corresponding anchors (1 = Disagree Strongly, 2 = Disagree Moderately, 3 = Disagree Slightly, 4 = Agree Slightly, 5 = Agree Moderately, 6 = Agree Strongly) that best described the extent to which they agreed or disagreed with each statement. Section I had 10 statements (2-11) asking for faculty responses regarding multiple and flexible means to represent and teach course concepts. Section II comprised 10 statements (12-21) asking for faculty responses regarding the ways in which they have students express their knowledge and skills and the items in Section III (22-31) asked for responses regarding the ways nursing faculty engage students in learning. Section IV had three items (32-34) that elicited basic demographic information from the respondents.

**Description of the telephone interview guide.** The second method for collecting data was a telephone interview conducted with a subsample of survey respondents. The questions for the interview stem from the elements of Ajzen’s (2006b) TPB and model the interview-questioning format used in the Renzi and Klobas (2008) study based on TPB. Those researchers (Renzi & Klobas, 2008) addressed the elements of behavior, attitudes, subjective norms, perceived behavioral control, and actual behavioral control. The purpose of the telephone interview was to obtain a comprehensive description of the nursing faculty member’s experiences related to the intention to design instruction to support learning for a broad range of students in the classroom. A copy of the interview guide is in Appendix B. Table 10 shows the relationship of survey and interview items to Ajzen’s (1985) TPB elements.
Table 10

**Alignment of the Survey Items and Interview Questions with Ajzen’s (1985, 1991) TPB**

<table>
<thead>
<tr>
<th>TPB Elements (Ajzen, 1985, 1991)</th>
<th>Survey Items</th>
<th>Interview Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Beliefs</td>
<td>2, 12, 22</td>
<td>4</td>
</tr>
<tr>
<td>Attitude Toward the Behavior</td>
<td>3, 13, 23</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Norms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normative Beliefs</td>
<td>4, 14, 24</td>
<td>5</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td>5, 6, 15, 16, 25, 26</td>
<td>6</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Beliefs</td>
<td>7, 8, 17, 18, 27, 28</td>
<td>7</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>9, 19, 29</td>
<td>8</td>
</tr>
<tr>
<td>Actual Behavioral Control</td>
<td>10, 11, 20, 21, 30, 31</td>
<td>9, 10</td>
</tr>
</tbody>
</table>

**Pilot of the instruments.** Under the direction of her advisor, the researcher conducted a small-scale pilot of the survey and interview guide. The pilot survey participants included students enrolled in a Doctorate in Educational Leadership (Ed.D.) program. A total of 15 surveys were completed. It took approximately 20 minutes for participants to complete the survey. Based on the feedback, minor modifications were made to the survey instrument. Two participants agreed to participate in the pilot of the telephone interview.

A pilot of the interviews was conducted following survey completion. The pilot interviews lasted approximately 30 minutes each and were digitally-recorded. After the individual interviews, participants in the pilot test were asked to provide feedback about the interview questions. Based on their feedback, minor modifications were made to the interview questions.
Validity and reliability of the instruments. Creswell (2009) noted that sometimes researchers must create their own instruments because none are available to sufficiently explain the phenomenon being studied. The survey and interview guide were created specifically for use in this study. Refer to validity results for the survey in Chapter 4, page 87. Details on the development of the tools and copies of the instruments have been provided for future researchers to use.

Recruitment of Study Participants and Administration of the Survey

Upon approval of the study by the University of Hartford’s Human Subjects Committee, the researcher began an e-mail recruitment campaign. Nursing faculty from six community colleges in Connecticut with ADN program were invited to participate in the study. The e-mail addresses were culled from publicly available websites and loaded into Survey Monkey. A series of six e-mail contacts were made via Survey Monkey to maximize the response rate (Dillman, Smyth, & Christian, 2009). As suggested by Dillman et al. (2009) all e-mails emphasized that participation was voluntary and the results would be kept confidential. The first e-mail contained information about the purpose of the study and a link to the survey (Appendix C). The link to the survey contained a unique Uniform Resource Locator (URL) that was automatically generated for each potential respondent. This URL was encrypted with Secure Socket Layers (SSLs) for added security during completion of the Internet-based survey.

Beginning three days after the first e-mail was sent, five subsequent invitations were sent (e-mails 2-6) through Survey Monkey to non-respondents only. Each e-mail reminder was sent three to five days apart to increase faculty involvement. Table 11 contains a summary of the recruitment timeline and strategy for administration of the survey.
Table 11

Summary of Recruitment Timeline and Strategy for Administration of the Survey

<table>
<thead>
<tr>
<th>Contact</th>
<th>Timeline</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Day 1—Week one</td>
<td>E-mail invitation to participate in the study.</td>
</tr>
<tr>
<td>2</td>
<td>Day 4—Week one</td>
<td>First e-mail reminder to non-respondents.</td>
</tr>
<tr>
<td>3</td>
<td>Day 8—Week two</td>
<td>Second e-mail reminder to non-respondents.</td>
</tr>
<tr>
<td>4</td>
<td>Day 12—Week two</td>
<td>Third e-mail reminder to non-respondents.</td>
</tr>
<tr>
<td>5</td>
<td>Day 16—Week three</td>
<td>Fourth e-mail reminder to non-respondents.</td>
</tr>
<tr>
<td>6</td>
<td>Day 20—Week three</td>
<td>Fifth and final e-mail reminder to non-respondents.</td>
</tr>
</tbody>
</table>

Interview Procedures

The researcher contacted the individuals who volunteered to participate in the telephone interview via e-mail (Appendix D) and attached a copy of the telephone interview informed consent form (Appendix E). Within a week, the researcher called each participant to schedule a mutually agreed upon date and time to conduct the telephone interview. The script for those calls is in Appendix B. Once a date had been set, the researcher sent each participant a confirmation e-mail including a list of interview questions (Appendix D). Follow-up e-mails were sent to participants after the telephone interviews in order to acknowledge and thank them for their participation (Appendix D).

The semi-structured telephone interview took no more than 45 minutes. Each telephone interview began with the researcher providing an introduction to the study and its purpose from the interview guide. The researcher explained confidentiality and asked whether the participant had any questions before beginning the interview. Every effort was made to interact with interviewees in an unbiased manner. This researcher used a conversational approach when interacting with the participants and conducted the interview in the same manner for each respondent. This procedure gives credibility to the data collection method (Creswell, 2009). All
interviews were audio recorded, and the researcher kept field notes during each of the interviews. These procedures increased the reliability of the qualitative data collection.

**Data Analysis Procedures**

This section describes how the study data was analyzed. The completed surveys, interview notes, recorded interviews, and verbatim transcripts comprised the data set for analysis. Ajzen’s (1985) TPB model served as the template for data analysis and coding. The survey data was analyzed first and then the interview data was analyzed.

**Analysis of the Survey Data**

Data analysis is described as a process that allows the researcher to make sense out of data in order to answer the research questions (Creswell, 2009). Yin (2014) explained that “data analysis consists of examining, categorizing, tabulating, testing, or otherwise recombining evidence, to produce empirically based findings” (p. 132). As described earlier, the survey was administered using Survey Monkey, an online survey service. Once the closing date for the survey had passed, the raw survey data was downloaded to a Comma Separated Value (.CSV) file and imported into SPSS for Windows for analysis. As described by Creswell (2009), the data was prepared, organized, analyzed and reported.

The Likert scale items in Sections I through III of the survey were assigned the following numerical values: 1 = *Disagree Strongly*, 2 = *Disagree Moderately*, 3 = *Disagree Slightly*, 4 = *Agree Slightly*, 5 = *Agree Moderately*, 6 = *Agree Strongly*. All Likert scale items were mandatory so there was no missing data for these items. Common descriptive statistics were calculated for these items. A descriptive analysis of the demographic data was done using the responses to items 32-34. The results of the survey are presented in narrative and tabular form.
Analysis of the Interview Data

Advice provided by Creswell (2009) regarding qualitative data guided the interview data analysis. The three major phases suggested by Creswell (2009) are (a) organizing and preparing the data, (b) developing themes from the data, and (c) reporting the results.

Verbatim transcripts were created from the audio recording of each interview. A code consisting of a letter and a number was assigned to each interviewee. Digital recordings and written transcripts were itemized, filed, and stored in the researcher’s locked cabinet for the duration of the study to protect participant confidentiality. Participants were given an opportunity to review their transcripts for accuracy, but no one chose to do so.

The next step in analysis is to identify themes. Creswell (2009) described the process researchers take with qualitative analysis as (a) coding the text, (b) developing a description of the data, (c) identifying themes, and (d) connecting the themes. Researcher notes and memos were marked using colored highlighters to identify themes. The themes and coding were refined and modified as necessary to prevent duplication. Data tables were created and organized based on the emerging themes that described nursing faculty intentions to design instruction to support student learning. A codebook was created to list and define themes as they emerged. The researcher consulted with her advisor throughout the analysis phase to maintain accuracy and increase the rigor of the study.

Integration of the Survey and Interview Data to Answer the Research Questions

Following the independent analysis of the survey and interview data, the analyses of both data sets were integrated to answer the research questions. The Internet-based survey data served as the primary data source and the data from the telephone interviews was used to
complement the survey data. This researcher answered each research question by finding patterns and contradictions between the two sets of data. Table 12 shows the relationship between the research questions and the items contained in the survey and interview guide.

Table 12

*Data-Source Chart: Relationship between Research Questions and Data Sources*

<table>
<thead>
<tr>
<th>Research question</th>
<th>Survey</th>
<th>Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in the classroom?</td>
<td>2, 3, 12, 13, 22, 23</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>2. What are community college nursing faculty members’ reports of the norms that drive their intention to design of instruction to support learning for a broad range of students in the classroom?</td>
<td>4, 5, 6, 14, 15, 16, 24, 25, 26</td>
<td>5, 6</td>
</tr>
<tr>
<td>3. What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in the classroom?</td>
<td>7, 8, 9, 17, 18, 19, 27, 28, 29</td>
<td>7, 8</td>
</tr>
<tr>
<td>4. What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in the classroom?</td>
<td>10, 11, 20, 21, 30, 31</td>
<td>9, 10</td>
</tr>
</tbody>
</table>
Validity and Reliability of the Research Design

In order to achieve a high degree of quality for case study research, an investigator must follow a logical set of strategies to increase the validity and reliability of the study design (cite). These strategies must be applied during the design phase and carried through the entire research process including data collection, analysis, and presentation (Creswell, 2009; Yin, 2014). More specifically, Yin (2014) recommended four tests to ensure rigor in case study design: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability. Further, Yin summarized ways in which each of the four measures can be achieved in case study designs. Each is explained in the following sections.

Construct Validity

Yin (2014) defined construct validity as “identifying correct operational measure of the concepts being studied” (p. 46). In order to increase construct validity in case studies, a researcher must (a) use multiple sources of evidence, (b) establish a chain of evidence during data collection, and (c) have key informants review the draft of the case study report.

Using multiple sources of evidence is also called triangulation (Creswell, 2009; Yin, 2014). Triangulation is a method of collecting evidence from different sources or individuals and using multiple sources of evidence and is “an invaluable advantage of case study design” (Yin, 2013, p. 122). Creswell (2009) suggested that combining both quantitative data and qualitative data provides a better understanding of the research problem and allows the strengths of one method to balance the weaknesses of the other method. For this case study, two sources of evidence were obtained using the following methods: (a) a survey of nursing faculty at the six community colleges in Connecticut and (b) interviews with nursing faculty.
Yin (2014) recommended establishing a chain of evidence as another procedure to increase construct validity, specifically, “to allow an external observer—in this situation the reader of the case study—to follow the derivation of any evidence from the initial research questions to ultimate case study conclusions” (p. 127). This researcher created a chain of evidence for this study that makes clear the connections among the elements of the case study, which include the research questions, methods, conclusions, and references. For this study, the survey questions were derived from the three principles of Universal Design for Learning (CAST, 2011). Additionally, the TPB (Ajzen, 1985) framework served as the lens through which the participant responses are analyzed, creating a chain of evidence from data through conclusions.

The final procedure for increasing construct validity is to allow “participants the opportunity to review a draft of the case study” (Yin, 2014, p. 199). Nursing faculty members who participated in the telephone interview were offered the opportunity to review transcripts of the interviews before data analysis; no one chose to do so. Yin (2014) also recommended peer debriefing to reduce the threat of potential bias; the researcher’s advisor served as a peer reviewer and critical colleague during all phases of the study.

**Internal Validity**

Internal validity is the second test to ensure rigor in case study research. Yin (2014) explained internal validity as a concern for explanatory or causal case studies, not for descriptive or exploratory studies. Since this proposed study is exploratory, concerns about internal validity are not relevant. However, Yin suggested that internal validity can be extended to studies that make inferences based on evidence. One technique described by Yin that can be applied to
exploratory and descriptive studies is pattern matching—the process of comparing patterns observed in the data with a predicted set of results. In this study, Ajzen’s (1985) TPB framework was used to frame the patterns found in nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms. Themes and patterns were identified in both data sets and the findings led to conclusions and recommendations.

**External Validity**

The third test of rigor, external validity, is defined as “knowing whether a study’s findings define the domain to which a study’s findings can be generalized” (Yin, 2014, p. 46). This test presents obstacles for case studies as the results from a single case do not provide a basis for generalizing to other persons, organizations, settings, or times. Ajzen’s (1985) conceptual framework, described in Chapter 1, is the theory that guided this study. The researcher made every effort to provide sufficient detail and description so readers of the final dissertation can determine whether the findings are applicable to their particular situation or setting.

**Reliability**

Reliability is the final test of rigor and involves ensuring that a study’s operations, including data collection procedures, can be repeated by others with the same results (Creswell, 2009; Yin, 2014). Two specific strategies that increase study reliability are (a) outlining the case study protocol and (b) developing a case study database. Yin (2014) suggested that a case study protocol should include (a) an overview of the case study, including the research questions,
conceptual framework and review of the literature; (b) a description of data collection procedures; (c) the research questions; and (d) a guide for the case study report. This dissertation contains all of these components. Chapter 1 provides an introduction to the study outlining Ajzen’s (1985) conceptual framework and research questions. Chapter 2 contains the review of related literature. Chapter 3 includes descriptions of the study design, research instruments, data collection procedures and data analysis procedures. Chapter 4 contains the results of the study and Chapter 5 contains a summary of the findings. This dissertation contains the elements Yin (2014) suggested, enabling another researcher to replicate the study. A list of procedures and the timeline for this study appear in Table 13.
### Table 13

*Case Study Protocol: Summary of Study Timelines, Activities, and Procedures*

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Activity</th>
<th>Additional Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2013-November 2014</td>
<td>Wrote chapters 1-3</td>
<td>Met with advisor regularly to develop proposal</td>
</tr>
<tr>
<td>August 2014</td>
<td>Prepared survey and interview protocols</td>
<td>Met with advisor weekly for feedback sessions</td>
</tr>
<tr>
<td>September 2014</td>
<td>Conducted survey and interview pilot</td>
<td>Administered survey and pilot study; made modifications based on results</td>
</tr>
<tr>
<td>November 2014</td>
<td>Presented proposal to the Dissertation Examining Committee</td>
<td>Completed oral defense of the proposal</td>
</tr>
<tr>
<td>December 2014</td>
<td>Submitted proposal to University Human Subjects Committee following proposal approval</td>
<td>Met with advisor to confer about document filing</td>
</tr>
<tr>
<td>March-April 2015</td>
<td>Sent recruitment e-mails, administered survey, and conducted interviews with participants</td>
<td>Met with advisor weekly to confer</td>
</tr>
<tr>
<td>May-August 2015</td>
<td>Analyzed survey and interview data</td>
<td>Met with advisor regularly to develop review and verify analyses, and determine validity of finding</td>
</tr>
<tr>
<td>January - August 2016</td>
<td>Developed dissertation chapters 4 and 5</td>
<td>Met with advisor regularly to refine conclusions and recommendations</td>
</tr>
<tr>
<td>August 2016</td>
<td>Presented dissertation to Doctoral Examining Committee; completed an oral defense of the dissertation</td>
<td>Met with advisor regularly to analyze and confirm dissertation defense plans</td>
</tr>
</tbody>
</table>

The second strategy Yin (2014) described to increase reliability is establishing a case study database. The case study database helps the researcher organize the data collected for the length of the investigation and make it available to be shared with other researchers. For this
investigation the database included data from the survey, and audiotapes, transcripts and notes from the telephone interviews. In sum, this dissertation contains the replicable components suggested by Yin (2014).

