

EVALUATING INSTITUTIONAL CAPACITY TO IMPLEMENT UNIVERSAL DESIGN FOR LEARNING IN
COMMUNITY COLLEGES

by

Christine Wayne

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Has been approved

November 2018

APPROVED:

Michael Bates, Ed.D.

Committee Chair

Pardess Mitchell, Ed.D

Committee Member

Page Wolf, Ph.D.

Committee Member

Dissertation Committee

ACCEPTED:

Roberta C. Teahen, PhD, Director

Community College Leadership Program

ABSTRACT

A sequential comparative case study, qualitative approach was used to gain in-depth knowledge about necessary characteristics at an institution to effectively implement Universal Design for Learning (UDL). UDL is an effective framework to address the open access design and the mission of the community college which supports accessible education for equality and opportunity for students from various backgrounds and learning abilities. The data produced a scorecard for institutions to use to assess institutional capacity to implement UDL at various stages of implementation.

As additional state initiatives for UDL continue to be approved and advocacy groups are gaining momentum, the necessity to understand the resources and training needed for implementation of UDL among community colleges is important.

Qualitative data analyzed to describe the successfulness of implementation of UDL at various levels will give readers an understanding of the necessary characteristics to implement UDL effectively. The scorecard developed from this research provides implementation features that may better equip institutions in preparation for UDL initiatives, increase student success and retention rates, and meet compliance with laws and regulations.

KEY WORDS: Universal Design for Learning, Student Success, Accessibility

DEDICATION

This work is dedicated to my family. Thank you to my husband, Jeff, for constant support and confidence in my abilities. Thank you for taking on so many additional tasks so I could get more work done. My children, Vince and Casey, for always providing patience and understanding when I had to be in class or working. All of you provided much needed stress relief, helped with encouragement, and kept things in perspective. I actually enjoyed the nights of all of us doing homework together. I could not have done this without all of you.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER 1: INTRODUCTION	9
Introduction.....	9
Purpose and Driving Questions	12
Significance of the Study	12
Delimitation and Limitations	16
Definition of Terms	16
Conclusion	18
CHAPTER 2: LITERATURE REVIEW.....	19
Introduction.....	19
History of the Community College	20
Laws and Regulations.....	22
Current Litigation.....	24
Theoretical Framework.....	26
Culture.....	28
Aspirations.....	29
Strategies.....	31
Organizational Skills.....	31
Organizational Structure	32
Human Resources	35
Systems and Infrastructure	37
Conceptual Framework.....	39
Engagement.....	40
Representation	41
Action and Expression.....	41
Benefits to Students.....	41
Benefits to Instructor	42
Benefits to Institution	43
UDL Implementation Initiatives.....	44
Recommended Implementation Strategy.....	46
Explore.....	46
Prepare	47
Integrate	48
Scale	49

Optimize	49
Barriers	50
Conclusion	51
CHAPTER 3: METHODOLOGY	52
Introduction.....	52
Purpose and Driving Questions	52
Qualitative Research.....	53
Case Study Method.....	54
Sampling and Data Collection.....	55
Phase 1- Initial Survey	56
Phase 2- Interview Questions.....	57
Panel of Experts	58
Pilot	58
Sample.....	59
Interviews	61
Data Collection.....	62
Data Analysis	63
Validity.....	65
Delimitations and Limitations	68
Conclusion	69
CHAPTER 4: SUMMARY OF QUALITATIVE FINDINGS.....	71
Introduction.....	71
Purpose and Research Questions	71
Data Collection Protocol	72
Interview Participant Profiles.....	73
Qualitative Findings	74
Research Question 1:	74
Administrative Support	74
Release Time	76
Recognition	77
Model Use of UDL	78
Providing Resources	80
Faculty Support	81
Resource to Solve Problems	82
Find Advocates.....	83
Team Learning.....	83
Research Question 2	84
Technology.....	84
Supportive of Student Learning	86
Awareness and Availability Technology	86
Stewardship of Funds Available	87
Research Question 3	88

Professional Development	88
Focus on Teaching Development.....	90
Balance Time Spent with Value Provided.....	90
Require Training.....	92
Research Question 4.....	92
Awareness	92
Be Proactive	94
Present in Relatable Terms.....	96
Public Recognition.....	97
Research Question 5.....	98
Culture	98
Include in Mission, Vision, and Strategic Plan	99
Conclusion	100
CHAPTER 5: SCORECARD.....	103
Introduction.....	103
Purpose and Research Questions.....	103
Procedures.....	104
Assess Institutional Capacity for Implementation of Universal Design for Learning	105
The “Why”.....	105
The “What”	106
The “How”.....	108
Determining Next Steps.....	108
Conclusion	122
CHAPTER 6: SUMMARY AND RECOMMEDATIONS.....	123
Introduction.....	123
Research Summary	123
Delimitations and Limitations	124
Recommendations for Further Research.....	124
Conclusion	125
REFERENCES	127
APPENDIX A: PHASE I- DELPHI SURVEY CORRESPONDENCE.....	133
APPENDIX B: PHASE 1- DELPHI SURVEY QUESTIONS.....	136
APPENDIX C: PHASE 2- INTERVIEW QUESTION DEVELOPMENT	138
APPENDIX D: PARTICIPANT EMAIL CORRESPONDENCE	141
APPENDIX E: INTERVIEW GUIDE.....	143
APPENDIX F: IRB APPROVAL LETTER.....	146

LIST OF TABLES

	Page
Table 1: Administrative Support	75
Table 2: Faculty Support	82
Table 3: Technology	84
Table 4: Professional Development.....	88
Table 5: Awareness.....	92
Table 6: Culture	98
Table 7: Divergent and Convergent Themes.....	100