**Protection of Human Subjects**

The human subjects review process was completed as required by the University of Hartford Human Subjects Committee. As mentioned previously, upon approval of the Human Subjects Committee, e-mail addresses were obtained from the publicly available faculty contact pages located on the colleges’ websites. They were not shared and all correspondence was kept confidential. All potential participants were contacted up to six times over a three-week period. The first contact was sent via e-mail to all full time and part time nursing faculty members teaching courses at each of the six community colleges in Connecticut. The e-mails, sent using the online survey tool Survey Monkey, introduced the study and invited participation. The survey included a question inviting respondents to participate in the telephone interview. Individuals were informed that participation in the study was voluntary with the choice to withdraw at any time. Following the initial recruitment e-mail, five additional e-mail contacts were sent 3-5 days apart to non-respondents only.

Nursing faculty members who agreed to take part in the telephone interview were contacted using the information supplied in the survey. The interviews were conducted over the telephone at a mutually agreed upon time and took about 45 minutes. Participants were informed that participation was voluntary. All faculty members who participated in the interview were given a $10 gift card.
Risks of participation in this study were not greater, considering probability and magnitude, than those ordinarily encountered in daily life. In addition, participants might have benefitted indirectly by knowing they are adding to the body of knowledge regarding community college nursing faculty reports of their intention to design instruction to support learning for a broad range of students in the classroom.

It is important for researchers to uphold the confidentiality of research participants (Creswell, 2009, 2013). Confidentiality of participants was respected throughout this study. Quantitative data from the surveys were reported in aggregate, and individual responses were kept in confidence. For the interview portion of the study, a number code was assigned to each individual’s responses and all identifying information was removed from the transcripts. All data and files were stored in a secure computer accessible only to the researcher and her advisor. In order to allow for data verification confirmation of results, all data will be kept for a five-year period (American Psychological Association, 2010, p. 12). After five years, all digital and paper records will be destroyed.
Limitations of the Study

According to Creswell (2009) limitations are defined as “potential weaknesses or problems with the study that are identified by the researcher” (p. 366). The researcher has identified four potential limitations for this study. First, the study is limited by the sample. The study sample was one of convenience, was purposeful, and included only participants from six community colleges in Connecticut, which limits generalizability outside of this geographic region. Therefore, the findings may not be relevant to other community colleges in other states. Second, the study methodology is a limitation since findings from a single case study cannot be generalized to a greater population (Yin, 2014). Third, the instruments used are a limitation of the study. The survey and interview questions were researcher-designed, self-administered, and have not been used in any other study. Therefore, there is no data regarding the validity or reliability of the instruments, which constitutes a limitation. Finally, the study relied on volunteerism of the sample participants that also serves as a limitation.

Chapter Summary

This case study reports community college nursing faculty members’ intention to design instruction to support learning for the broad range of students in their classrooms using the conceptual framework developed by Ajzen (1985). This chapter began with a restatement of the problem to be studied followed by the definition of terms, a description of the research design, the methodology for data collection, the data-analysis procedures, ethical considerations associated with protection of human subjects, and study limitations.
CHAPTER 4: RESULTS

Introduction to the Chapter

The purpose of this chapter is to report the results of this case study of community college nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms. Ajzen’s (1985) Theory of Planned Behavior (TPB) was the conceptual framework through which nursing faculty members’ reports of their intention to design instruction related to the three Universal Design for Learning (CAST, 2011) principles were analyzed. Two methods were used to collect information, an Internet-based survey and a telephone interview. The main research question that guided this study was: What are community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms? The four research sub-questions were:

1. What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

2. What are community college nursing faculty members’ reports of the norms that drive their intention to design instruction to support learning for a broad range of student in their classrooms?

3. What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?
4. What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

The remainder of this chapter contains a brief overview of the study methodology followed by a description of the study respondents. The results are presented next, organized according to the research questions.

**Overview of the Study Methodology**

This section contains a brief overview of the study methodology.

**Participant Recruitment**

The sample for this study was recruited from the population of community college nursing faculty who teach at six community colleges that have nursing programs in Connecticut. The researcher culled nursing faculty members’ e-mail addresses from six Connecticut community college websites and sent to each potential participant, via e-mail, a link to the Internet-based survey. The nursing faculty members who volunteered to participate in the telephone interview were contacted first by e-mail, then by telephone. A sample of 28 faculty members completed the Internet-based survey, which was based on Ajzen’s (1985) TPB. A subsample of eight nursing faculty members participated in a telephone interview. Demographic information about the participants is presented in a later section.

**Analysis and Scoring of Survey Data**

Each of the respondents completed the Internet-based survey (Appendix A) which had four parts. Section I contained 10 items (Items 2-11) related to UDL Principle 1 (CAST, 2011)
concerning respondents’ attitudes and beliefs toward using multiple and flexible means to represent and teach important course concepts. Section II of the survey contained 10 items (Items 12-21) related to UDL Principle 2 (CAST, 2011) about respondents’ attitudes and beliefs toward differentiating the ways in which they have students express what they know and are able to do. Section III contained 10 items (Items 22-31) related to UDL Principle 3 (CAST, 2011) concerning respondents’ attitudes and beliefs toward providing flexible methods for student engagement and interaction with instructional materials or assignments. For each of the items in these sections, respondents were asked to select the number on a 6-point scale that best described the extent to which they agreed or disagreed with the statement. Section IV of the survey had three demographic items that were used to describe the sample.

The survey was administered and submitted via Survey Monkey, an online survey service. The raw survey data were downloaded to a Comma Separated Value (.CSV) file and imported into SPSS 21.0 for Windows for analysis. The online survey parameters established by the researcher required that respondents answer all of the survey questions; therefore, there were no missing data.

Descriptive statistics, specifically means, frequencies, standard deviations, and percentages, were calculated for each item. For purposes of this analysis, each of the six-point scales was recoded as a dichotomous scale corresponding to agreement or disagreement with the item. Findings for survey items were generated when 50% or more of respondents’ ratings were in one of the two dichotomous categories. Scale scores, one for each of the four TPB components (attitudes, norms, controls, and actual behavioral controls), were computed in SPSS by summing the ratings of each item related to a particular component. Descriptive statistics, specifically means, frequencies, standard deviations, and percentages were calculated for each of
the four component scales. Again, each of the six point scales were recoded as a dichotomous scale corresponding to agreement or disagreement with the items in the scale. Findings for the component scales were generated when 50% or more of respondents’ scale scores fell within one of the two dichotomous scales. Table 14 provides a summary of the scale scores category ranges.

Table 14

**Scale Scores Category Ranges**

<table>
<thead>
<tr>
<th>Category Ranges</th>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes (Items 2, 3, 12, 13, 22, 23)</td>
<td>6 - 11</td>
<td>12 - 17</td>
<td>18 - 23</td>
<td>24 - 29</td>
<td>30 - 35</td>
<td>36</td>
</tr>
<tr>
<td>Norms (Items 4, 5, 6, 14, 15, 16, 24, 25, 26)</td>
<td>9 - 17</td>
<td>18 - 26</td>
<td>27 - 35</td>
<td>36 - 44</td>
<td>45 - 53</td>
<td>54</td>
</tr>
<tr>
<td>Controls (Items 7, 8, 9, 17, 18, 19, 27, 28, 29)</td>
<td>9 - 17</td>
<td>18 - 26</td>
<td>27 - 35</td>
<td>36 - 44</td>
<td>45 - 53</td>
<td>54</td>
</tr>
<tr>
<td>Actual Behavioral Control (Items 10, 11, 20, 21, 30, 31)</td>
<td>6 - 11</td>
<td>12 - 17</td>
<td>18 - 23</td>
<td>24 - 29</td>
<td>30 - 35</td>
<td>36</td>
</tr>
</tbody>
</table>

**Reliability of the Scale Scores.** Internal consistency reliability analysis of the survey was conducted. Field (2009) indicated that acceptable values for Cronbach’s alpha should be in the range of .7 to .8. In this study, the Cronbach’s alphas for attitudes, norms, controls, and actual behavior controls were .87, .83, .90, and .87 respectively, indicating a strong reliability of the survey instrument. No substantial increases in alpha for any of the scales could have been achieved by deleting any of the items on the survey.

**Analysis of Data from Telephone Interviews**
The second method of data collection for this case study was semi-structured telephone interviews conducted with a subsample of volunteers who completed the Internet-based survey. The purpose of the interview was to complement and expand on the information gathered through the survey; each interview was digitally recorded. The questions in the interview guide (Appendix B) were adapted from the interview-questioning design used in a study conducted by Renzi and Klobas (2008) and framed around Ajzen’s (1985) TPB. The first three questions prompted the faculty member to describe the ways they provided instruction with regard to the three principles of UDL (CAST, 2011). The remaining questions were aligned with Ajzen’s (1985) TPB components—attitudes, norms, controls, and actual behavioral controls. To ensure anonymity, each respondent was assigned a number code.

A verbatim transcript of each individual interview was created from the digital recordings. Transcripts did not include any identifiable information about the participant. Digital recordings and written transcripts were filed, and stored in the researcher’s locked cabinet for the duration of the study to protect respondent confidentiality. Following the transcription of the interview data, respondents were given the opportunity to review their transcripts for accuracy; none of the respondents took advantage of this opportunity.

Following Creswell’s (2009) advice, the researcher read through each participant’s responses to get a sense of the whole, coded the data, and reduced the data to themes. Coding involved identifying segments of the text (including words, phrases, sentence, and paragraphs) that reflected the components of the conceptual framework and labeling those categories with a descriptive term (Creswell, 2009). Specifically, segments of text that appeared significant to the purpose of the study were marked using colored highlighters; similar units were coded with the same color. A codebook was created to catalogue and define the units as they emerged and notes
were written to identify similar themes related to the research or other important ideas that emerged. Themes and corresponding codes were refined and modified as necessary, and redundant or overlapping units were eliminated. This process was repeated to identify themes across all interviewees. Data displays were created and findings were generated when 50% or more of the interviewees clustered around any particular theme.

**Sample Description**

The survey sample for this study \((N = 28)\) and the interview sample \((N = 8)\) were drawn from the population of nursing faculty at six community colleges with nursing programs in the State of Connecticut. All respondents \((N = 28)\) were full-time faculty. Three of the respondents held a doctoral degree and a majority \((n = 23)\) had been teaching in higher education for at least six years. Table 15 provides a summary of respondents’ demographic data.

**Table 15**

*Respondent (N = 28) Demographic Characteristics*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>(N)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>28</td>
<td>100.00</td>
</tr>
<tr>
<td>Adjunct/Part-time</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Highest Level of Education Completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>25</td>
<td>89.30</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>3</td>
<td>10.70</td>
</tr>
<tr>
<td>Years of Teaching in Higher Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 years or fewer</td>
<td>5</td>
<td>17.90</td>
</tr>
<tr>
<td>6-10 years</td>
<td>9</td>
<td>32.10</td>
</tr>
<tr>
<td>11-15 years</td>
<td>6</td>
<td>21.40</td>
</tr>
<tr>
<td>16-20 years</td>
<td>3</td>
<td>10.70</td>
</tr>
<tr>
<td>21-25 years</td>
<td>2</td>
<td>7.10</td>
</tr>
<tr>
<td>26 years or more</td>
<td>3</td>
<td>10.70</td>
</tr>
</tbody>
</table>

*Note.* A dash (–) indicates that no respondents met the criteria for that category.
Results

This section contains the results and findings from the data analyses, organized by research questions. For each question, the survey results and relevant findings are presented first. The results of the interviews are presented next along with representative quotes, data displays, and relevant findings. This is followed by a summary of the data analyses for the research question.

Research Question 1: What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

As described in Chapter 1, Ajzen (1991) stated that attitudes are an individual’s positive or negative beliefs about performing a behavior. A person’s attitude encompasses a thought process such as good-bad, pleasant-unpleasant, and that is the degree to which a person has a favorable or unfavorable evaluation of a behavior.

Survey results for Research Question 1. Survey respondents’ \((N = 28)\) mean score for the attitudes scale was 32.86 \((SD = 3.43, \text{range: } 6-36)\). Nearly all of the survey respondents \((96\%, n = 27)\) reported agreement with having a positive attitude toward designing instruction to support learning for a broad range of students in their classrooms.

Response means for items measuring attitudes ranged from a high of 5.64 \((SD = 0.68)\) for item 3, “I am in favor of using multiple and flexible means to teach important course concepts to support the goal of learning,” to a low of 5.21 \((SD = 0.96)\) for item 12, “I believe using multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction will yield positive outcomes.”
Table 16 contains the item means, standard deviations, frequencies, and percentages for all items that assessed respondents’ reports of their attitudes toward designing instruction to support learning for a broad range of students in their classrooms.
### Table 16

**Respondents’ (N = 28) Reports of Attitudes**

<table>
<thead>
<tr>
<th>Item</th>
<th>Survey Response Frequencies</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>DS %</td>
<td>DM %</td>
<td>SD %</td>
<td>SA %</td>
<td>AM %</td>
<td>AS %</td>
</tr>
<tr>
<td>Attitudes Scale</td>
<td>32.86</td>
<td>3.43</td>
<td>–</td>
<td>–</td>
<td>1</td>
<td>3</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Principle 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I believe designing instruction in which I use multiple and flexible means to represent and teach important course concepts supports the goal of student learning.</td>
<td>5.57</td>
<td>0.98</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>3. I am in favor of using multiple and flexible means to teach important course concepts to support the goal of student learning.</td>
<td>5.64</td>
<td>0.68</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Principle 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I believe using multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction will yield positive outcomes.</td>
<td>5.21</td>
<td>0.96</td>
<td>–</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>13. I am in favor of using multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction</td>
<td>5.43</td>
<td>0.63</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Principle 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I believe using multiple and flexible means to engage students in learning will yield positive outcomes.</td>
<td>5.39</td>
<td>0.79</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>23. I am in favor of using multiple and flexible means to engage students in learning to improve my classroom instruction.</td>
<td>5.54</td>
<td>0.64</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>7.1</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

Survey findings for Research Question 1. The analysis of respondents’ \((N = 28)\) answers to survey items \((2, 3, 12, 13, 22, 23)\) designed to elicit respondents’ reports of their attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms resulted in six findings.

Finding S.1.1: The survey data indicated that 96\% \((n = 27)\) of survey respondents agreed either moderately \((n = 7)\) or strongly \((n = 20)\) that designing instruction using multiple and flexible means to represent and teach important course concepts supported learning for a broad range of students in their classrooms.

Finding S.1.2: The survey data indicated that 96\% \((n = 27)\) of survey respondents agreed either moderately \((n = 7)\) or strongly \((n = 20)\) that they are in favor of using multiple and flexible means to teach important course concepts to support learning for a broad range of students in their classrooms.

Finding S.1.3: The survey data indicated that 93\% \((n = 26)\) of survey respondents agreed slightly \((n = 1)\), moderately \((n = 13)\), or strongly \((n = 12)\) that using multiple and flexible means for students to express their knowledge and skills will improve their classroom instruction and yield positive outcomes.

Finding S.1.4: The survey data indicated that 100\% \((N = 28)\) of survey respondents agreed slightly \((n = 2)\), moderately \((n = 12)\), or strongly \((n = 14)\) that they are in favor of using multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.1.5: The survey data indicated that 96\% \((n = 27)\) of survey respondents agreed slightly \((n = 2)\), moderately \((n = 10)\), or strongly \((n = 15)\) that using multiple and flexible means to engage students in learning will yield positive outcomes.
**Findings S.1.6:** The survey data indicated that 100% of respondents \((N = 28)\) agreed slightly \((n = 2)\), moderately \((n = 9)\), or strongly \((n = 17)\) that using multiple and flexible means to engage students in learning improves classroom instruction.

**Interview results for Research Question 1.** Interview results are organized by UDL Principles.

**Principle 1.** Concerning UDL Principle 1 (CAST, 2011), providing multiple means of representation, interviewees were asked to describe the ways they presented content and information to their students. In response, all of the interviewees \((N = 8)\) talked about how they supplemented textbooks and traditional lecture methods with visual and auditory materials. They described using PowerPoint, pictures, concept maps / graphic organizers, videos, and audio-tapes.

With regard to augmenting traditional lecture methods with visuals, Interviewee - 6 explained how she incorporated them into her Women’s Health lectures. She stated, “I usually post my lecture notes on Black Board for student’s to print before class. During lecture, I use PowerPoint as a jumping point, then I change pace. . . . I use a lot of pictures from different sites like Dogpile.” Similarly, Interviewee - 2 talked about how she realized that a straight lecture format was not the best way to present content. She shared,

Initially, when I began teaching, I did the traditional lecture in front of the room. I realized it was not the best and only way to present content. . . . I created a systems-based chart for care of the older adult . . . . outlining changes you would expect to see. . . . It was my way of helping students decipher what was in the textbook in a clear, concise chart form.”
Five interviewees also described supplementing lectures with web-based videos from Internet-based sites like YouTube, ANA [American Nurses Association], and Healthy People 2020. Interviewee - 3, who teaches foundations stated, “I like using short, little videos from YouTube that demonstrate a specific concept I am presenting.” Similarly, Interviewee - 6 described her use of videos during her perioperative lecture, stating,

I use YouTube a lot. For example, when I teach perioperative care I show this video called *The Laryngospasms*, and there are five nurse anesthetists singing ‘Waking Up is Hard to Do’ to the tune of *Breaking Up is Hard to Do*. The song reviews everything that can happen and the students get a big kick out of it.

With regard to audio tapes, Interviewee - 1 talked about how she used them in her gerontology lecture. She stated,

We will listen to the ACES [Advancing Care Excellence for Seniors] scenarios during my elderly lecture. The students listen to the case scenario, discuss the nursing process and have a dialogue answering the questions at the end of each tape.

Similarly, Interviewee - 7 described using audio segments in her death and dying class: “I’ve had students listen to a National Public Radio show with Dr. Kubler-Ross, when we covered the topic of death and dying. We debriefed the video and had a question and answer session.”

**Principle 2.** With regard to UDL Principle 2 (CAST, 2011), providing multiple means for action and expression, interviewees were asked to describe how they had students demonstrate what they knew and were able to do. Interviewees talked about incorporating case studies, games, audience response systems, and simulations.

Seven interviewees (N = 8) mentioned using case studies for a variety of topics including theory, geriatric care, perioperative care and women’s health. Interviewee - 6 stated,
For my OB lecture, I use a case study, which has all the nursing competencies in it. ... we discuss leadership, working as a team in the healthcare setting, delegation. Case studies help me ascertain what they know and how they would find out information.

In addition, faculty members described how they used the same case study over several weeks allowing assessment of students’ retention of information over time. Interviewee - 4 described her example by noting, “I really like unfolding case studies, especially when you have significant content. I use the same patient throughout my entire perioperative lecture. It is good for the students to recall what the patient’s history was from three weeks before.”

Three of the interviewees talked about interactive games like Jeopardy and Who Wants to be a Millionaire to assess students’ understanding of the content for areas such as cardiac arrhythmias, endocrine disorders, and end of life care. Interviewee - 3 described using games during her medical-surgical lectures. She said,

I created games including endocrine jeopardy and arrhythmia jeopardy. ... Also, I have a fun activity for my bioterrorism lecture. I have paper airplanes that fly around the class and when they land on a student’s desk, they open the note that says they have been exposed to a certain biochemical agent, and they have to explain what they would do next.

Interviewee - 3 also described how games and the conversations around answers helped her evaluate student learning in the classroom. She reported, “games are a great way for me to assess student learning. Their responses to the questions stimulates vigorous conversation around the different answers.”

Audience participation scoring devices, such as i-clickers, were mentioned by three interviewees as a way for students to have a varied method for response. Interviewee - 1
described how she used i-clickers as a means of overcoming the challenge of formatively assessing what students know in very large classes. She explained,

    We have a huge class of 152 students and it is very challenging to be interactive with them . . . I use i-clickers for multiple choice NCLEX questions and they click on their response to the questions. I get a graph of what percent answered each question and then we see the correct answer. . . . It is a non-threatening way for them to test themselves and it gives me an idea if they are understanding the concepts I am teaching.

Finally, faculty members talked about how simulations enhanced student application of course concepts by showing what they know and what they can do. Interviewee - 8 stated, “During simulation lab, students have to demonstrate their critical thinking and skills. This brings the concepts from theory to life.” Likewise, Interviewee - 2 described her simulation scenario,

    I designed a simulation in an End of Life Care scenario where the patient would die and how do you, as the nurse handle it. . . . it was a phenomenal learning experience for the students. . . . to put the whole thing together, knowledge, skills, and analytical thinking.

**Principle 3.** With regard to UDL Principle 3 (CAST, 2011), providing multiple means of engagement, interviewees were asked to describe the ways they stimulated students’ interest and motivation for learning. Interviewees described the importance of reflecting on clinical experiences, tying content to students’ personal interests, group work, and asking questions to promote student engagement in the classroom. Interviewee - 2 shared her experiences about asking students about clinical experiences during classroom lecture. She stated, “Anytime I engage a student in talking about what they did in the clinical setting you could see the class come to life and the blank stares left their faces.” Likewise, Interviewee - 5 commented on
bringing real-life scenarios into her lecture, “In class, I ask students about experiences they have had in clinical. I believe that keeps them engaged and they explain what they did or what they saw which sparks interest from their peers.” Finally, Interviewee - 8 explained how she ties in course content with authentic learning opportunities by asking students about their clinical experiences during her perioperative lecture,

I’m trying situational learning. I ask students about how this relates to patients in the clinical setting and I ask them questions about their experiences. As an example, in my orthopedic lecture on fractured hips, I will ask if they have gone to the OR [operating room] and did they have an opportunity to witness the timeout procedure, so they can connect what we talk about in lecture is actually happening in the clinical environment. 

Four faculty members (N = 8) described personalizing information to a students’ life and how students relating to real life-experiences stimulates interest and motivation for learning and “makes learning more meaningful.” For instance, Interviewee - 7 mentioned the importance of sharing their experiences. She stated, “I have students share what experiences they have, whether it is work experiences or what they’ve done in their life because their experiences are valuable.” Likewise, Interviewee - 1 described how a student’s work experience enhanced class discussions among their peers. She explained, “Students will give an example of what they have experienced as a Patient Care Technician or EMT [Emergency Medical Technician], and those students offer some relation to what we are talking about in class.” Similarly, Interviewee - 3 talked about how she engages students by encouraging students to connect learning to background knowledge. She commented, “I will ask at the beginning of a lecture if a student or a member of their family has an illness we are going to discuss, to please add their input or comment on their experience.”
Group work was mentioned by four interviewees (N = 8) as a way to foster student engagement. Interviewees reported group work “breaks up the monotony of lecture” and can benefit English as a second language students. Interviewee - 4 spoke about group work as a form of engagement. She commented about the importance of students collaborating with their peers and how she incorporates group work. She explained, “Interspersed with lecture, I break them up into small groups of three or four. . . . They work together as a team, discuss their rationale and each group presents their findings to the class.” Finally, Interviewee - 5 mentioned how group work encourages student engagement and provides opportunities for students to build the skills of communication. She said,

I have some English as a second language students, so small groups makes them feel a bit more comfortable communicating with their peers. The expectation is that in the small group, they are developing their comfort, maybe even their confidence.

Half of the interviewees (n = 4) talked about how they ask questions in class to engage students and to encourage self-monitoring and reflection. Interviewee - 2 stated, “I ask them a lot of questions to keep the lecture interactive. . . . It’s more work on their part to be that active learner. They don’t realize it benefits their learning to be engaged.” Likewise, Interviewee - 1 explained the strategies she used and why she believed it important,

I ask them questions to get them thinking about the topic we are discussing . . . I will give them positive reinforcement and feedback when they answer questions in class. For example, I’ll say, it sounds like you’ve learned this from A & P [Anatomy and Physiology].

Similarly, Interviewee - 4 described how she keeps students engaged and motivated to answer questions in her class by giving out treats. She explained,
The big classroom can be distant in so many ways, so I walk around the classroom when I teach and I ask a lot of questions. This semester, when I asked a question, no hands went up until I said ‘I have candy’ then all their hands when up.

In addition to candy fostering student engagement, Interviewee - 4 talked about a strategy she used for self-reflection and feedback of student understanding called the “One Minute Paper”. She explained,

I give the students a piece of paper and they make three columns. At the beginning of class, I’ll give them one minute to write down bullet statements of what they know about the topic we are discussing in the first column. In the middle column they write what they want to know. After the lecture, I give them a minute to write down what they learned in the third column. . . . I also ask them if there is anything in the middle column that I didn’t address.

When interviewees were asked to describe their views, favorable or unfavorable, about designing instruction that supports learning for a broad range of students in their classrooms, six interviewees (N = 8) expressed favorable views toward designing instruction to meet the needs of a broad range of students. Interviewees spoke about the importance of active student participation and meeting student needs by “transforming” the way content is delivered. Interviewee - 7 stated,

My views about designing instruction are favorable and I’m always up for new suggestions. I think it is boring for students to just sit there and hear a lecture. As a college we are trying to move away from that style. . . . The faculty started with the new freshman class and made the lectures interactive without giving them all the information. It made them more prepared to come to class.
Likewise, Interviewee - 4 had favorable views. She explained, “I am in favor of supporting their learning. We have to meet their needs. Just doing a lecture isn’t helping them learn the concepts.” Similarly, Interviewee - 2 spoke favorably to the importance of changing the methods of teaching to engage students:

I’ve read Pat Benner’s book, *Educating Nurses: A Call for Transformation* and transforming the classroom is a learning process for everyone. I am in favor of active teaching, but for it to be successful, to create a new culture, it’s got to be transformational, and as faculty, we have to embrace it as a process. We have to make students the center of learning and they are going to have to participate 100% of the time.

Interviewee - 8 responded favorably and described the importance of faculty attitude toward designing instruction by stating, “You need to be enthusiastic yourself. You need to go in with a good attitude and a smile on your face and show that you are interested in the content as well.”

In addition, Interviewee - 3 expressed favorable views about future changes to the curriculum at all of the community colleges. She explained, “My views are favorable. As a community college system, we are moving to concept-based nursing and restructuring our whole curriculum, I am excited about that.”

*Interview findings for Research Question 1.* The analysis of the interview data led to four findings.

*Finding I.1.1:* All of the interviewees (\(N = 8\)) described multiple and varied ways that they presented content and information to their students.

*Finding I.1.2:* Seven interviewees (\(N = 8\)) described ways they stimulated students’ interest and motivation toward learning.
Finding I.1.3: All of the interviewees \((N = 8)\) described ways in which they had students express what they know and what they are able to do.

Finding I.1.4: Seven interviewees \((N = 8)\) described favorable views about designing instruction to support learning for their students.

Summary of the data analyses for Research Question 1. The survey data \((N = 28)\) indicated that the respondents had positive attitudes toward designing instruction to support learning for a broad range of students in their classrooms. The interview data \((N = 8)\) identified participant examples of instructional strategies used by faculty to support learning for a broad range of students and participants had favorable views toward designing instruction to support learning for a broad range of students in their classrooms.

Research Question 2: What are community college nursing faculty members’ reports of the norms that drive their intention to design instruction to support learning for a broad range of students in their classroom?

According to Ajzen (1991), norms describe the degree to which a person’s social environment has an influence on intention and behavior. Ajzen and Fishbein (1980) suggested that normative beliefs and subjective norms influence the way individuals perceive what others around them believe about performing or not performing the behavior; colloquially this could be described as peer pressure.

Survey results for Research Question 2. Survey respondents’ \((N = 28)\) mean score for the norms scale was 36.75 \((SD = 6.89, \text{range: 9-54})\). Slightly more than half of the survey respondents \((55\%, n = 15)\) reported disagreement that environmental norms \((\text{e.g., beliefs of other...})\).
faculty or students) influenced their intentions to design instruction to support learning for a broad range of students in their classrooms.

Response means for items measuring norms ranged from a high of 4.71 ($SD = 0.94$) for item 4, “Most stakeholders (e.g. other faculty, students) important to me expect me to use multiple and flexible means to represent and teach important course concepts,” to a low of 3.71 ($SD = 1.51$) for item 6, “The comments, criticisms, or attitudes of others influence my use of multiple and flexible means to represent and teach important course concepts.”

Table 17 contains the means, standard deviations, frequencies, and percentages for the nine survey questions that queried respondents’ reports of the norms toward designing instruction to support learning.
Table 17
Survey: Respondents’ (N = 28) Reports of Norms

<table>
<thead>
<tr>
<th>Item</th>
<th>Survey Response Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DS</td>
</tr>
<tr>
<td>Norms Scale</td>
<td>36.75</td>
</tr>
<tr>
<td>Principle 1</td>
<td>4.71</td>
</tr>
<tr>
<td>4. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means to represent and teach important course concepts.</td>
<td>3.93</td>
</tr>
<tr>
<td>5. Most of my peers use multiple and flexible means to represent and teach important course concepts</td>
<td>3.71</td>
</tr>
<tr>
<td>6. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means to represent and teach important course concepts.</td>
<td>4.07</td>
</tr>
<tr>
<td>Principle 2</td>
<td>4.07</td>
</tr>
<tr>
<td>14. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means for students to express their knowledge &amp; skills to improve my classroom instruction.</td>
<td>3.89</td>
</tr>
<tr>
<td>15. Most of my peers use multiple and flexible means for students to express their knowledge and skills to improve their classroom instruction.</td>
<td>3.89</td>
</tr>
<tr>
<td>16. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom.</td>
<td>3.89</td>
</tr>
</tbody>
</table>
Table 17 (continued)
Survey: Respondents’ (N = 28) Reports of Norms

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>DS</th>
<th>DM</th>
<th>SD</th>
<th>SA</th>
<th>AM</th>
<th>AS</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
</table>

**Principle 3**

24. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means to engage students in learning to improve classroom instruction.

25. Most of my peers use multiple and flexible means to engage students in learning to improve their classroom instruction.

26. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means to engage students in learning to improve my classroom instruction.


Survey findings for Research Question 2. The analysis of respondents’ (N = 28) answers to the nine survey items (4, 5, 6, 14, 15, 16, 24, 25, 26) designed to elicit respondents’ reports of the norms that drive their intention to design instruction to support learning for a broad range of students in the classroom produced nine findings.

Finding S.2.1: The survey data indicated that 93% (n = 26) of survey respondents agreed slightly (n = 8), moderately (n = 13), or strongly (n = 5) that most stakeholders important to them (e.g., other faculty members, students) expect them to use multiple and flexible means to represent and teach important course concepts.
Finding S.2.2: The survey data indicated that 64% \((n = 18)\) of survey respondents agreed slightly \((n = 9)\), moderately \((n = 7)\), or strongly \((n = 2)\) that most of their peers use multiple and flexible means to represent and teach important course concepts.

Finding S.2.3: The survey data indicated that 64% \((n = 18)\) of survey respondents agreed slightly \((n = 8)\), moderately \((n = 8)\), or strongly \((n = 2)\) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means to represent and teach important course concepts.

Finding S.2.4: The survey data indicated that 82% \((n = 23)\) of survey respondents agreed slightly \((n = 13)\), moderately \((n = 8)\), or strongly \((n = 2)\) that most stakeholders important to them (e.g., other faculty members, students) expect them to use multiple and flexible means for students to express their knowledge and skills to improve their classroom instruction.

Finding S.2.5: The survey data indicated that 68% \((n = 19)\) of survey respondents agreed slightly \((n = 11)\), moderately \((n = 6)\), or strongly \((n = 2)\) that most of their peers use multiple and flexible means for students to express their knowledge and skills to improve their classroom instruction.