LIST OF FIGURES

	Page
Figure 1. Capacity Development Framework.....	27
Figure 2. Team Learning Model.....	34
Figure 3. UDL Principles	40
Figure 4. Phase 1 Process.....	57
Figure 5. Phase 2 Process.....	59
Figure 6: UDL Scorecard.....	121

CHAPTER 1: INTRODUCTION

INTRODUCTION

The goal of a community college is to provide education equality and opportunity. With no admission policy beyond a high school diploma or equivalent, the core mission of the community college is to provide education and training to all who have this desire to learn. This open access agenda enables students from various backgrounds and abilities to obtain an education that will allow them to contribute to society and help create global competitiveness. The American Association of Community Colleges (1988) has described this open-door policy as having “an intensity and dedication comparable to the populist, civil right, and feminist crusades. While more elitist institutions may define excellence as exclusion, community colleges have sought excellence in service to many” (p. 5). This service-to-many requires additional diligence on part of administration and faculty at community colleges to provide opportunity to all students. President Harry S. Truman advocated for accessible education and enhanced the community college movement, noting, “Anything that any of us can do to help improve our educational institutions, and make them available to all who would make use of them, imposes on us a continuing duty.” (Cervantes et al., 2005, p. 10).

Beyond their mission, certain requirements under the law require community colleges to provide this access. The Rehabilitation Act of 1973, Section 504 lists these requirements:

No otherwise qualified individual with a disability in the United States...shall solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. (Rehabilitation Act of 1973, (Section 504), 29 U.S.C. 794, 1973)

Community colleges, as recipients of state and federal funding, must abide by this law.

The American Disability Act (ADA) also sought to provide equal opportunity. ADA protects students with disabilities at community colleges by prohibiting against discrimination, but also includes all public and private schools, whether or not these schools receive federal assistance. Both of these laws protect individuals who have a physical or mental impairment that substantially limits one or more major life activities, have a record of such an impairment, and are regarded as having such an impairment (Rothstein & Johnson, 2014). Discrimination under both of these laws includes denial of services or participation based on the disability, barriers that prevent access, actions that create a discriminatory impact, not making reasonable accommodations, and discriminatory treatment based on association with someone with a disability (Rothstein & Johnson, 2014).

The Individuals with Disabilities Education Act (IDEA) states that all students with disabilities must be given a free, individualized, appropriate education. IDEA includes age requirements, and therefore these provisions do not apply to post-secondary education. However, IDEA does influence post-secondary education, as it substantially increases the number of students with disabilities who are eligible to enroll at the community college level (Rothstein & Johnson, 2014).

To meet the needs of the diverse learner, a growing trend in education is the use of Universal Design for Learning (UDL). UDL attempts to meet needs of every learner as lessons

are intentionally planned for learning that is both challenging and supporting for meaningful ways to grow (Meyer, Rose, & Gordon, 2014). This model meets the needs of a variety of students, including those with disabilities, abilities, and different learning styles (DO-IT, 2012). The model's success is based on the following aspects of design and implementation: (a) multiple means of representation, (b) action and expression, and (c) engagement. It is defined in the Higher Education Opportunity Act (2008, Sec. 103 (24)) as:

a scientifically valid framework for guiding educational practice that 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 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.

UDL specifically assists students with invisible disabilities and alleviates the need for accommodations for many students. Research has noted that in higher education, UDL promotes a feeling of community and interaction among students that leads to increased success (Rao, Ok, & Bryant, 2014). Increased retention and completion rates are a high priority of community colleges and may be positively impacted on the implementation of UDL.

This study sought to discover insights and information on developing a scorecard to assess institutional capacity for Universal Design for Learning implementation. This research enables institutions to gain an understanding of the requirements to implement UDL and information on areas that may need improvement to meet the needs of all students.

PURPOSE AND DRIVING QUESTIONS

The purpose of this research is to gain in-depth knowledge on developing a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation. To achieve this understanding, the following driving questions were addressed:

1. What strategies from an administrative and faculty level support successful implementation of UDL?
2. How does available technology make UDL implementation more manageable?
3. What type of professional development opportunities increase the success of UDL initiatives?
4. What is done to create stakeholder, faculty, and staff awareness and acceptance?
5. How does the institutional culture lead to welcoming and adapting to innovation and change?

These driving questions provided guidance to the research plan and were indicative of the qualitative comparative case study methodology best suited for the research design.

SIGNIFICANCE OF THE STUDY

President Barack Obama lead the nation's charge to educate an additional 5 million students with degrees, certifications, or credentials from community colleges by the year 2020 (Advisory Committee on Student Financial Assistance, 2012). This has increased the community college's motivation for retention and completion. As continued emphasis is placed upon completion rates, and because of the mission of the community college to strive to provide equal opportunities to all students, UDL implementation is becoming a necessity.

Making education obtainable by all requires institutions to reflect on servicing all students, but particularly those with invisible disabilities. Invisible disabilities are not immediately apparent, for example, anxiety, attention deficient disorder, or learning

disabilities. These students are a growing segment of community colleges because of the laws enacted to help these students obtain a high school diploma. In the last two decades, the number of high school graduates with a learning disability that move to higher education has tripled (Lightner, Kipps-Vaughan, Schulte, & Trice, 2012). Approximately 11% of college students have some kind of disability, and two-thirds of this group are represented by invisible disabilities (Gose, 2016). Students with disabilities have lower graduation rates than those without disabilities (Marshak, Van Wieren, Ferrell, Swiss, & Dugan, 2010). Part of the blame lays on the student for not seeking assistance that they require. Students have been told what to do in K-12 to accommodate their needs. In higher education settings, accommodations and services have to be sought out. Marshak et al. (2010) stated various reasons students do not seek services available to them.