Finding S.2.6: The survey data indicated that 68% \((n = 19)\) of survey respondents agreed either slightly \((n = 6)\) or moderately \((n = 13)\) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.2.7: The survey data indicated that 85% \((n = 24)\) of survey respondents agreed slightly \((n = 6)\), moderately \((n = 17)\), or strongly \((n = 1)\) that most stakeholders important
to them (e.g., other faculty members, students) expect them to use multiple and flexible means to engage students in learning to improve their classroom instruction.

**Finding S.2.8:** The survey data indicated that 75% \( (n = 21) \) of survey respondents agreed slightly \( (n = 12) \), moderately \( (n = 7) \), or strongly \( (n = 2) \) that most of their peers use multiple and flexible means to engage students in learning to improve their classroom instruction.

**Finding S.2.9:** The survey data indicated that 72% \( (n = 20) \) of survey respondents agreed slightly \( (n = 8) \), moderately \( (n = 11) \), or strongly \( (n = 1) \) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Interview results for Research Question 2.** Interviewees were asked to describe how environmental norms including the comments, criticisms, or attitudes of others (e.g., faculty or students) influenced their beliefs about designing instruction to support learning for a broad range of students in their classrooms. Table 18 depicts a summary of the themes related to norms, which emerged through the analysis.

Table 18

<table>
<thead>
<tr>
<th>Themes Related to Norms ( (N = 8) )</th>
<th>I-1</th>
<th>I-2</th>
<th>I-3</th>
<th>I-4</th>
<th>I-5</th>
<th>I-6</th>
<th>I-7</th>
<th>I-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing mutual support</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Sharing teaching strategies</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Reflecting on students’ appraisal of instruction</td>
<td>–</td>
<td>X</td>
<td>–</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>X</td>
</tr>
</tbody>
</table>

*Note.* A dash (–) indicates that no respondents met the criteria for that category.
Six of the interviewees ($N = 8$) shared examples and stories in which a prevailing norm of mutual support was evident. The theme mutual support was determined to encompass two sub-themes: sharing teaching strategies and reflecting on students’ appraisal of instruction with colleagues. With regard to sharing teaching strategies, four of the interviewees described how this was the norm in their respective departments. Interviewee - 1 talked about helping a new faculty member. She recalled,

I share what I know with others. This past year, we hired a new faculty member and I invited her to observe my classroom. I also taught her how to use i-clickers. Your positive attitude about active learning helps to influence your peers.

Interviewee - 2, who also spoke about mutual support, stated: “Within our faculty group we share what we have done in the classroom that promotes interaction.” Finally, Interviewee - 7 explained how she was encouraged by her director,

Our director is very supportive of the faculty. . . . We have a lot of sharing of ideas among faculty. I have taken suggestions from faculty, and every year I try to make improvements in my teaching. . . . I am always open to suggestions and I have made changes based upon the comments from my peers.

Concerning students’ appraisal of instruction, respondents provided examples of how colleagues helped them to understand negative evaluations from students. Interviewee - 2 shared a story of how a peer provided support as she processed a student’s negative comment. Interviewee - 2 explained,

In one of my evaluations after the group project, a student said ‘I pay you to teach me’. As a new educator, I took that to heart and I thought, do I really have an obligation to listen to what they have to say? My colleagues were supportive and said I was doing the
right thing. They told me to continue and just keep moving forward. They said, I would become more comfortable and they [the students] would become more comfortable with my learning activities and teaching style.

Interviewee - 5 also reflected on how she was influenced by students’ negative appraisal of her teaching methods. She shared her perspective, noting,

The student expectation is I deliver the content, nursing isn’t like that. It’s multidimensional so the students will have complaints about my method of delivery. . . . If the students don’t like my methods and complain or write comments in their evaluations, it truly does impact me.

Interviewees (n = 4) also described how they were influenced by positive appraisals of their instruction. Interviewee - 3 stated, “My director came in last week after talking with a student and the student said all kinds of positive things about my teaching, which was very touching.” Similarly, Interviewee 4 mentioned that student comments influenced her beliefs about designing instruction. She reported how reflections on students’ positive comments influenced instruction and explained,

I always take suggestions of the students and make changes based on their comments. . . . My students will say my class was fun and I think that is awesome because nursing is fun, and if you can make learning fun then you know the students are absorbing the content and are engaged.

Finally, four of the interviewees (N = 8) perceived that their peers did not seem to be influenced by what the interviewees perceived to be departmental norms. For example, Interviewee - 8 explained that she wished the norms had a stronger influence on her peers because some of her colleagues did not vary the ways in which they presented content. She
stated, “I wish there was more peer pressure so colleagues would do more interactive activities in the classroom. Some are still doing lecturing.” Likewise, Interviewee - 6 explained how her colleagues did not vary their instructional methods,

My colleagues have few expectations about anything except to get through the semester, and I’m not saying that in a bad way. They are good teachers, they love the students and they love teaching, but many of them are just death by PowerPoint.

**Interview findings for Research Question 2.** The analysis of the interview data led to two findings.

*Finding I.2.1:* Six interviewees (N = 8) perceived a prevailing norm of mutual support, which was evidenced through sharing teaching strategies (n = 4) and reflecting on students’ appraisal of their instruction with colleagues (n = 4).

*Finding I.2.2:* Four interviewees (N = 8) perceived that their peers did not seem to be influenced by what were perceived to be prevailing norms.

**Summary of the data analyses for Research Question 2.** The survey data (N = 28) indicated that the respondents were moderately influenced by others to design instruction to support learning for a broad range of students in the classrooms. The interview data (N = 8) indicated that the interviewees perceived a prevailing norm of mutual support from others to design instruction to support learning for a broad range of students in the classrooms.
Research Question 3: What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

Ajzen (1991) described the control element of the TPB framework as a person’s belief in how much control that person has to perform the behavior as well as the person’s capability to perform it.

Survey results for Research Question 3. Survey respondents’ \( N = 28 \) mean score for the control scale score was 40.50 \((SD = 7.62, \text{ range: 9-54})\). Slightly more than three-fourths of the survey respondents (79%, \( n = 22 \)) reported slight or moderate agreement with having the control and the capability to design instruction to support learning for a broad range of students in their classrooms.

Response means for items measuring controls ranged from a high of 4.71 \((SD = 1.01)\) for item 29, “I have the requisite knowledge to use multiple and flexible means to engage students in learning to improve my classroom instruction,” to a low of 4.32 \((SD = 1.49)\) for item 8, “The availability of various resources (e.g., time, informational materials) facilitates my use of multiple and flexible means to represent and teach important course concepts.”

Table 19 contains the item means, standard deviations, frequencies, and percentages for all items that assessed respondents’ reports of their controls toward designing instruction to support learning for a broad range of students in their classrooms.
Table 19  
Survey: Respondents' (N = 28) Reports of Controls

<table>
<thead>
<tr>
<th>Item</th>
<th>$M$</th>
<th>$SD$</th>
<th>$n$</th>
<th>$n$</th>
<th>$n$</th>
<th>$n$</th>
<th>$n$</th>
<th>$n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls Scale</td>
<td>40.50</td>
<td>7.62</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td>10</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Principle 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Available professional learning opportunities facilitate my use of multiple and flexible means to represent and teach important course concepts.</td>
<td>4.50</td>
<td>1.07</td>
<td>–</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>8. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means to represent and teach important course concepts.</td>
<td>4.32</td>
<td>1.49</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>9. I have the requisite knowledge to use multiple and flexible means to represent and teach important course concepts.</td>
<td>4.61</td>
<td>1.03</td>
<td>1</td>
<td>3.6</td>
<td>–</td>
<td>2</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Principle 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Available professional learning opportunities facilitate my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction.</td>
<td>4.39</td>
<td>1.03</td>
<td>–</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>18. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction.</td>
<td>4.32</td>
<td>1.19</td>
<td>–</td>
<td>2</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>19. I have the requisite knowledge to use multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction.</td>
<td>4.64</td>
<td>0.83</td>
<td>–</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>17</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 19 (continued)

Survey: Respondents’ (N = 28) Reports of Controls

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>n</th>
<th>n</th>
<th>n</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DS</td>
<td>DM</td>
<td>SD</td>
<td>SA</td>
<td>AM</td>
</tr>
<tr>
<td>Principle 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Available professional learning opportunities facilitate my use of multiple and flexible means to engage students in learning to improve my classroom instruction.</td>
<td>4.50</td>
<td>1.20</td>
<td>1</td>
<td>3.6</td>
<td>1</td>
<td>3.6</td>
<td>2</td>
</tr>
<tr>
<td>28. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means to engage students in learning to improve my classroom instruction.</td>
<td>4.50</td>
<td>1.23</td>
<td>–</td>
<td>3</td>
<td>10.7</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>29. I have the requisite knowledge to use multiple and flexible means to engage students in learning to improve my classroom instruction</td>
<td>4.71</td>
<td>1.01</td>
<td>–</td>
<td>2</td>
<td>7.1</td>
<td>1</td>
<td>3.6</td>
</tr>
</tbody>
</table>


Survey findings for Research Question 3. The analysis of respondents’ (N = 28) answers to the nine survey items (7, 8, 9, 17, 18, 19, 27, 28, 29) designed to elicit respondents’ reports of their controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms produced nine findings.

Finding S.3.1: The survey data indicated that 89% (n = 25) of survey respondents agreed slightly (n = 11), moderately (n = 9), or strongly (n = 5) that available professional learning opportunities facilitate their use of multiple and flexible means to represent and teach important course concepts.
Finding S.3.2: The survey data indicated that 68% \((n = 19)\) of survey respondents agreed slightly \((n = 3)\), moderately \((n = 9)\), or strongly \((n = 7)\) that the availability of various resources facilitates their use of multiple and flexible means to represent and teach important course concepts.

Finding S.3.3: The survey data indicated that 89% \((n = 25)\) of survey respondents agreed slightly \((n = 6)\), moderately \((n = 16)\), or strongly \((n = 3)\) that they have the requisite knowledge to use multiple and flexible means to represent and teach important course concepts.

Finding S.3.4: The survey data indicated that 75% \((n = 21)\) of survey respondents agreed slightly \((n = 4)\), moderately \((n = 15)\), or strongly \((n = 2)\) that available professional learning opportunities facilitate their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.3.5: The survey data indicated that 78% \((n = 22)\) of survey respondents agreed slightly \((n = 11)\), moderately \((n = 5)\), or strongly \((n = 6)\) that the availability of various resources facilitates their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.3.6: The survey data indicated that 93% \((n = 26)\) of survey respondents agreed slightly \((n = 7)\), moderately \((n = 17)\), or strongly \((n = 2)\) that they have the requisite knowledge to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.3.7: The survey data indicated that 86% \((n = 24)\) of survey respondents agreed slightly \((n = 8)\), moderately \((n = 11)\), or strongly \((n = 5)\) that available professional
learning opportunities facilitate their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding S.3.8:** The survey data indicated that 79% \((n = 22)\) of survey respondents agreed slightly \((n = 4)\), moderately \((n = 13)\), or strongly \((n = 5)\) that the availability of various resources facilitates their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding S.3.9:** The survey data indicated that 89% \((n = 25)\) of survey respondents agreed slightly \((n = 4)\), moderately \((n = 17)\), or strongly \((n = 4)\) that they have the requisite knowledge to use multiple and flexible means to engage students in learning to improve classroom instruction.

**Interview results for Research Question 3.** Interviewees were asked to describe how environmental controls influenced or impeded their ability to design instruction for a broad range of students in their classrooms. Table 20 depicts the summary of the themes related to controls, which emerged through the analysis of the qualitative data.

Table 20

<table>
<thead>
<tr>
<th>Themes Related to Controls ((N = 8))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports</td>
</tr>
<tr>
<td>Professional development</td>
</tr>
<tr>
<td>Self-efficacy</td>
</tr>
<tr>
<td>Impedes</td>
</tr>
<tr>
<td>Resources</td>
</tr>
<tr>
<td>Class size</td>
</tr>
<tr>
<td>Mandatory testing</td>
</tr>
</tbody>
</table>

*Note.* A dash (–) indicates that no respondents met the criteria for that category.
Interviewees \( (N = 8) \) identified two environmental factors that influenced their ability to design instruction, professional development and self-efficacy. Factors that interviewees \( (N = 8) \) perceived as impeding instruction were: resources, class size, and mandatory testing.

Professional development activities were described by six interviewees \( (N = 8) \) as a factor that supported their ability to design instruction to meet the needs of a broad range of students in their classrooms. Interviewees \( (n = 5) \) highlighted the importance of being a life-long learner and applying best practices in their teaching. Interviewee - 6 stated, “We tell the students they need to be life-long learners, so do we as faculty.” In a similar vein, Interviewee - 8 stated, “We have an obligation to educate ourselves.” Attending conferences and workshops were mentioned as ways to promote faculty learning. Interviewee - 4 explained, “I want to continue to go to educational programs about flipping the classroom and see what others are doing for best practice.” Two faculty members reflected that they first started teaching, their institutions offered resources to support them in their new role. Interviewee - 3 commented,

When I first started teaching, no one really oriented me or talked to me about the different ways to teach. . . . I was sent to a faculty seminar, a boot camp for the nurse educator and it gave me strategies to utilize and that was helpful in assisting me with teaching in the classroom. I gained quite a bit of insight from it.

Finally, Interviewee - 2 reported, “Professional development is so important. You have to be willing to take the time to learn best practices and not be afraid to make some mistakes along the way.”

Six of the interviewees \( (N = 8) \) expressed sentiments that could be categorized as self-efficacy with regard to designing instruction to meet the needs of students in their classroom. Interviewee - 7 stated with confidence, “I have really good ability. I’m always trying to improve
how content is presented.” Likewise, Interviewee - 4 explained, “Being an educator for six years
now, I am more confident in how I present material.”

A lack of resources (e.g., time and money) was identified by four interviewees (N = 8) as
a factor that impeded their ability to design instruction to support learning for a broad range of
students in their classrooms. Interviewee - 2 stated, “The bottom line is you can have all the
motivation in the world, but if you don’t have the resources . . . . It doesn’t matter how much
creativity you have.” Similarly, Interviewee - 8 identified the need for more time. She stated, “I
wish I had more time to research best practices and put more creative instructional strategies
together.” Two interviewees also identified fiscal resources as a factor that impeded their ability
to design instruction. Interviewee - 6 talked about funding to attend conferences. She explained,
“In days gone by there has been money for professional development, like conferences. I could
attend seminars in the past, but that money has dried up because of the budget.”

Four of the interviewees (N = 8) explained that class size impeded their ability to use
particular teaching strategies that they believed would engage students in learning. Interviewee -
3 reported, “Our biggest challenge is the class size. Our flexibility to do activities is hindered by
the size of the class.” Likewise, Interviewee - 1 stated, “Our class sizes doubled this semester, so
it is much harder to do things to get the class to participate.”

Finally, four interviewees (N = 8) indicated that the need to prepare students for the
nursing licensure exam and the practice of using exams are factors that impeded their ability to
design instruction to support learning. Interviewee - 5 spoke about her frustration with the
methods used for evaluating nursing students. She explained,

We are so test driven. We evaluate solely by multiple choice testing. The goal is to
design courses that are multidimensional, and there is so much more to learning than
what is measure on the multiple choice test. I wish we could evaluate them differently, especially our ESOL students.

In a similar way, Interviewee - 6 talked about the limitations of standardized testing such as National Council Licensure Exam for Registered Nurses (NCLEX-RN). She commented,

It’s legitimate to test them in ways other than an exam which is our traditional, didactic, unimaginative, historical way of testing knowledge because of NCLEX. However, I believe there are other ways to test knowledge.

**Interview findings for Research Question 3.** The analysis of the interview data led to two findings.

**Finding I.3.1:** All of the interviewees ($N = 8$) perceived there were factors that influenced or impeded their control to design instruction to support learning for a broad range of students in their classrooms.

**Finding I.3.2:** Six interviewees ($N = 8$) expressed sentiments that could be categorized as self-efficacy with regard to designing instruction to meet the needs of students in their classrooms.

**Summary of the data analyses for Research Question 3.** The survey data ($N = 28$) indicated that the respondents perceived they had control over designing instruction to support learning for a broad range of students in their classrooms. The interview data indicated that all of the interviewees ($N = 8$) perceived there to be factors that either influence or impede their control over designing instruction to support learning for a broad range of students in their classrooms. The interview data also indicated that six of the interviewees ($N = 8$) expressed self-efficacy with regard to designing instruction to meet the needs of students in their classrooms.
Research Question 4: What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

Actual behavioral control refers to the degree to which a person has the skills and resources necessary to perform the given behavior (Ajzen, 1991). Successful performance of the given behavior is dependent on favorable intention and a sufficient level of behavioral control (Ajzen, 1991).

Survey results for Research Question 4. Survey respondents’ (N = 28) mean score for the actual behavioral control scale was 28.68 (SD = 5.14, range: 9-36). Nearly all of the survey respondents (86%, n = 24) reported slight, moderate, or strong agreement with having the skills and resources necessary to design instruction to support learning for a broad range of students in the classroom.

Response means for items measuring actual behavioral controls ranged from a high of 5.04 (SD = 1.11) for item 11, “I have the autonomy to use multiple and flexible means to represent and teach important course concepts,” to a low of 4.57 (SD = 1.40) for item 21, “I have the autonomy to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.”

Table 21 contains the item means, standard deviations, frequencies and percentages for all items that assessed respondents’ reports of their actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms.
Table 21

Survey: Respondents’ \((N = 28)\) Reports of Actual Behavioral Controls

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Behavioral Controls Scale</td>
<td>28.68</td>
<td>5.14</td>
<td>1 3</td>
<td>3</td>
<td>9</td>
<td>13</td>
<td>2</td>
</tr>
</tbody>
</table>

**Principle 1**

10. I have the ability to use multiple and flexible means to represent and teach important course concepts.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>4.86</td>
<td>0.93</td>
<td>1 3.6</td>
<td>8 28.6</td>
<td>12 42.9</td>
<td>7 25.0</td>
<td></td>
</tr>
</tbody>
</table>

11. I have the autonomy to use multiple and flexible means to represent and teach important course concepts.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>5.04</td>
<td>1.11</td>
<td>1 3.6</td>
<td>1 3.6</td>
<td>3 10.7</td>
<td>13 46.4</td>
<td>10 35.7</td>
</tr>
</tbody>
</table>

**Principle 2**

20. I have the ability to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>4.64</td>
<td>1.13</td>
<td>1 3.6</td>
<td>1 3.6</td>
<td>5 17.9</td>
<td>16 57.1</td>
<td>4 14.3</td>
</tr>
</tbody>
</table>

21. I have the autonomy to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>4.57</td>
<td>1.40</td>
<td>2 7.1</td>
<td>3 10.7</td>
<td>6 21.4</td>
<td>9 32.1</td>
<td>8 28.6</td>
</tr>
</tbody>
</table>

**Principle 3**

30. I have the ability to use multiple and flexible means to engage students in learning to improve my classroom instruction.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.</td>
<td>4.68</td>
<td>0.98</td>
<td>2 7.1</td>
<td>7 25.0</td>
<td>15 53.6</td>
<td>4 14.3</td>
<td></td>
</tr>
</tbody>
</table>

31. I have the autonomy to use multiple and flexible means to engage students in learning to improve my classroom instruction.

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
<th>(n) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.</td>
<td>4.89</td>
<td>0.99</td>
<td>1 3.6</td>
<td>9 32.1</td>
<td>9 32.1</td>
<td>9 32.1</td>
<td></td>
</tr>
</tbody>
</table>

Survey findings for Research Question 4. The analysis of respondents’ \((N = 28)\) answers to the six survey items (10, 11, 20, 21, 30, 31) designed to elicit respondents’ reports of their actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms produced six findings.

**Findings S.4.1:** The survey data indicated that 96% \((n = 27)\) of survey respondents agreed slightly \((n = 8)\), moderately \((n = 12)\), or strongly \((n = 7)\) that they have the ability to use multiple and flexible means to represent and teach important course concepts.

**Finding S.4.2:** The survey data indicated that 93% \((n = 26)\) of survey respondents agreed slightly \((n = 3)\), moderately \((n = 13)\), or strongly \((n = 10)\) that they have the autonomy to use multiple and flexible means to represent and teach important course concepts.

**Finding S.4.3:** The survey data indicated that 89% \((n = 25)\) of survey respondents agreed slightly \((n = 5)\), moderately \((n = 16)\), or strongly \((n = 4)\) that they have the ability to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.4.4:** The survey data indicated that 82% \((n = 23)\) of survey respondents agreed slightly \((n = 6)\), moderately \((n = 9)\), or strongly \((n = 8)\) that they have the autonomy to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.4.5:** The survey data indicated that 93% \((n = 26)\) of survey respondents agreed slightly \((n = 7)\), moderately \((n = 15)\), or strongly \((n = 4)\) that they have the ability to use multiple and flexible means to engage students in learning to improve classroom instruction.
Finding S.4.6: The survey data indicated that 96% \((n = 27)\) of survey respondents agreed slightly \((n = 9)\), moderately \((n = 9)\), or strongly \((n = 9)\) that they have the autonomy to use multiple and flexible means to engage students in learning to improve classroom instruction.

Interview results for Research Question 4. Interviewees \((N = 8)\) were asked to describe the actual behavioral controls related to their degree of autonomy, flexibility, and their feelings of being prepared with regard to designing instruction to support learning for a broad range of students in their classrooms. Table 22 depicts the summary of the themes related to actual behavioral controls, which emerged through the analysis.

Table 22

<table>
<thead>
<tr>
<th>Themes Related to Actual Behavioral Controls ((N = 8))</th>
<th>I-1</th>
<th>I-2</th>
<th>I-3</th>
<th>I-4</th>
<th>I-5</th>
<th>I-6</th>
<th>I-7</th>
<th>I-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy / Academic freedom</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Prepared</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Note.* A dash (–) indicates that no respondents met the criteria for that category.

Seven interviewees \((N = 8)\) perceived they had the autonomy and academic freedom they needed to design instruction to support learning in their classrooms. Interviewee - 2 referenced academic freedom when she stated, “I have all the autonomy I want. We have academic freedom.” Likewise, Interviewee - 3 noted, “We have academic freedom. We have flexibility about how we teach in the classroom.” Interviewee - 7 also emphasized freedom with regard to how content was delivered. She stated, “I have all the autonomy I want. I can deliver the
When asked to talk about their feelings of being prepared to implement effective instructional design strategies to benefit student learning, six of the interviewees \( (N = 8) \) indicated they felt prepared. Interviewee - 1 stated confidently, “I have been teaching for a long time so I feel pretty prepared.” Likewise, Interviewee - 5 spoke about how her own nursing education and willingness to learn prepared her. She explained, “I feel prepared from my MSN [Master of Science in Nursing] program and from other educational resources that I have sought out for myself.” Finally, Interviewee - 6 stated, “I have been teaching for a long time, I feel very prepared.”

**Interview findings for Research Question 4.** The analysis of the interview data led to two findings.

*Finding I.4.1:* Seven interviewees \( (N = 8) \) perceived they had autonomy and academic freedom to design instruction to support learning for a broad range of students in their classrooms.

*Finding I.4.2:* Six interviewees \( (N = 8) \) reported they felt prepared to design instruction to support learning for a broad range of students in their classrooms.

**Summary of the data analyses for Research Question 4.** The survey data \( (N = 28) \) indicated that respondents perceived they have actual behavioral control as expressed by the degree of skills and resources needed to design instruction to support learning for a broad range of students in the classroom. The interview data indicated that seven of the interviewees \( (N = 8) \) perceived they had autonomy and academic freedom to design instruction and six of the
interviewees \((N = 8)\) perceived they were prepared to design instruction to support learning for a broad range of students in their classrooms.

**Summary of the Chapter**

This case study of community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms resulted in 40 findings. Overall, the findings revealed that the participants’ intention to design instruction to support learning was high. According to Ajzen’s (1985) TPB, intention is the precursor to behavior, therefore it can be inferred that faculty members design their instruction to support learning for a broad range of students in their classrooms. This finding was reinforced by the interview data. The findings reported in this Chapter were based on review and analysis of the data collected from an Internet-based survey and a telephone interview of each participant, completed according to the procedure described in Chapter 3. In addition, the data was analyzed as described in Chapter 3. Chapter 5 provides a discussion of the findings, conclusions obtained from the research, and recommendations for practice and future research.
CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction to the Chapter

The purpose of this chapter is to present conclusions and recommendations based on the data collection and analysis of nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms. More specifically, this study focused on community college nursing faculty members’ reports of their intention to design instruction related to the three Universal Design for Learning (CAST, 2011) principles.

This chapter is organized into three parts. First, a summary of the study is presented, followed by a list of findings organized under the corresponding research question. The conclusions, which are based on these findings are presented next. Finally, recommendations for practice and future research are presented.

Summary of the Study

ADN programs prepare a majority (57%) of new registered nurses entering the workforce (AACC, 2011b), and community colleges are the nation’s largest provider of ADN programs (Viterito & Teich, 2002). Typically, a student entering an ADN program is older, has family responsibilities, is working at least part-time, has been away from the college environment for years, and is likely to be academically underprepared for college-level work (Seago et al., 2012; Shelton, 2012). These facts, in combination, can create challenges for community college nursing faculty members as they attempt to address the varied learning needs of a diverse student body and support each student’s academic success.

Nursing education is at a turning point in dealing with the challenges of the national nursing shortage and working with an increasingly diverse student population (NLN, 2005; Poorman et al., 2008; Schaefer & Zygmont, 2003). NLN (2003) believes that best practices
should be identified and the science of nursing education developed through research on pedagogy. Specifically, the NLN (2003) supports student-centered, interactive, and innovative curricula using pedagogical strategies that have been shown, through research, to foster student learning. In addition, AACN (2008) and the NLN (2005) have challenged nurse educators to transform curriculum and teaching practices to embrace evidence-based research, teamwork, and critical judgement using innovative and effective pedagogies that engage all types of learners. Nursing faculty in ADN programs must find the best ways to reach the greatest number of students. A study adding their voices to the conversation about nurse education not only filled a gap in the existing literature but also informed practice.

This purpose of this exploratory case study was to examine the phenomenon of community college nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms. The primary research question was: What are community college nursing faculty members’ reports of their intention to design instruction to support learning for a broad range of students in their classrooms? The conceptual framework used in this study was Ajzen’s (1985) TPB. TPB was used as the conceptual framework because it offers perspective into the predictability of human behavior. The research of Ajzen (1985, 1991, 2006) posited that one’s intention to perform a behavior is a strong and immediate determinate of action. A person’s intention is a function of attitude toward the behavior, influence of a subjective normative behavior, and perceptions of behavioral control.

Recognizing that human behavior can be deliberate and planned, this theoretical framework uses three factors, behavioral beliefs, normative beliefs, and control beliefs, to explain how people develop their intentions to act out a behavior (Ajzen, 1985). With regard to college faculty and the design of instructional strategies for use in the classroom, faculty
members with positive attitudes toward the diverse learning needs of their students will be more likely to use instructional approaches in the classrooms to promote learning for a broad range of students.

A case study design was selected to answer the research question for this study. A case study is defined by Yin (2014) as “an empirical inquiry that investigates a contemporary phenomenon in depth and within a real-world context, especially when the boundaries between the phenomenon and context may not be clearly evident” (p. 16). In addition, case studies are the preferred method when the investigator is examining a contemporary issue over which the researcher does not have control (Yin, 2014). Given the purpose of this study and the phenomenon being explored, this researcher determined that a case study method using two instruments for data collection was appropriate.

Two methods of data collection were used: an Internet-based survey and a semi-structured telephone interview. Creswell (2009) explained that sometimes instruments that sufficiently address the issue under investigation are not available, which was the case in this inquiry. Therefore, under the guidance of her research advisor, the researcher developed the Internet-based survey and telephone interview guide that were used in this study. Following Creswell’s advice, the researcher (a) specified the purpose of the instruments, (b) reviewed related literature, (c) wrote the questions, and (d) tested the questions. The second method for data collection was a telephone interview, conducted with a subsample of volunteers who completed the Internet-based survey. The purpose of the interview was to collect data to complement and expand on the information gathered through the survey.
A purposeful sample for this study was drawn from the population of nursing faculty at six community colleges in a Northeastern state with nursing programs. A total of 28 participants completed the Internet-based survey and eight of the 28 participated in the telephone interview.

Analysis and interpretation of the survey and interview data were conducted as described in Chapter 3. The analysis of the survey data produced 30 findings, determined by item response frequencies. The analysis of the telephone interview data yielded 10 findings.

**Research Question 1:** What are community college nursing faculty members’ reports of the attitudes that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

**Research Question 1 Findings**

*Finding S.1.1:* The survey data indicated that 96% (n = 27) of survey respondents agreed either *moderately* (n = 7) or *strongly* (n = 20) that designing instruction using multiple and flexible means to represent and teach important course concepts supported learning for a broad range of students in their classrooms.

*Finding S.1.2:* The survey data indicated that 96% (n = 27) of survey respondents agreed either *moderately* (n = 7) or *strongly* (n = 20) that they are in favor of using multiple and flexible means to teach important course concepts to support learning for a broad range of students in their classrooms.

*Finding S.1.3:* The survey data indicated that 93% (n = 26) of survey respondents agreed *slightly* (n = 1), *moderately* (n = 13), or *strongly* (n = 12) that using multiple and flexible means for
students to express their knowledge and skills will improve their classroom instruction and yield positive outcomes.

**Finding S.1.4:** The survey data indicated that 100% \( (N = 28) \) of survey respondents agreed slightly \( (n = 2) \), moderately \( (n = 12) \), or strongly \( (n = 14) \) that they are in favor of using multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.1.5:** The survey data indicated that 96% \( (n = 27) \) of survey respondents agreed slightly \( (n = 2) \), moderately \( (n = 10) \), or strongly \( (n = 15) \) that using multiple and flexible means to engage students in learning will yield positive outcomes.

**Findings S.1.6:** The survey data indicated that 100% of respondents \( (N = 28) \) agreed slightly \( (n = 2) \), moderately \( (n = 9) \), or strongly \( (n = 17) \) that using multiple and flexible means to engage students in learning improves classroom instruction.

**Finding I.1.1:** All of the interviewees \( (N = 8) \) described multiple and varied ways that they presented content and information to their students.

**Finding I.1.2:** Seven interviewees \( (N = 8) \) described ways they stimulated students’ interest and motivation toward learning.

**Finding I.1.3:** All of the interviewees \( (N = 8) \) described ways in which they had students express what they know and what they are able to do.

**Finding I.1.4:** Seven interviewees \( (N = 8) \) described favorable views about designing instruction to support learning for their students.
Research Question 2: What are community college nursing faculty members’ reports of the norms that drive their intention to design instruction to support learning for a broad range of student in their classrooms?

Research Question 2 Findings

Finding S.2.1: The survey data indicated that 93% \((n = 26)\) of survey respondents agreed slightly \((n = 8)\), moderately \((n = 13)\), or strongly \((n = 5)\) that most stakeholders important to them (e.g., other faculty members, students) expect them to use multiple and flexible means to represent and teach important course concepts.

Finding S.2.2: The survey data indicated that 64% \((n = 18)\) of survey respondents agreed slightly \((n = 9)\), moderately \((n = 7)\), or strongly \((n = 2)\) that most of their peers use multiple and flexible means to represent and teach important course concepts.

Finding S.2.3: The survey data indicated that 64% \((n = 18)\) of survey respondents agreed slightly \((n = 8)\), moderately \((n = 8)\), or strongly \((n = 2)\) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means to represent and teach important course concepts.

Finding S.2.4: The survey data indicated that 82% \((n = 23)\) of survey respondents agreed slightly \((n = 13)\), moderately \((n = 8)\), or strongly \((n = 2)\) that most stakeholders important to them (e.g., other faculty members, students) expect them to use multiple and flexible means for students to express their knowledge and skills to improve their classroom instruction.