1. Students finally have an opportunity to lose the stigma of having a disability and needing help.
2. They may want to be more self-sufficient.
3. Students also want to avoid negative social reactions related to receiving special accommodations.
4. Knowledge of how to receive services, or even explaining their disability may be difficult for students that have never done this on their own before.
5. Students may question the usefulness of the accommodations received.
6. Students may have had past negative experiences.

At the community college level, students must choose to seek accommodations on their own as caseworkers and parents are not involved in these decisions as in the past. Nationwide, only 17% of students with learning disabilities receive accommodations (Gose, 2016).

Traditional students in the first years of college do not have the emotional maturity needed to

recognize that they need help and seek advice. Chickering and Reisser (1993) developed a model for assessing student maturity that includes vectors associated with developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity. According to this model, students do not realize when it is appropriate to seek help until they advance through the third vector—moving through autonomy toward interdependence. It is in this vector that students may realize they have a problem, have the ability to rationalize a solution, and take action to fix it (Chickering & Reisser, 1993). However, for many students, by the time they reach the third vector (towards interdependence) they are already struggling with their classes and are considering dropping out completely.

Older students may face similar challenges. Older students may not have awareness of their disability, and therefore do not know they need to seek help. Undiagnosed and invisible disabilities are common in these nontraditional students because they did not have the benefit of early detection and privileges of IDEA or other laws that were more recently introduced in 1990 and later (Van Noy, Heidkamp, & Kaltz, 2013). The lack of student knowledge about the disability shifts responsibility to administration and faculty to ensure students' needs are being met. The success of the student is dependent on administration and faculty to guide students to discover their own needs and assist in finding a solution to break down any barriers.

UDL gives faculty full control to design barrier-free learning environments that provide access to all students (Nelson, 2014). UDL is based on neuroscience research of the brain. This research explains that there is no such thing as a normal student. Learning is as unique to individuals as their fingerprints or DNA (Hall, Meyer & Rose, 2012). UDL takes into

consideration differences of learners so everyone has equal access and opportunities to learn in ways that work best for each individual. This creates not only a positive impact for the student, but for the college as milestones of completion are being obtained with the UDL framework.

The use of UDL is relatively new, especially in higher education, and therefore there are not substantial findings to quantify data to prove effectiveness. Research is continually increasing in this area. A 2014 study from an Ontario university gained perspective of students in a UDL administered course. The students noted four benefits, which include flexibility, social presence, reduction in stress levels, and increased success. Students felt that the flexibility of the course design and the ability to choose various facets of the course contributed to gaining knowledge and understanding the material. In a UDL course, students “felt more in control of their learning by the choices they were given [and this] enabled an environment of self-regulated learning” (Kumar & Wideman, 2014, p. 138).

The use of UDL also increased the amount of interaction among the students. The students commented on the increase in synergy with each other, the materials, and the instructor. UDL created a “learning environment that was supportive, personal, and caring” (Kumar & Wideman, 2014, p. 138). This type of atmosphere improved student confidence.

Another common theme among students was the decrease in stress. Students, particularly at community colleges, have multiple commitments and roles elevating stress levels. Providing a UDL-designed course was noted as allowing more control of the course and learning, which contributed to reduced stress. The students in this study recognized UDL as contributing to their success in this course, in both grade earned and knowledge obtained (Kumar & Wideman, 2014).

Although it requires a substantial commitment, instructors have noted that using UDL helped reengage themselves in the area of content (Kumar & Wideman, 2014). UDL forces instructors to view and prepare the material in multiple ways, which leads to providing differing ways of explaining the material. UDL also benefits instructors when presented with a student that needs accommodations as the course is already prepared for it. UDL builds a classroom environment of inclusion where everyone benefits (Rao et al., 2014). These benefits extend even to the college as research shows that using UDL also reduced the need for disability services. For example, notetakers were no longer needed as guided notes and closed-captioned videos were provided by the instructor (Kumar & Wideman, 2014).

DELIMITATION AND LIMITATIONS

In this research, delimitations imposed by the researcher include using a Delphi survey whose responses may have been limited as well as purposeful sample of community colleges within the specified restrictions of time and location. Limitations of the study include the assumption that all participants interviewed responded openly and honestly, and all communication was received as intended. Responses may have also been influenced by personal bias. It may also be possible that interview questions were not construed as intended.

DEFINITION OF TERMS

Definition of the following terms are meant to provide clarity and uniformity in the context of this research. Definitions not accompanied by a citation were developed by the researcher.

Accommodation: Any change that enables students to participate equally in the learning environment or activity. This includes changes to course delivery, assessment methods, types of resources provided, and physical access. It involves removing barriers of all kinds, including physical or architectural barriers, information or communication barriers, barriers caused by attitudes, and policies or practices that create barriers (Accessibility Services, n.d).

Affective networks: Network of the human brain responsible for monitoring the internal and external environment to set priorities, motivate, and engage learning and behavior (Meyer et al., 2014). This is known as the “why” of learning and expresses why learners are engaged and stay motivated.

Invisible disability: any disability that is not immediately apparent (Invisible disability, n.d.). In higher education, examples of these disabilities can be, but are not limited to, mental health disorders, anxiety, learning disabilities, attention deficit disorders, autism, or dyslexia.

Recognition networks: Network of the human brain that senses and perceives information in the environment and transforms it into usable knowledge (Meyer et al., 2014). This is considered the “what” of learning. Examples include categorizing what we see, hear, or read, such as identifying letters or words.

Strategic networks: Network of the human brain that plans, organizes, and initiates purposeful actions (Meyer et al., 2014). This is known as the “how” of learning and refers to how expression of knowledge is relayed, such as writing an essay.

Undiagnosed disability: this includes disabilities that either the student has not been officially diagnosed with or a known disability the student consciously does not acknowledge or seek help for.