Finding S.2.5: The survey data indicated that 68% \((n = 19)\) of survey respondents agreed slightly \((n = 11)\), moderately \((n = 6)\), or strongly \((n = 2)\) that most of their peers use multiple and
flexible means for students to express their knowledge and skills to improve their classroom instruction.

**Finding S.2.6:** The survey data indicated that 68% \( (n = 19) \) of survey respondents agreed either slightly \( (n = 6) \) or moderately \( (n = 13) \) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.2.7:** The survey data indicated that 85% \( (n = 24) \) of survey respondents agreed slightly \( (n = 6) \), moderately \( (n = 17) \), or strongly \( (n = 1) \) that most stakeholders important to them (e.g., other faculty members, students) expect them to use multiple and flexible means to engage students in learning to improve their classroom instruction.

**Finding S.2.8:** The survey data indicated that 75% \( (n = 21) \) of survey respondents agreed slightly \( (n = 12) \), moderately \( (n = 7) \), or strongly \( (n = 2) \) that most of their peers use multiple and flexible means to engage students in learning to improve their classroom instruction.

**Finding S.2.9:** The survey data indicated that 72% \( (n = 20) \) of survey respondents agreed slightly \( (n = 8) \), moderately \( (n = 11) \), or strongly \( (n = 1) \) that the comments, criticisms, or attitudes of others influence their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding I.2.1:** Six interviewees \( (N = 8) \) perceived a prevailing norm of mutual support, which was evidenced through sharing teaching strategies \( (n = 4) \) and reflecting on students’ appraisal of their instruction with colleagues \( (n = 4) \).

**Finding I.2.2:** Four interviewees \( (N = 8) \) perceived that their peers did not seem to be influenced by what were perceived to be prevailing norms.
Research Question 3: What are community college nursing faculty members’ reports of the controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

Research Question 3 Findings

Finding S.3.1: The survey data indicated that 89% \((n = 25)\) of survey respondents agreed slightly \((n = 11)\), moderately \((n = 9)\), or strongly \((n = 5)\) that available professional learning opportunities facilitate their use of multiple and flexible means to represent and teach important course concepts.

Finding S.3.2: The survey data indicated that 68% \((n = 19)\) of survey respondents agreed slightly \((n = 3)\), moderately \((n = 9)\), or strongly \((n = 7)\) that the availability of various resources facilitates their use of multiple and flexible means to represent and teach important course concepts.

Finding S.3.3: The survey data indicated that 89% \((n = 25)\) of survey respondents agreed slightly \((n = 6)\), moderately \((n = 16)\), or strongly \((n = 3)\) that they have the requisite knowledge to use multiple and flexible means to represent and teach important course concepts.

Finding S.3.4: The survey data indicated that 75% \((n = 21)\) of survey respondents agreed slightly \((n = 4)\), moderately \((n = 15)\), or strongly \((n = 2)\) that available professional learning opportunities facilitate their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.3.5: The survey data indicated that 78% \((n = 22)\) of survey respondents agreed slightly \((n = 11)\), moderately \((n = 5)\), or strongly \((n = 6)\) that the availability of various resources
facilitates their use of multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.3.6**: The survey data indicated that 93% (n = 26) of survey respondents agreed slightly (n = 7), moderately (n = 17), or strongly (n = 2) that they have the requisite knowledge to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

**Finding S.3.7**: The survey data indicated that 86% (n = 24) of survey respondents agreed slightly (n = 8), moderately (n = 11), or strongly (n = 5) that available professional learning opportunities facilitate their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding S.3.8**: The survey data indicated that 79% (n = 22) of survey respondents agreed slightly (n = 4), moderately (n = 13), or strongly (n = 5) that the availability of various resources facilitates their use of multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding S.3.9**: The survey data indicated that 89% (n = 25) of survey respondents agreed slightly (n = 4), moderately (n = 17), or strongly (n = 4) that they have the requisite knowledge to use multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding I.3.1**: All of the interviewees (N = 8) perceived there were factors that influenced or impeded their control to design instruction to support learning for a broad range of students in their classrooms.

**Finding I.3.2**: Six interviewees (N = 8) expressed sentiments that could be categorized as self-efficacy with regard to designing instruction to meet the needs of students in their classrooms.
Research Question 4: What are community college nursing faculty members’ reports of the actual behavioral controls that drive their intention to design instruction to support learning for a broad range of students in their classrooms?

Research Question 4 Findings

Findings S.4.1: The survey data indicated that 96% (n = 27) of survey respondents agreed slightly (n = 8), moderately (n = 12), or strongly (n = 7) that they have the ability to use multiple and flexible means to represent and teach important course concepts.

Finding S.4.2: The survey data indicated that 93% (n = 26) of survey respondents agreed slightly (n = 3), moderately (n = 13), or strongly (n = 10) that they have the autonomy to use multiple and flexible means to represent and teach important course concepts.

Finding S.4.3: The survey data indicated that 89% (n = 25) of survey respondents agreed slightly (n = 5), moderately (n = 16), or strongly (n = 4) that they have the ability to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.4.4: The survey data indicated that 82% (n = 23) of survey respondents agreed slightly (n = 6), moderately (n = 9), or strongly (n = 8) that they have the autonomy to use multiple and flexible means for students to express their knowledge and skills to improve classroom instruction.

Finding S.4.5: The survey data indicated that 93% (n = 26) of survey respondents agreed slightly (n = 7), moderately (n = 15), or strongly (n = 4) that they have the ability to use multiple and flexible means to engage students in learning to improve classroom instruction.
**Finding S.4.6:** The survey data indicated that 96% \((n = 27)\) of survey respondents agreed *slightly* \((n = 9)\), *moderately* \((n = 9)\), or *strongly* \((n = 9)\) that they have the autonomy to use multiple and flexible means to engage students in learning to improve classroom instruction.

**Finding I.4.1:** Seven interviewees \((N = 8)\) perceived they had autonomy and academic freedom to design instruction to support learning for a broad range of students in their classrooms.

**Finding I.4.2:** Six interviewees \((N = 8)\) reported they felt prepared to design instruction to support learning for a broad range of students in their classrooms.

**Conclusions and Recommendations**

**Conclusion 1:** A majority of the study participants reported agreement with having positive attitudes toward designing instruction to support learning for a broad range of students in their classrooms.

The conclusion was based on the following findings: S.1.1, S.1.2, S.1.3, S.1.4, S.1.5, S.1.6, I.1.1, I.1.2, I.1.3, and I.1.4.

Ajzen (2001) explained that a person’s attitude reflects an assessment of a mental thought process and reflects the individual’s views, either positive or negative, about performing a behavior. Further, Ajzen (1991) stated that the person’s views influence their intention to perform a certain behavior. In TPB, two elements form an individual’s attitude: behavioral beliefs and attitude toward the behavior. Behavioral beliefs, as defined by Ajzen (1991), are the “subjective probability that the behavior will produce a given outcome” (p. 189). Behavioral beliefs exist in relation to both the behavior of concern and the outcome of the behavior. Ajzen (1991) noted that these beliefs may or may not be true, but are believed to be true by the person unless proven otherwise. Although an individual may have many behavioral beliefs about
different behaviors, only a trivial number are retrievable at a given moment. It is presumed that these retrievable beliefs control the attitude toward the behavior (Ajzen, 1991).

The second component, attitude toward the behavior, is the degree to which an individual assesses, either positively or negatively, the performance of the behavior (Ajzen, 1991). If a person associates a behavior with a negative outcome, then the person is likely to form a negative attitude toward the behavior. In contrast, if a behavior is associated with a positive outcome, then the person is likely to form a positive attitude toward the behavior (Ajzen, 1991).

UDL Principle 1 focuses on using varied and flexible means to represent and teach important course concepts (knowledge building). On the survey, nearly all of the study participants indicated they believed in the importance and were in favor of designing instruction using multiple and flexible means so all students have both access to information and also learning. These results suggested that study participants had a positive attitude toward applying essential concepts related to UDL Principle 1 as they built student knowledge. Likewise, all of the interviewees’ descriptions of how they presented content and information to their students suggested they had a positive attitude. They described presenting key concepts through lectures, supplementing those presentations with audio and visual materials, using concept maps or graphic organizers, and uploading course documents to learning platforms to enhance student’s learning.

The findings from the present investigation are similar to those obtained in other studies that highlighted how college faculty incorporated universal design in their curriculum (Black, Weinberg, & Browdwin, 2014; Izzo et al., 2008; Rao & Tanner, 2009; Rieg & Wilson 2009). Similar to the participants in the present investigation, faculty members in a study conducted by Black et al. (2014) supplemented lecture with audio and visual materials when presenting content
and information to their students. Likewise, Rieg and Wilson (2009) learned that faculty supplemented lecture with videos, online clips, and graphic organizers. Izzo et al. (2008) and Rao and Tanner (2011) found that faculty members used lecture notes and video clips posted to learning management platforms so students had access to the course materials.

UDL Principle 2 emphasizes the use of varied and flexible means to have students demonstrate what they know and are able to do (skill building). All of the survey participants agreed that they were in favor of using multiple and flexible means to have students express what they know. Additionally, nearly all study participants indicated they believed it was important to do so. These results suggested that the study participants had a positive attitude toward applying essential concepts related to UDL Principle 2 as they built students’ skills. Similarly, interviewees expressed positive attitudes toward using a variety of ways to assess student learning. The faculty members described using case studies, interactive games, and simulations.

These findings are similar to those from earlier investigations on the use of UDL principles that foster student’s demonstrations of their knowledge and skills. Black et al. (2014) found that faculty members used case studies; class discussion; and interactive, hands-on activities to identify what students knew and what they were able to do. Rieg and Wilson (2009) found that faculty members used a variety of in-class activities, including interactive games, that they deemed were effective with regard to student expression of knowledge and skills. Faculty members in studies conducted by Burgstaher and Doe (2004) and Jones et al. (2013) used simulations to assess students’ knowledge and skills. Incorporating interactive instructional strategies that provide practice and feedback broadens students’ skills (Black et al., 2014; Rieg & Wilson, 2009).
UDL Principle 3 focuses on using varied and flexible means to engage students in learning (attitude building). On the survey, nearly all of the study participants indicated they believed that using multiple and flexible means to engage students in learning would yield positive outcomes. Additionally, all survey participants were in favor of using multiple and flexible means to engage students in learning. These results suggested that study participants had a positive attitude toward applying essential concepts related to UDL Principle 3 as they engaged students in their classrooms. Likewise, interviewees’ descriptions of the ways in which they engaged students’ interest and motivation for learning suggested they had positive attitudes toward applying Principle 3. Interviewees spoke about the importance of active student participation and meeting student needs by “transforming” the way content is delivered. Examples shared included having students reflect on their respective clinical experiences, using questioning techniques, promoting group activities, and linking content to students’ personal interests.

The study findings related to UDL Principle 3 are consistent with those of other researchers (Black et al., 2014; Rieg & Wilson, 2009). Black et al. (2014) found that positive outcomes resulted in faculty members fostering and encouraging student engagement in their classrooms. In addition, researchers (Black et al., 2014; Rieg & Wilson, 2009) observed that class discussions, student reflection, in-class application, and problem solving activities enhanced student participation.

**Recommendation for Practice 1.** Community college nursing administrators should identify ways to support nursing faculty members’ positive attitudes toward the application of pedagogical practices such as UDL.
The findings from the current investigation suggested community college nursing faculty had positive attitudes toward the application of pedagogical practices such as UDL, which can support learning for a broad range of students. In general, it has been found that faculty attitudes can pose a barrier to the application of universal design principles (Black et al., 2014; Izzo, et al., 2008). Overcoming attitudinal barriers through increased awareness about the use of universal design concepts can enhance learning for all students (Black et al., 2014). Nursing administrators would do well to support and maintain the positive attitudes of their faculty.

Kouzes and Posner (2003) suggested that leaders could leverage positive attitudes by providing recognition, encouraging exemplary performance, and modeling the way. If community college nursing administrators provide recognition and reinforce positive attitudes about the use of instructional design strategies that support learning, nursing faculty members will be more likely to use pedagogical strategies such as UDL in their classrooms.

One way nursing administrators can promote faculty members’ positive attitudes toward using multiple and flexible instructional design strategies, is to publically recognize them in a faculty meeting, through an e-mail announcement, or in a department publication or institutional newsletter. Nursing administrators can also recognize faculty members’ positive attitudes toward instruction by documenting the use of pedagogical practices on faculty performance evaluations.

Another way nursing administrators can promote positive attitudes is to inspire the use of pedagogical practices by promoting a vision. Nurse leaders can have informal discussions with faculty or dedicate time during department meetings for discussion and brainstorming on the types of instructional strategies faculty members are using in their classrooms. Community college nurse leaders can encourage the use of specific types of instructional strategies by
modeling their presentations to faculty using multiple and flexible means to present content, allow flexibility for faculty to demonstrate competence in faculty evaluations, and provide faculty with feedback.

**Conclusion 2:** A majority of the study participants perceived that the social environment influenced their intention to design instruction to support learning for a broad range of students in their classroom.

The conclusion was based on the following findings: S.2.1, S.2.2, S.2.3, S.2.4, S.2.5, S.2.6, S.2.7, S.2.8, S.2.9, I.2.1, and I.2.2.

In Ajzen’s (1991) model, the normative component of intention suggests that individuals react to their perceptions of the beliefs of others close to them about the behavior (e.g., peer pressure). A norm is described as the degree to which a person’s social environment has an influence on intention and behavior (Ajzen, 1991). Two components make up norms: normative beliefs and subjective norms. Ajzen (1991) described normative beliefs as an individual’s perception of the behavioral expectations of those around them (e.g., spouse, family, friends, and co-workers). Ajzen (1991) theorized that a person’s normative belief and the individual’s motivation determines the second normative element, subjective norm.

Subjective norms are social elements that refer to a person’s perception of social pressure to perform or not perform the behavior (Ajzen, 1991). The strength of a subjective norm is calculated by weighting a person’s strength of the belief by motivation (Ajzen, 2006), meaning a person is more likely to perform behaviors that the person feels others would support than those others would not support.
The survey data indicated that study participants were moderately influenced by others to design instruction to support learning for a broad range of students in their classrooms. On the survey, more than three fourths of study participants indicated they believed most stakeholders (e.g., other faculty members, students) expected them to use multiple and flexible means to teach important course concepts (UDL Principle 1), to have students express what they know (UDL Principle 2), and to engage students in learning (UDL Principle 3). Three fourths of survey participants indicated that most of their peers used multiple and flexible means to engage students in learning (UDL Principle 3). The comments and attitudes of others influenced their use of related strategies.

Six interviewees shared stories that highlighted a prevailing norm of mutual support from other faculty members and department chairs to design instruction to support learning, a finding that complemented the results of the survey. Sharing teaching strategies and reflecting on students’ appraisal of instruction with colleagues were two sub-themes that emerged in the interviews. In addition, interviewees talked about how positive students’ comments influenced their instruction.

The fact that the nursing faculty in the present investigation were influenced by peers, department chairs, and students aligns with the findings of an earlier study that found social norms were a predictor of nursing faculty members’ intention to use high fidelity simulation manikins (Jones et al., 2013). Similarly, Paver et al. (2014) found that social norms were a significant predictor of college adjunct faculty members’ intentions to integrate technology into their teaching. In the present study, the expectations and comments of others influenced faculty members’ intentions to design instruction to promote learning for a broad range of students in the classroom.
Recommendation for Practice 2. Community college nursing administration and faculty should work together to create a culture in which the application of pedagogical approaches such as UDL are the norm.

In the present study, participants reported that the expectations, comments, criticisms and attitudes of administrators and peers influenced their intentions to design instruction to support learning for a broad range of students in their classrooms. Nevertheless, some participants stated there should be positive peer pressure from faculty to adopt UDL strategies in the classrooms. In the present study, participants identified the importance of sharing teaching strategies among peers, supporting the findings of Davis, Clevenger, Posnock, Robertson and Ander (2015), who posited that faculty collaboration in a team environment fosters a positive organizational climate that encourage employees to share knowledge and mutually assist one another’s professional development. Kouzes and Posner (2003) stated leaders must establish norms of reciprocity among colleagues and teams to promote cooperative relationships.

One way administrators can encourage the use of UDL strategies and improve the social norm is by promoting the creation of a peer mentoring program. This model has been successful in creating opportunities for faculty members to share their teaching experiences, and fostering collaboration and knowledge sharing among faculty members (Smith & Zsohar, 2007). Mentoring programs have been found to be an effective strategy in promoting nursing faculty transition from practice to academia (Reid, Hinderer, Jaroskinski, Mister & Seldomridge, 2013; Smith & Zsohar, 2007). In addition, positive outcomes of mentoring programs include improved collegial relationships, increased job satisfaction in the nurse educator role, and improved quality of nursing education programs (Smith & Zoshar, 2007).
Conclusion 3: A majority of the study participants perceived they had the control and were confident in their ability to design instruction to support learning for a broad range of students in their classroom.

The conclusion was based on the following findings: S.3.1, S.3.2, S.3.3, S.3.4, S.3.5, S.3.6, S.3.7, S.3.8, S.3.9, I.3.1, and I.3.2.

Ajzen (1991) described control as the extent to which an individual believes he or she has control over performing the behavior and the individual’s ability to actually perform the behavior. The control component of intention gives insight to a person’s beliefs regarding the available learning opportunities and resources (e.g., time, information) that influenced or impeded their ability to perform a specific behavior. There are two key elements that make up a person’s controls. The first is control beliefs, which Ajzen (1991) defined as “the presence of absence of requisite resources and opportunities” (p. 196). Control beliefs are factors that may facilitate or impede an individual’s performance of a certain behavior. These factors may come from personal experience or from the experience and influence of others (Ajzen, 1991).

The second element is perceived behavioral control, defined as a person’s perception of the ability to perform the intended behavior (Ajzen, 1991). Perceived behavioral controls emerge from a person’s control beliefs about the presence or absence of resources and opportunities. The importance of the knowledge an individual has about perceived behavioral control originated from Bandura’s concept of self-efficacy (as cited in Ajzen, 1991). Ajzen (1991) explained, “People’s behavior is strongly influenced by their confidence in their ability to perform it” (p. 184). Perceived behavioral control, along with behavioral intention, could be
used to foresee behavioral achievement. Even though a person’s perceptions may not be correct, their perceptions will continue to drive their intention (Ajzen, 1991).

The survey data indicated that study participants perceived they had control over designing instruction to support learning for a broad range of students in their classrooms. With regard to UDL Principle 1, more than three fourths of the study participants indicated they believed they had the requisite knowledge to use multiple and flexible means to represent and teach important course concepts. Three fourths of the participants also believed they had the necessary resources (e.g., time, information, materials) to do so. Concerning UDL Principle 2, nearly all survey participants indicated they believed they had the requisite knowledge to use multiple and flexible means for students to express what they know and what they are able to do in the classroom. Slightly more than three fourths believed they had the available resources to do so. Finally, slightly more than three fourths of respondents indicated that they believed they had the requisite knowledge to use multiple and flexible means to engage students in learning (UDL Principle 3) and believed they had the resources to do so.

Interviewees perceived they had the capability and resources that promoted their ability to design instruction using the three UDL principles to support learning for a broad range of students in their classrooms, corroborating the findings from the survey. Factors described by faculty members as promoting their ability were professional development opportunities and self-efficacy. In addition, faculty members described three factors that were perceived to impede the design of instruction—resources (e.g., time), class size, and mandatory testing.

As noted previously, perceived behavioral control originated from Bandura’s (1997) concept of perceived self-efficacy, or confidence. Bandura defined self-efficacy as “the belief in one’s capabilities to organize and execute the courses of action required to produce given
attainments” (p. 3). According to Bandura, a person’s self-efficacy is a more powerful predictor of behavior than the person’s knowledge and skills. Bandura posited that the development of self-efficacy requires three components: (a) information sources, (b) self-efficacy expectations, and (c) outcome expectations. He explained that individuals integrate what they believe about their skill and knowledge about a particular task with new sources of information to arrive at a conclusion as to whether or not they possess the knowledge and skills to accomplish the planned goal. According to Bandura, this cognitive processing determines a person’s efficacy beliefs.

Research (Izzo et al., 2008) with regard to universally designed instruction and faculty development showed a statistically significant difference in faculty participants’ confidence in meeting students’ instructional needs after attending a professional development workshop. Other researchers found that perceived behavioral control is demonstrated when faculty are confident they have the pedagogical skills to adapt course designs to technology available (Renzi & Klobas, 2008). Kalivoda (2003) reported that faculty members identified professional development opportunities and peer support as factors that promoted their use of instructional strategies. In addition, faculty members who have a strong sense of self-efficacy display greater levels of planning, organization, and enthusiasm (Jones et al., 2013), and their perceived behavioral control and self-efficacy can be fostered through professional development (Jones et al., 2013; Ye He, 2014). In the present study, the availability of professional development and other resources contributed to the study participants’ confidence in their ability to design instruction to support learning in their classrooms.
Recommendation for Practice 3. Community college nursing administration should provide nursing faculty members with multiple and varied opportunities to build their confidence in the application of pedagogical practices such as UDL.

Bandura (1997) explained that self-efficacy develops through four main sources: mastery experiences, vicarious experiences, physiological states and social persuasion. The most effective way to build self-efficacy is through mastery experiences. Experiencing successes builds a robust belief in personal efficacy. Another way to build self-efficacy is through vicarious experiences. According to Bandura, when an individual sees people similar to himself or herself succeed, that individual’s belief that he or she has the capability to succeed is increased.

Community college administrators can support faculty members’ self-efficacy in their ability to design instruction to support learning in their classrooms by encouraging them to try new instructional design strategies and subsequently engage them in activities designed to promote reflection at faculty meetings. Dedicating time for faculty members to discuss best instructional practices, create activities, and exchange ideas is time well spent. Additionally, nurse administrators can encourage social persuasion by pairing faculty in peer to peer observational experiences and reflection so faculty members can learn from one another.

One way nursing administrators could build faculty confidence with regard to pedagogical applications is to collaborate with the other nursing programs in the state to develop a professional learning community or community of practice (Lee & Shaari, 2012; Risling & Ferguson, 2013). The goal of a professional learning community is “to promote engagement in professional learning through reflection and collaboration with the aim of enhancing teacher professional identity (Lee & Shaari, 2012). Activities in a professional learning community can
be designed to support faculty members’ observations of their colleagues’ practices to encourage learning from one another, and to promote self-efficacy. This professional sharing can benefit new faculty members who can feel overwhelmed when switching from practice to academia (Risling & Ferguson, 2014). In addition, participation in a professional learning community is a job-embedded form of faculty professional development that has the potential to improve learning outcomes for students (Lee & Shaari, 2012). Creating a collaborative and supportive environment in nursing education has positive benefits for faculty members including opportunities for professional growth, improved performance, and faculty member socialization (Risling & Ferguson, 2014).

**Conclusion 4:** Overall, study participants perceived they had actual behavioral control to design instruction to support learning for a broad range of students in their classrooms.

The conclusion was based on the following findings: S.4.1, S.4.2, S.4.3, S.4.4, S.4.5, S.4.6, I.4.1, and I.4.2.

Actual behavioral control refers to the true (not perceived) degree to which a person has the skills and resources necessary to perform a given behavior (Ajzen, 1991). Successful performance of a given behavior is dependent on favorable intention and a sufficient level of behavioral control. A person is more likely to follow through with their intentions and perform a given behavior if that person has adequate control over their skills and has the autonomy and flexibility needed to perform the behavior (Ajzen, 2006). The actual behavioral control component of intention gives insight to a person’s beliefs regarding his or her actual ability to design instruction to support learning for a broad range of students in the classroom.
The survey results suggested that participants believed they had the skills and resources to apply the three UDL principles when designing instruction to support learning for a broad range of students in their classrooms. With regard to UDL Principle 1, nearly all of the respondents reported they believed they had the ability and the autonomy to use multiple and flexible means to represent and teach important course concepts and design instruction to support learning for a broad range of students in the classroom. Regarding UDL Principle 2, a majority of the survey participants agreed they had the ability and the autonomy to use multiple and flexible means for students to express their knowledge and skills. Finally, nearly all of the participants believed they had the ability and autonomy to use multiple and flexible means to engage students in learning to improve classroom instruction (UDL Principle 3).

In the present study, participants reported they had the competence to design instruction to support learning as evidenced by their self-reported belief that they had the skills and resources necessary to perform the behavior. Although participants in this study reported that they had the competence to design instruction to support learning for a broad range of students in their classrooms, understanding whether the participants’ actually had the competence to use the strategies is “much more difficult to measure than perceived behavioral control (PBC)” and Ajzen (2014) reported that, “most studies rely on PBC as a proxy for actual behavioral control (ABC)” Previous research has not addressed the influence of actual behavioral control as it related specifically to nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classroom.
Recommendation for Practice 4. Community college nursing administrators should provide nursing faculty with high quality professional development and related resources that are focused on building competence in the application of pedagogical practices such as UDL.

A diverse student population, decreased resources and high expectations for quality nursing programs have increased the need for high quality professional development of nursing faculty. Professional development for faculty should be viewed as a necessity (McKee & Tew, 2013), and professional learning needs to be collaborative and job-embedded (Lee & Shaari, 2012). There are many ways in which community college nurse leaders can ensure their faculty members have access to high quality professional development to increase their competence with pedagogical applications.

Workshops and conferences are one way to provide faculty with professional development opportunities, yet the costs for such programs can be prohibitive. Despite budget restrictions, administrators should find creative ways for faculty to participate in professional development activities. Community college nursing administrators can encourage faculty members to attend conferences in teams to promote collaboration and require that all conference attendees present their new knowledge to colleagues at faculty meetings.

The use of technology-based resources can decrease costs considerably and provide another way to deliver flexible learning opportunities for faculty. Webinars, online forums, and social networks can allow faculty members to take advantage of virtual learning whenever they choose. This type of learning can be attended by teams of faculty who can benefit from the sharing of information and ideas. Organizations such as Educause offer webinars and professional development conferences for higher education faculty. In addition, the National
Center on UDL website offers resources including online courses and workshops specifically for higher education faculty.

Another strategy nursing administrators can implement to provide professional development activities for their faculty is to invite an expert speaker to hold a state-wide professional development workshop. Pooling resources from more than one community college to hold a workshop could be more cost-effective and also build opportunities for cross-institutional collaboration.

**Recommendations for Future Research**

**Recommendation for Future Research 1.** Another researcher should repeat this study in other states with a larger sample size of community college nursing faculty.

This investigation was conducted in a single Northeastern state with nursing faculty from six community colleges with respondents who volunteered to participate, both study limitations. Therefore, the results might not be generalizable to community college nursing faculty in other states. It would be important to gain additional knowledge about nursing faculty from other states and their intention to design instruction to support learning for a broad range of students in their classrooms. Research conducted using similar methodology with samples drawn from outside the case state would provide a richer understanding of nursing faculty members’ intentions to design instruction to support learning for a broad range of students in the classroom.

**Recommendation for Future Research 2.** Additional research should be conducted using the survey from this study to establish validity and reliability of the instrument.

The survey used in this was researcher designed. The present investigation was the first time it was used to investigate community college nursing faculty members’ intention to design
instruction to support learning for a broad range of students in their classrooms. Additional research is needed to establish validity and reliability.

**Recommendation for Future Research 3.** Other researchers should repeat this investigation with faculty in Bachelor of Science in Nursing (BSN) degree programs and Master of Science in Nursing (MSN) degree programs.

This study focused solely on community college nursing faculty members. It would be beneficial to examine BSN and MSN nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms. This type of study would have the potential to illuminate the differences in the instructional strategies used by faculty in different degree programs.

**Summary of the Chapter**

The purpose of this case study was to explore community college nursing faculty members’ intention to design instruction to support learning for a broad range of students in their classrooms. This chapter presented a summary of the conclusions and recommendations based on the study’s findings. Recommendations for practice were made for community college nurse leaders. Suggestions for future research were also presented to encourage other researchers to examine nursing faculty members’ intention to design instruction to support learning for a broad range of students.
References


doi:10.1002/cc.254


Publications.


Shelton, E. N. (2000). Faculty support and student retention. *Journal of Nursing Education, 42*(2), 68-76.


Appendix A

Internet-based Survey
Nursing Faculty Attitudes and Beliefs about Designing Instruction Survey

Welcome! Thank you in advance for taking the time to complete this survey about your attitudes and beliefs toward designing instruction to support learning for a broad range of students in your classroom. This survey should take you about 20 minutes to complete.

The survey has four sections. Each of the first three sections has 10 statements about your attitudes and beliefs toward: (a) using multiple and flexible means to represent and teach important course concepts, (b) differentiating the ways in which students can express what they know and are able to do, and (c) stimulating engagement and motivation for learning. The last section contains four demographic questions about you.

After completing the survey, you can volunteer to participate in a follow-up phone interview that should take about 45 minutes and you will receive a $10 gift card for your time.

Thank you in advance for taking the time to participate in this research. Please contact me for further information. You may also contact my research advisor.

Researcher: Ann-Marie Evans
E-mail: saranich@hartford.edu
Cell: 203-209-3502

Advisor: Dr. Diana LaRocco
E-mail: dlarocco@hartford.edu
Informed Consent Form: Internet-based Survey

The purpose of this study is to explore community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms.

- Participation in the study is voluntary.
- Your completion and submission of the survey constitutes consent to participate in the study and to use the information you provide in the study write-up and any presentations or publications.
- It will take you about 20 minutes to complete the survey.
- You can stop answering questions and withdraw from this study at any time without adverse consequences or affecting your relationship with the University of Hartford.
- There are no direct benefits for participation. You might benefit indirectly from knowing you are helping to add to the knowledge base regarding community college nursing faculty reports of their intention to design instruction to support learning for a broad range of students in your classroom.
- Risks of participation in this study are not greater, considering probability and magnitude, than those ordinarily encountered in daily life. There are no apparent physical risks.
- This URL was generated for your individual survey responses. It is encrypted with SSL for added security while taking the survey. I am the only one who will have access to your responses.
- Your responses are confidential. All data will be reported in aggregate. Your individual responses will not be reported.
- All survey responses and other digital files and data will be saved in a secure computer, and all paper files will be stored in a locked file cabinet in the researcher’s office. Data will be destroyed five years from completion of the study.
- If you have any question about your rights as a research subject, please contact the University of Hartford Human Subjects Committee (HSC) at 860-768-4721. The HSC is a group of people that reviews research studies and protects the rights of people involved in research.

If you have any questions about this study, you may contact my research advisor or me.

Researcher
Ann Marie Evans, MSN, RN-BC
Doctoral Candidate
Cell: 203-209-3502
E-Mail: saranich@hartford.edu

Faculty Advisor
Diana J. LaRocco, Ed.D
E-mail: dlarocco@hartford.edu
1. I have read the informed consent form and agree to participate in this study.
   Yes
   No [Skip Logic – Thank you page]

Section I: Multiple, Flexible Means to Represent and Teach Important Course Concepts
Instructions: For each statement choose the number on the scale that best reflects your agreement or disagreement with the statement. Choose one number only. Read each statement carefully and respond honestly.

The items in this section focus on your attitudes and beliefs toward using multiple and flexible means to represent and teach important course concepts, ideas, and information. Examples include: providing transcripts of lectures or a video, outlining or highlighting key elements in text, “chunking” information into smaller elements, or offering alternatives for visual or auditory information.