CONCLUSION

In 2010, the UDL framework was recognized by the U.S. Department of Education's National Education Technology Plan as benefiting all learners, in particular those who have been underserved, or do not receive an equitable academic experience (Meyer et al., 2014). Successful implementation of UDL will increase the effectiveness of learning to all students. It can help engage in the material and better equip the instructor to meet the needs of diverse learners. At a college level, UDL can help the college fulfill its mission and accomplish success in completion.

CHAPTER 2: LITERATURE REVIEW

INTRODUCTION

The core mission of the community college is to provide education and training to all who have this desire to learn. This open access agenda enables students from various backgrounds and abilities to obtain an education that will allow them to contribute to society and help create global competitiveness. The American Association of Community Colleges (1988) describe this open access as having persistence and enthusiasm comparable to civil rights movements, with the community college seeking to serve many. Community colleges need to find a solution to meet the needs of such a variety of students. Universal Design for Learning (UDL) is framework that accommodates the diversity of the learner and helps to achieve success. UDL is a relatively new phenomenon developed by the Center for Applied Special Technology (CAST) in 1984 to improve education by providing flexible and accessible methods of learning (CAST, n.d). It was not until 2008 that UDL was included and defined in the federal Higher Education Opportunity Act citing implementations in a post-secondary education setting (CAST, n.d.).

This chapter reviews the need for community colleges to implement the UDL framework. Research on laws and regulations currently in place, along with the current litigation, which reference these laws, prove that changes in the community college are necessary. A theoretical and conceptual framework is introduced to help implement changes

into the institution. Finally, a suggested implementation method is reviewed. The chapter also addresses the benefits of such implementation as viewed by the student, faculty, and institution as well as any barriers discovered in research.

HISTORY OF THE COMMUNITY COLLEGE

The purpose of a community college is to address the needs of the student, community, and state systems of secondary education. Higher education started as a way to train clergy and eventually educated the literate bureaucracy who would become political figures. It slowly began to educate beyond these professions, but access was limited to the elite, wealthy, white men. Education has always been a means to increase social mobility. The more recognizable this was, the more sought after an education became. Thus, the idea of the junior college began which could provide education equality and opportunity (Beach, 2011). Junior college was defined in 1925 to “develop a different type of curriculum suited to the larger and ever-changing civic, social, religious, and vocational needs of the entire community in which the college is located” (Cohen, Brawer, & Kisker, 2014, p. 4). In 1970, the term community college was widely used to define these comprehensive, publicly supported institutions whose goal was an open door policy (Cohen et al., 2014). This open access began in 1944 when President Franklin D. Roosevelt enacted the first federal involvement in higher education financing. The Serviceman’s Readjustment Act of 1944, better known as the GI Bill, was established to help those who served in the military have more educational options after their service (Cervantes, et al., 2005). According to Cervantes et al., education was available to minorities, lower-income individuals, and those who had prior poor academic performance because of the GI Bill, making community college enrollment surge with students with varying levels of academic ability. As

these students increasingly became a majority in the community college population, it was evident that community colleges would need to provide different curricula and adapt to the new needs of this student population, especially as new laws and regulations were passed (Cohen et al., 2014). Although the GI Bill provided financial access to higher education to those who served, acceptance into a college or university was still limited to those who were academically qualified. President Harry S. Truman realized these inequalities noting in his letter to President Lyndon B. Johnson (1965), “Anything that any of us can do to help improve our educational institutions and make them available to all who would make use of them, imposes on us a continuing duty” (as cited in Cervantes et al., 2005, p.10). His work to help make higher education available to all who could make use of it expanded the community college system. Unfortunately, because of the state of the country after the war, many of his dreams did not come to fruition.

The political influence did not rest. In 1947, the President’s Commission on Higher Education advocated for the value of access to two years of study beyond secondary schools, and 50 years later, President Clinton made a push to make these two additional years of education as universal as a high school diploma (Cohen et al., 2014). Most recently, Cohen et al. note that President Obama encouraged every American to commit to at least one or more years of higher education or career training thereby increasing the number of community college degrees and certificates. The support has increased community college enrollment but has also increased the variability in student ability.

LAWS AND REGULATIONS

The community college mission to provide an education to anyone with the desire to learn was a welcomed change for many students seeking an education. Students with varying disabilities were excluded from education as recently as 1969 (Yell, 1998). If students with disabilities were educated, it was in segregated classes. Beginning in 1950, advocacy groups began to come together on a national level and started making some progress (Yell, 1998). One landmark case was the *Brown v. Board of Education* (1954) that provided protection for educational equalities for minorities. The ruling indicated that educational opportunity is a right that must be available to all on equal terms (Zirkel, 2006). The *Brown* case began a momentum shift in legislation to provide support for students faced with separation or exclusion (Zirkel, 2006).

Another foundational case was the *Pennsylvania Association for Retarded Citizens v. Commonwealth Pennsylvania* (1971) which stated that all children capable of benefiting from education and training cannot be denied public education and defined education as not only academic experiences (Yell, 1998). This case set the stage for continued development in this area. Quickly following in 1972 was the *Mills v. Board of Education* which clearly outlined due process for labeling, placement, and exclusion of students with disabilities (Yell, 1998). These cases set a precedent for the Individuals with Disabilities Act of 1990 (IDEA), formally known as the Education for All Handicapped Children Act of 1975. According to Yell's study, Congressional findings found that three million students with disabilities were not receiving education that was appropriate for or met the needs of the student. The Act contained administrative and funding incentives for states to develop and improve their special education programs, making

it essentially federally controlled instead of state monitored (Yell, 1998). It was modified to require individualized transition planning in individual education programs, providing individualized solutions and the equity piece of equal opportunity (Zirkel, 2006). The IDEA provided a free and appropriate education for all qualified students with disabilities with age restrictions. These age restrictions prevented the Act from applying to every post-secondary educational institution; however, it influenced positively the ability for individuals to seek higher education.

Section 504 of the Rehabilitation Act of 1973 (Section 504) was enacted to prohibit discrimination against a person with disabilities from any agency receiving federal funds, which includes community colleges (Rehabilitation Act of 1973, (Section 504), 29 U.S.C. 794, 1973). This Act also requires any agency to take corrective steps when violations are found, make modifications and accommodations, and provide services comparable to those offered to persons without disabilities (Rehabilitation Act of 1973, (Section 504), 29 U.S.C. 794, 1973).

On July 26, 1990, the American Disabilities Act (ADA) was signed into law (Americans with Disabilities Act Handbook, 1992). The handbook explains how the ADA provides civil rights protection to individuals with disabilities as it combines the Civil Rights Act of 1964 and the Title V of the Rehabilitation Act of 1973. ADA, specifically Title III, changed the way any public institution must provide accommodations to individuals. According to the handbook, individuals with disabilities must be allowed equal opportunity to enjoy the goods and services offered and reasonable modifications must be made to allow this to take place. An individual with a disability is defined by the ADA as a person who has a physical or mental impairment

that substantially limits one or more major life activities, has record of such an impairment, or is regarded as having such an impairment (Americans with Disabilities Act Handbook, 1992).

Discrimination under both Section 504 and ADA include denial of services or participation based on disability, barriers that prevent access, actions that can create a discriminatory impact or discriminatory treatment based on association with someone with a disability (Rothstein & Johnson, 2014). Both of these laws provide that the institution must make reasonable accommodations to allow for equal opportunities for all individuals.

CURRENT LITIGATION

The U.S. Department of Education, Office for Civil Rights (OCR) administers compliance with Section 504 and the ADA and the regulations that apply those statutes. The number of colleges and universities facing accessibility legal issues continues to mount. Accessibility does not seem to be a priority in higher education, as such, legal issues continue to increase for colleges and universities (Straumsheim, 2015). Implementation of UDL at an institution level prioritizes accessibility considerations from the beginning and incorporates these decisions into the acquisitions and planning processes, limiting potential issues (Kumar & Wideman, 2014).

For example, on May 4, 2012, the OCR received a complaint about the University of Montana, which allegedly discriminated against students with disabilities by using inaccessible electronic information (U.S. Department of Education, Office for Civil Rights & University of Montana, 2012). The resolution stated the university was using inaccessible information on the learning management system, class materials, live chat and discussion board functions, and other areas. According to the resolution, the university had to develop an electronic and information technology accessibility policy and was required to provide training, presentations,

and workshops about accessibility and the policy to faculty and staff. Finally, a dedicated staff member was put in place whose responsibility was to ensure coordination and compliance with the accessibility policy (U.S. Department of Education, Office for Civil Rights, & University of Montana, 2012).

Another complaint was filed against Miami University in Ohio. In January 2014, a blind student, along with the U. S. Department of Justice, sued the university and its president for violating ADA (Straumsheim, 2015). The allegations state that Miami's selection of software programs denied equal access to accessible course materials (Straumsheim, 2015). According to Straumsheim, the digitized textbooks were not comparable to print, software was not designed to be used with screen readers, and tactile graphics were unusable. The bigger issue is that ADA only covers colleges and universities. Thus, software vendors and publishers do not fall under these guidelines. However, colleges and universities choose these providers, giving them buying power and market influence forcing them to consider making better purchasing decisions to ensure accessibility for all students (Straumsheim, 2015). The suit proved that a college or university can be held responsible because of this buying power and having the option to not purchase or use a product that is not accessible. Ultimately, the attorneys and the university reached an undisclosed settlement amount (Associated Press, 2016). Louisiana Tech University had a similar situation regarding accessibility of a blind student. Their resolution specifically states, among other items, that the university is prohibited from purchasing, developing, or using instructional materials that are inaccessible (Grasgreen, 2013).

As compliance issues affect purchasing and using materials, it affects any affiliation with higher education. For example, through www.edx.org, EdX, Inc. provides a platform for more

than 60 higher education institutions to provide massive open online courses and faces compliance issues because of the affiliation with the institutions (United States of America, Department of Justice, & EdX, Inc., 2015). Per the settlement agreement, EdX, Inc. agreed to comply with Web Content Accessibility Guidelines 2.0 AA and ensure that the platform provided does not interfere with any accessible feature that is provided by the institutions.

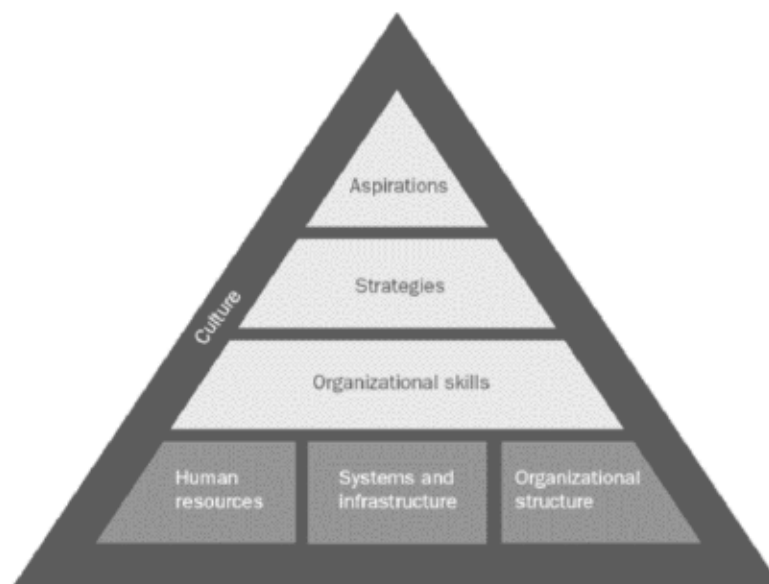
As included in Grasgreen (2013), Lizanne DeStefano, professor at University of Illinois and who sat on the 2011 U. S. Department of Education Commission, states that these case resolutions will be a “game-changer for colleges” (para 3) and, in reference to accessible materials, believes “the timing and the quality of those materials vary widely from campus to campus, and this will probably raise the quality and shorten the time and equalize that variability a little bit” (para 4). The demands for accessibility are becoming more rigid and the timeline allowed to make reasonable accommodation is dwindling. Grasgreen explains that faculty cooperation is key as they produce and create many course materials. All resolutions mentioned above required an employee dedicated to ensuring that the institutions and its employees adhere to the accessibility policies. These dedicated individuals must work with faculty to make content accessible before it is included in a course.