2. I believe designing instruction in which I use multiple and flexible means to represent and teach important course concepts supports the goal of student learning. (Code: Behavioral beliefs)

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3. I am in favor of using multiple and flexible means to represent and teach important course concepts to support the goal of student learning. (Code: Attitude toward the behavior)

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Section I: Multiple, Flexible Means to Represent and Teach Important Course Concepts (Continued)

4. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means to represent and teach important course concepts. (Code: Normative beliefs)

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5. Most of my peers use multiple and flexible means to represent and teach important course concepts. (Code: Subjective norms)

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6. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means to represent and teach important course concepts. (Code: Subjective norms)

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7. Available professional learning opportunities facilitate my use of multiple and flexible means to represent and teach important course concepts. (Code: Control beliefs)

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8. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means to represent and teach important course concepts. (Code: Control Beliefs)
Section I: Multiple, Flexible Means to Represent and Teach Important Course Concepts

(Continued)

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9. I have the requisite knowledge to use multiple and flexible means to represent and teach important course concepts. (Code: Perceived behavioral control)

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10. I have the ability to use multiple and flexible means to represent and teach important course concepts. (Code: Actual behavioral control)

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11. I have the autonomy to use multiple and flexible means to represent and teach important course concepts. (Code: Actual behavioral control)

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Section II: Use Multiple Flexible Means for Students to Express their Knowledge and Skills

Instructions: For each statement choose the number on the scale that best reflects your agreement or disagreement with the statement. Choose one number only. Read each statement carefully and respond honestly.

The items in this section focus on your attitudes and beliefs toward differentiating the ways in which students can express what they know and are able to do. Examples include: completing
Section II: Use Multiple Flexible Means for Students to Express their Knowledge and Skills

quizzes or tests using a digital device, orally, or in writing; scaffolding with practice and feedback; providing guides for note taking; supporting goal setting and self-assessment.

12. I believe using multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction will yield positive outcomes. (Code: Behavioral beliefs)

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13. I am in favor of using multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Attitude toward the behavior)

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14. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Normative beliefs)

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15. Most of my peers use multiple and flexible means for students to express their knowledge and skills to improve their classroom instruction. (Code: Subjective Norms)

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Section II: Use Multiple Flexible Means for Students to Express their Knowledge and Skills (continued)

16. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Subjective norms)

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17. Available professional learning opportunities facilitate my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Control beliefs)

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18. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Control beliefs)

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19. I have the requisite knowledge to use multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Perceived behavioral control)

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Section II: Use Multiple Flexible Means for Students to Express their Knowledge and Skills (continued)

20. I have the ability to use multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Actual behavioral control)

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21. I have the autonomy to use multiple and flexible means for students to express their knowledge and skills to improve my classroom instruction. (Code: Actual behavioral control)

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Section III: Multiple Flexible Means to Engage Students in Learning

Instructions: For each statement choose the number on the scale that best reflects your agreement or disagreement with the statement. Choose one number only. Read each statement carefully and respond honestly.

The items in this section focus on your attitudes and beliefs toward providing flexible methods for student engagement and interaction with instructional materials or assignments. Examples include: using instructional approaches that allow for active participation, creating a supportive classroom environment, providing feedback that is timely and specific, and using real-life situations or simulations to demonstrate coping skills.

22. I believe using multiple and flexible means to engage students in learning will yield positive outcomes. (Code: Behavioral beliefs)

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</tbody>
</table>
Section III: Multiple Flexible Means to Engage Students in Learning (continued)

23. I am in favor of using multiple and flexible means to engage students in learning to improve my classroom instruction. (*Code: Attitude toward the behavior*)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</table>

24. Most stakeholders (e.g., other faculty, students) important to me expect me to use multiple and flexible means to engage students in learning to improve my classroom instruction. (*Code: Normative beliefs*)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</table>

25. Most of my peers use multiple and flexible means to engage students in learning to improve their classroom instruction. (*Code: Subjective norms*)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
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</table>

26. The comments, criticisms, or attitudes of others influence my use of multiple and flexible means to engage students in learning to improve my classroom instruction. (*Code: Subjective norms*)

<table>
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<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
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</table>

27. Available professional learning opportunities facilitate my use of multiple and flexible means to engage students in learning improve my classroom instruction. (*Code: Control beliefs*)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</tr>
</tbody>
</table>
Section III: Multiple Flexible Means to Engage Students in Learning (continued)

28. The availability of various resources (e.g., time, information, materials) facilitates my use of multiple and flexible means to engage students in learning to improve my classroom instruction. (Code: Control beliefs)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</tbody>
</table>

29. I have the requisite knowledge to use multiple and flexible means to engage students in learning to improve my classroom instruction. (Code: Perceived behavioral control)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</table>

30. I have the ability to use multiple and flexible means to engage students in learning to improve my classroom instruction. (Code: Actual behavioral control)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
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</table>

31. I have the autonomy to use multiple and flexible means to engage students in learning to improve my classroom instruction. (Code: Actual behavioral control)

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree Slightly</th>
<th>Agree Slightly</th>
<th>Agree Moderately</th>
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Section IV: Demographic Information

Please respond to each of the following items.

32. What is your faculty status?

- [ ] Full-time
- [ ] Adjunct/ Part-time
33. Highest level of education completed (Check one response only.)

☐ Bachelor’s Degree
☐ Master’s Degree
☐ Doctoral Degree (e.g., Ph.D, DNP, Ed.D)

34. What is the total number of years of teaching experience you have in higher education?

☐ 5 years or less
☐ 6-10 years
☐ 11-15 years
☐ 16-20 years
☐ 21-25 years
☐ 26 years or more
Telephone Interview Invitation

35. Would you like to participate in a telephone interview about nursing faculty experiences related to their intention to design instruction to support learning for a broad range of students in the community college classroom?

Yes, I would like to be interviewed. [Directs to the Telephone Interview Contact Form]
No, thank you. [Directs to the Thank You Page]

Telephone Interview Contact Form

I would like to participate in a telephone interview about nursing faculty experiences related to their intention to design instruction to support learning for a broad range of students in the community college classroom. I understand the interview will be recorded, take about 45 minute to complete, and be scheduled at a mutually agreed upon time. I understand that I will receive a $10 gift card after the telephone interview.

Please provide your contact information, which will only be used in scheduling the telephone interview.

Name: ___________________________
E-mail: _________________________
Phone: _________________________
Thank you for completing this survey!

Thank you for taking the time to complete this survey. If you have any questions about this study, you may contact my research advisor or me.

**Researcher:** Ann-Marie Evans MSN, RN-BC (203) 209-3502  
E-mail: saranich@hartford.edu  
**Research Advisor:** Dr. Diana J. LaRocco E-mail: dlarocco@hartford.edu

If you have any questions about your rights as a research subject, please contact the University of Hartford Human Subjects Committee (HSC) at 860-768-4721. The HSC is a group of people who reviews research studies and protects the rights of people involved in research.
Appendix B

Telephone Interview Guide
Nursing Faculty Attitudes and Beliefs about Designing Instruction

Telephone Interview Guide

Thank you for volunteering to participate in this interview. As you know, this study aims to explore community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms. This interview should take no more than 45 minutes. You may choose to stop at any time.

With your permission, I will create an audio-record of this interview. Anything you share with me through the survey or the interview will be treated in confidence. Your individual responses will not be associated with your name or with the community college. Your name and the names of anyone you talk about will not be included in any study write-ups, presentations, or publications; pseudonyms will be used instead. Do you have any questions before we begin?

(Recording Device is on)

As you know from the survey, in this study, instructional design encompasses using multiple and varied means to represent and teach important course concepts in different ways, differentiating the ways students can express what they know, and stimulating engagement and motivation for learning. Using instructional approaches that allow for active student participation, creating a supportive classroom environment and providing timely feedback supports learning for a broad range of students in the classroom. Take a minute to think about the different students you have in your classroom, their ages, educational backgrounds, non-academic responsibilities and their readiness for college level work. Now think about the instructional design strategies you use. I would like to know about what you have done or tried, whether it was successful or not, to facilitate learning for the students in your classes.
1. Tell me about the ways in which you present content and information to your students. *(Attitudes Toward Behavior).*

**Prompt for**
- Expansion (tell me more, is there anything else you would like to add)
- Clarification (say more about what you mean by that)

**Listen for examples related to Principle I such as**
- Using visual aid (e.g., diagrams or charts)
- Connecting current content to prior learning
- Providing a list of key terms or study guides
- Using models or demonstrations
- Highlighting key concepts

2. Tell me about what you do to stimulate students’ interest and motivation for learning. *(Attitude Toward Behavior).*

**Prompt for**
- Expansion (tell me more, is there anything else you would like to add)
- Clarification (say more about what you mean by that)

**Listen for examples for Principle 3 such as**
- Providing feedback
- Promoting student development of coping skills
- Facilitating student goal setting

3. Tell me about the ways in which you have students express what they know and what they are able to do *(Attitude Toward Behavior).*
Prompt for

- Expansion (tell me more, is there anything else you would like to add)
- Clarification (say more about what you mean by that)

Listen for examples related to Principle 2 such as

- Encouraging opportunities for peer interactions and supports
- Connecting curriculum based on ethnicity, gender, or other experiences
- Providing authentic real life examples

4. What are your views, favorable or unfavorable, about designing instruction that supports learning for a broad range of students in the classroom? (Behavioral Beliefs)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)

5. Talk about how the expectations of colleagues, college administrators, and others, influence your beliefs about designing instruction that supports learning for a broad range of students in the classroom. (Normative Beliefs)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)
6. How, if at all, do comments, criticisms, or attitudes of others influence or shape your designing instruction to support learning for a broad range of students in the classroom? (*Subjective Norms*)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)

7. What factors facilitate or impede your ability to design instruction to support learning for a broad range of students in the classroom? (*Control Beliefs*)

8. Describe your ability to design instruction that supports learning for a broad range of students in your classroom. (*Perceived Behavioral Control*)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)

9. What are your perceptions of the degree of autonomy and flexibility you have in designing instruction that supports learning for a broad range of students in the classroom? (*Actual Behavioral Control*)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)
10. Talk to me about your feelings of being prepared to implement effective instructional design strategies to benefit student learning. (Actual Behavioral Control)

Prompt for

- Expansion (tell me more, is there anything else you want to add)
- Clarification (say more about what you mean by that)
Appendix C

Recruitment E-mail
Dear Colleague,

As part of my research as a doctoral candidate at the University of Hartford, I invite you to complete a survey about community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms. I am a Clinical Assistant Professor of Nursing at Sacred Heart University, and I understand the demands of trying to make teaching and learning accessible for a diverse student population.

As a professor of nursing in a community college, you are uniquely positioned to complete this survey, which is part of my dissertation research. To participate, all you need to do is click on the link below. You will be directed my survey, which will take about 20 minutes to complete. Your responses will remain confidential. The survey will remain open for your participation until (Date TBD).

At the end of the survey, you can also volunteer to participate in a follow-up telephone interview that will last about 45 minutes, and be scheduled at a mutually agreed upon time. You will receive a $10 gift card for your participation in the telephone interview.

Thank you for considering participation in this study. Please feel free to contact me at any time for further information. You may also contact my research advisor, Dr. LaRocco, by e-mail at dlarocco@hartford.edu.

Sincerely,

Ann-Marie Evans MSN, RN-BC  
Doctoral Candidate  
saranich@hartford.edu  
203-209-3502 (cellular)
Appendix D

Telephone Interview Contact E-mail
Script for Telephone Call to Schedule the Telephone Interviews
Telephone Interview Confirmation E-mail
Telephone Interview Thank you E-mail
Telephone Interview Contact E-mail

Dear Colleague,

Thank you for agreeing to participate in the telephone interview phase of my study about community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms.

I will be calling you within a week to set a mutually agreed upon time for the telephone interview. At that time I can answer any questions you might have about the interview process. Attached you will find a copy of the informed consent form for your review.

In the interim, if you have any questions, feel free to contact me. You may also contact my research advisor, Dr. Diana LaRocco, by e-mail at dlarocco@hartford.edu.

Sincerely,

Ann Marie Evans
saranich@hartford.edu
203.209.3502 (cellular)
Script for Telephone Call to Schedule the Telephone Interviews

Hi, my name is Ann-Marie Evans, and I am calling to follow up regarding your interest in participating in a telephone survey. As you know, my study is about community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms.

Thank you for volunteering to participate in the interview. I expect the interview to last about 45 minutes.

I would like to set up a date and time for the telephone interview, preferably within the next week. Let’s see what we can do to work out a time for the interview.

Have you received the informed consent for the telephone interview that I sent? Do you have any questions about this?

Do you have any questions for me at this point?

I look forward to speaking with you on DATE and TIME of telephone interview.
Telephone Interview Confirmation E-mail

Dear Colleague:

I look forward to speaking with you on (Date & Time TBD). For your information, I have included in this e-mail the questions I will be asking regarding your attitudes and beliefs toward designing instruction to support learning for a broad range of students in your classroom.

**Interview Questions**

1. Tell me about the ways in which you present content and information to your students.
2. Tell me about what you do to stimulate students’ interest and motivation for learning.
3. Tell me about ways in which you have students express what they know and what they are able to do.
4. What are your views, favorable or unfavorable, about designing instruction that supports learning for a broad range of students in the classroom?
5. Talk about how the expectations of colleagues, administrators and others influence your beliefs about designing instruction that supports learning for a broad range of students.
6. How, if at all, do comments, criticisms, or attitudes of others influence or shape your designing instruction to support learning for a broad range of students in the classroom?
7. What factors facilitate or impede your use of instructional design strategies to students in your classroom?
8. Describe your ability to use instructional design strategies to student learning in the classroom.
9. What are your perceptions of the degree of autonomy and flexibility you have in implementing instructional design strategies to assist student learning in the classroom?
10. Talk to me about your feelings of being prepared to implement effective instructional design strategies to benefit student learning.

If you have any further questions, please feel free to contact me. You may also contact my research advisor, Dr. Diana LaRocco, by e-mail at dlarocco@hartford.edu.

Sincerely,

Ann Marie Evans, MSN, RN-BC
Doctoral Candidate
Cell: 203-209-3502
E-Mail: saranich@hartford.edu
Dear Colleague,

Thank you for taking the time to participate in the telephone interview phase of my study.

Your insights were very helpful and have added richness to my research. If you would like to review a copy of your interview transcript, please let me know.

If you have any questions, please feel free to contact me. You may also contact my research advisor, Dr. Diana LaRocco, by e-mail at dlarocco@hartford.edu.

Sincerely,

Ann Marie Evans, MSN, RN-BC
Doctoral Candidate
Cell: 203-209-3502
E-Mail: saranich@hartford.edu
Appendix E
Informed Consent – Telephone Interview
Informed Consent Form: Telephone Interview

This purpose of this study is to explore community college nursing faculty members’ attitudes and beliefs toward designing instruction to support learning for a broad range of students in their classrooms.

- Participation in the study is voluntary.
- The telephone interview will last about 45 minutes. You can choose to answer some or all of the questions.
- You can stop or withdraw from this study at any time without adverse consequences or jeopardizing your relationship with the University of Hartford.
- You may benefit directly because all interviewees will be given a $10 gift card for their time regardless of whether or not they complete the interview. You may benefit indirectly from knowing that you are contributing to the knowledge base regarding faculty members’ attitudes and beliefs about designing instruction that supports learning for the broad range of students in the ADN classroom.
- Risks of participation in this study are not greater, considering probability and magnitude, than those ordinarily encountered in daily life. There are no apparent physical risks.
- I will digitally record our conversation and create a word-for-word transcript. You may choose to review the transcript to ensure its accuracy.
- Your responses are confidential. They will be written-up and discussed with the responses of others.
- Your name will not be associated with your responses. Pseudonyms will be used to refer to you and your school in any write-ups, presentations, or publications. Identifying information will be removed from any quotes used in the write-ups.
- Materials (i.e., transcriptions of the interviews, and written interview notes) will not be coded in any identifiable way or contain identifying information.
- The researcher will digitally record the conversations and create word-for-word transcripts.
- All paper interview transcripts will be kept in confidence and stored in a locked file cabinet in the researcher’s office.
- All digital files including audiotapes and data will be maintained in a secure computer with password protection. Data will be destroyed five years from completion of the study.
- If you have any questions about your rights as a research subject, please contact the University of Hartford Human Subjects Committee (HSC) at 860.768.4721. The HSC is a group of people who reviews research studies and protects the rights of people involve in research.

If you have any questions about this study, you may contact my research advisor or me.

**Researcher**
Ann Marie Evans, MSN, RN-BC
Doctoral Candidate
Cell: 203-209-3502
E-Mail: saranich@hartford.edu

**Research Advisor**
Diana J. LaRocco, Ed.D
University of Hartford
E-Mail: dlarocco@hartford.edu