THEORETICAL FRAMEWORK

The aforementioned agreements have all compelled institutions to participate in systematic change management at the faculty, staff, and institutional levels. Capacity development theory may provide guidance on how to implement these changes. Capacity development evaluates whether an institution has the capabilities to be successful in what they want to achieve. Walters (2007) describes capacity building, or the ability to do something, as

developing new assets or adding value through the process of change in patterns. Therefore, capacity development is defined as strengthening an institutions' ability to perform or "closing the gap between the actual performance and desired performance" (Walters, 2007, p. 2).

Capacity development depends on the environment of the institution, including the power structures in place and incentives for change. According to McKinsey and Company (2001), capacity development can be achieved through the framework illustrated in Figure 1.



(McKinsey and Company, 2001 p. 36).

Figure 1. Capacity Development Framework

This framework relies on seven elements that are essential to creating an impact for capacity development. Each element must be scrutinized individually and in relationship to the other elements to work effectively.

CULTURE

The cultural element connects all these elements together and includes shared values and organization's orientation towards performance (McKinsey & Company, 2001). Culture is defined as "the connective tissue that binds together the organization, including shared values and practices, behavioral norms, and most important, the organization's orientation towards performance (McKinsey & Company, 2001, p. 34). Implementation of UDL requires a flexible culture that sets high expectations for all and encompasses a growth mindset (Novak & Rodriguez, 2016). This begins with acceptance of feedback that is analyzed, communicated, and utilized to make important decisions regarding what the institution wants to become (Novak & Rodriguez, 2016). This feedback can also share obstacles that can be expected so that strategies can be devised to overcome them. Institutions can strengthen the culture just as it can strengthen other components of the organization (McKinsey & Company, 2001). Institutions can do this by building a strong foundation. "Every organization that excels at building, reinforcing, and leveraging their unique culture in support of delivering sustainable performance has built a strong culture foundation" (Kuppler, 2013). Kuppler (2013) suggests a solid cultural foundation can be built with the following framework:

1. Evaluate current culture by identifying current strengths and weaknesses;
2. Clarify original vision discussing how faculty will work together to leverage the strengths and improve its weaknesses;
3. Clarify expected values and behaviors;
4. Clarify strategic priorities;
5. Engage faculty in defining goals;
6. Measure progress of goals and create awareness of the results;

7. Support the behavior shift through recognition, coaching, and removing barriers;
8. Manage communication and routines utilizing transparency;
9. Build motivation into the process through the giving and receiving of constant feedback, and recognition for successes; and
10. Acknowledge when situations do not go as planned and redirect and re-strategize to get back on track to accomplish the goals necessary to achieve the vision.

The organizational culture leads to capable organizations (Walters, 2007). Building a strong cultural foundation is important as the capacity development theory shows; it is the culture that binds all the working parts of the organization together to bring about successful change.

ASPIRATIONS

One of the higher-level elements of this model include aspirations. Aspirations relates to the institution's overall purpose or its mission, vision, and goals (McKinsey & Company, 2001). The institution and stakeholders should prioritize what these aspirations are and develop an action plan (McKinsey & Company, 2001). An action plan should build awareness by incorporating communication goals, relationship building and education.

Bassoff & Chandler (2001) warn that when trying to reach various groups, do not forget the most powerful tool to create awareness is one-on-one communication. Forbes Agency Council (2017) suggests creating buy-in on an individual basis before presenting initiatives to the larger group. The positives of relationships built with this communication will spread faster than any mass message (Bassoff & Chandler, 2001). This can be the best advertising for the cause. The goal is to satisfy the "consumer" beyond expectations, and when something amazing and different happens, people talk and momentum for the cause will spread (Bassoff &

Chandler, 2001). By showing faculty and staff how to solve problems with UDL and creating value in implementation, it is easy to attract advocates who then continue to share knowledge with others (Forbes Agency Council, 2017).

Once the momentum has started to build, the institution must be consistently transparent with the progress and results (Forbes Agency Council, 2017). Motivation to join the initiative will come from employees wanting to be a part of something bigger and connect to aspirations of the institution. To create loyalty toward UDL, employees must be aware of the implementation plan and goals, new hires should share the same passions as the mission of the institution, and there should be a commitment in the vision for the future (Forbes Agency Council, 2017).

Finally, education is essential to build awareness and renew aspirations. Finding advocates for UDL will be difficult without an understanding of the principles. Awareness is dependent on institutional UDL knowledge and providing evidence of its worthiness (Forbes Agency Council, 2017). Novak & Rodriguez (2016) mention that one of the biggest mistakes made in implementation is forgetting to put time into educating others about UDL. As a variety of groups are trying to be reached, it is important to incorporate multiple means into the communication plan. The same information and educational materials must be available in multiple formats, tailored each for task, purpose, and audience (Novak & Rodriguez, 2016). Choosing to lead by example and proving value, it is vital to build this engagement and awareness using the UDL principles and framework.

STRATEGIES

These aspirations of the institution will guide and impact strategy. Strategy relates to how the institution will achieve the aspirations set (McKinsey & Company, 2001). McKinsey & Company (2001) state that strategies should build on “core competencies, allocate resources to priorities, and help delineates its unique point of differentiation” (p. 41). Strategies must align with the rest of the elements to create change. Administrators can steward resources effectively by recognizing the need for faculty members to gain both theoretical and practical training to increase ability to convey subject matter knowledge to students as well as supporting institutional change with financial support and release time (Fink, 2013).

ORGANIZATIONAL SKILLS

The organizational skills are defined as all of the institutions capabilities. These include planning, resource management, building both internal and external relationships, and performance measures (McKinsey & Company, 2001). Performance measures such as evaluations, promotions, and tenure can encourage change in the institution. The organizational skills demonstrate how change will be developed, implemented, and measured (McKinsey & Company, 2001). Organizational skills that administration can support also include performance measures such as promoting shared goal-setting, encouragement of faculty innovation, and communication (Dee, 2004). Goals set should be specific, challenging, reachable, and acceptable to employees, as this will lead to higher performance (Pynes, 2009). Motivation can reignite passion and can be reintroduced to the faculty by revisiting what it means to work hard, igniting personal desires, and understanding how this will be measured (Pynes, 2009). The first step for administration is to understand faculty and what motivates

each individual. This can be done with a variety of personality frameworks. Slowikowski (2005) explains that fostering team work is achieved in three steps: develop synergy, blend strengths, and enhance interpersonal skills. Tubbs and Ekeberg (1991) also warn that other environmental factors can affect the perceived intentions and ultimately the achievement of the goal. Importance should be placed on implementation at the administrative level as “incompatibility at some higher level in the intentional structure may reduce the suitability of a lower level intention” (Tubbs & Ekeberg, 1991, p. 185).

Strategy and organizational skills are essential to initiating change and requires modeling the behavior requested. Administration should be knowledgeable regarding the benefits of UDL and be able to prepare and present information under this framework (Novak & Rodriguez, 2016). Meetings and training should be designed to meet the objective by providing multiple means of engagement, representation, and action and expression. Another way to show commitment to the process is learning alongside of faculty (Novak & Rodriguez, 2016). Administration must also make an investment of time into continuing professional development in this area.

ORGANIZATIONAL STRUCTURE

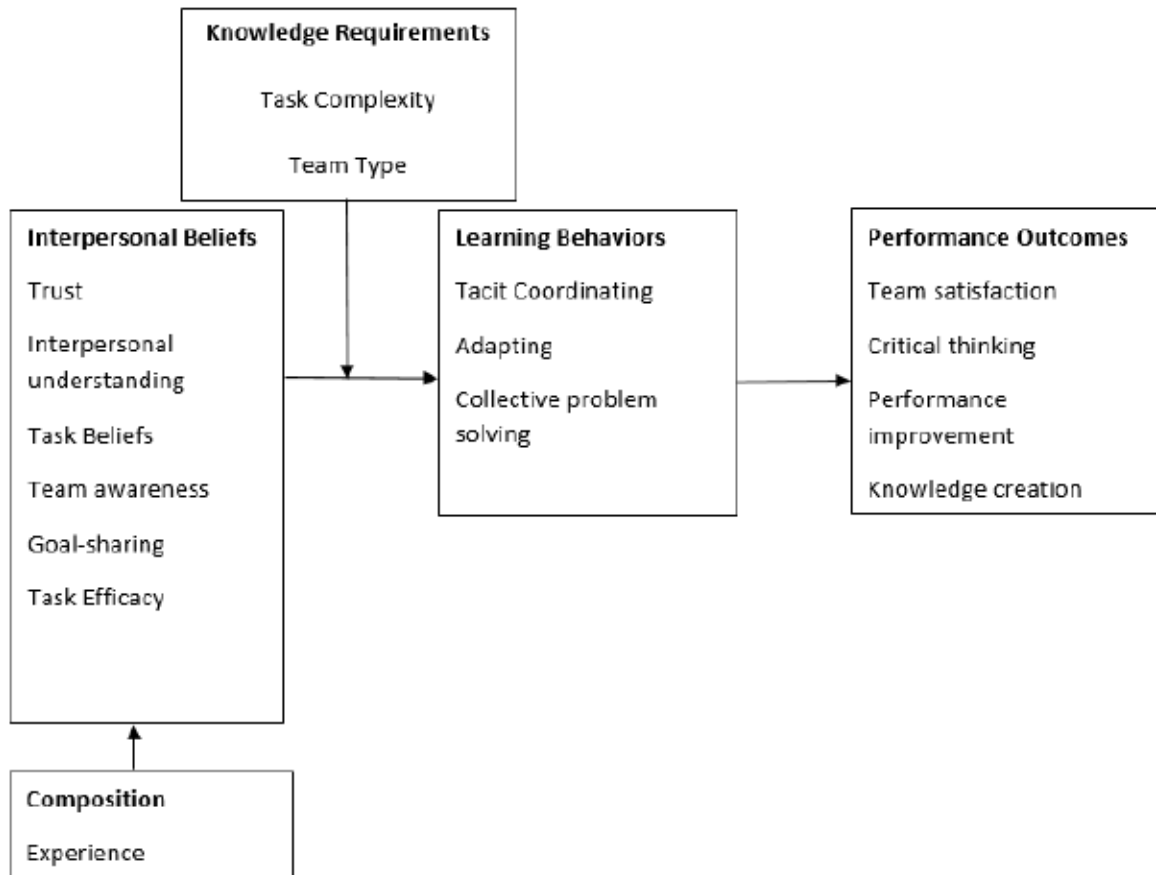
One of the foundational elements of the capacity development model is organizational structure. An institution’s organizational structure must align with the aspirations, strategies, and skills in order to be effective (McKinsey & Company, 2001). This structure includes governance, interfunctional coordination, and individual job descriptions (McKinsey & Company, 2001).

Centered on a shared vision of the organization, an organizational structure based on team learning can allow individuals to learn together while navigating a changing environment. As the teams learn and grow together, understanding of the issue evolves. These teams then become the advocates for needed change across the organization. Senge (2006) states that progress in areas is improved with team learning by creating an environment to think intuitively about complex issues, providing coordinated action, and sharing of new concepts and skills.

There are four components of effective team learning: team level inputs, outputs, processes, and knowledge (Kayes & Burnett, 2006). Team level inputs relate to individual contributions to the team goal (Kayes & Burnett, 2006). Each team member brings his or her own attributes, and these attributes work together to form synergy and completeness. Team level outputs are the knowledge created from the collaboration of team members. Team level processes involves shared beliefs, interaction, and behaviors of the team (Kayes & Burnett, 2006). Knowledge relates to the ability for critical thinking and reflection (Kayes & Burnett, 2006). The team must be required to have the knowledge to complete the goal with effective communication to the other team members. Each of these components contribute to the learning outcomes of the team as illustrated in Figure 2.

Team learning is an effective way to build collaboration and consensus in an organization. More organizations are realizing the positive impact of team learning and utilizing communities of practice to promote strategic goals. Communities of practice are an organizational learning tool that creates a shared vision, encourages systems thinking, promotes mastery of the job, and continues to develop team learning (Pearch & Marutz, 2005). Professional learning communities promote empowerment by facilitating ongoing instruction

for a significant length of time, providing support, and encouraging active learning (Gulamhussein, 2013). They increase effectiveness and grit in implementation of a new goal. (Darling-Hammond, Hylar, & Gardner, 2017).



(Kayes & Burnett, 2006 p. 29)

Figure 2. Team Learning Model

Individual and group goal setting can also support new initiatives. Faculty can be encouraged by having tasks to accomplish and when that task is completed, a new goal can be set. As strategic goals are set, action plans should also be set up for each individual. Action plans show intended direction, amplitude, and duration. (Tubbs & Ekeber, 1991). This gives employees specific targets for reaching their goals. Clarifying the effects of the assigned goal

shows how the process of achieving this goal has affected the individual. Research shows that employees pursuing individual goals have higher levels of accomplishment, which leads to higher job satisfaction (Downes, Kristof-Brown, Judge & Darnald, 2016).

Faculty autonomy, support for faculty innovation, and degree of communication are three variables that contribute to faculty satisfaction (Dee, 2004). Autonomy relates to faculty ability to establish organizational goals and the structure of the organization to recognize the individual professional goals (Dee, 2004). The second component is support for faculty innovation. The institution must provide a wide range of support structures that encourage faculty innovation such as professional development programs and mentoring relationships (Dee, 2004). The third component is communication, which is described as how the information is provided to members of the institution (Dee, 2004).

HUMAN RESOURCES

Another foundational element of the capacity development model is human resources. Human resources are the people and the assets these people contribute to the institution (McKinsey & Company, 2001). The value of the assets these people contribute can be enhanced with professional development opportunities. In higher education, the quality of the institution relies heavily on the instructor and staff and connect directly to students, and therefore human resources and professional development should be a high priority for capacity development.

Colleges become more diverse every year in regard to students' educational background, gender, race and ethnicity, class, age, and preparation, placing greater demands on faculty (Sorcinelli, n.d.). Faculty development programs help enable faculty to meet these demands utilizing the most effective strategies. Encouraging faculty to move beyond one's daily

routine and comfort zone, expand one's skills, and implement new practices into one's classroom can be a campus-wide win-win positively affecting faculty, students, and overall institutional morale and success. According to Gulamhussein (2013), "Professional development can no longer just be about exposing teachers to a concept or providing basic knowledge about a teaching methodology. Instead, professional development in an era of accountability requires a change in a teacher's practice that leads to increases in student learning" (p. 6).

Unfortunately, professional development is not accomplishing what it should for a variety of reasons including the abundance of priorities and lack of time, lack of implementation support, and inappropriate training structures (Zarrow, n.d.). Any professional development initiatives must recognize that teaching is complex (Gulamhussein, 2013). The proper training can help eliminate some of this complexity and enhance student learning. Development of training should be content focused and incorporate active learning, collaboration, coaching, and feedback (Darling-Hammond et al., 2017).

Research shows that even after just a few hours of UDL training, there is recognizable changes in instructor behavior (Schelly, Davies & Spooner, 2011). To go beyond instructor behavior and make an impact on student achievement, faculty should receive at minimum 14 hours of study in the same professional development area (Hill, 2012). Darling-Hammond et al. (2017) recommend that professional development be of continuous, sustained duration. One study showed that over a one-year timeframe, an average of 49 hours in intensive, sustained, and strongly implemented professional development increased student achievement by 21% (Wei, Darling-Hammond, & Adamson, 2010). In line with the UDL framework, professional development benefits action, expression, and reflection (Novak & Rodriguez, 2016). This

requires learning the new skill, implementing it, and reflecting on its impact. Research argues that the most important aspects of professional development are time span, coherence, and focus on content (Hill, 2012).

SYSTEMS AND INFRASTRUCTURE

The final foundational element of capacity development is systems and infrastructure. The system is the process by which the institution functions, and infrastructure illustrates the physical and technological assets that support the institution (McKinsey & Company, 2001). Technology is continuously advancing, and institutions need to keep this a priority to ensure they can meet the needs of students, while complying with laws and regulations.

The Justice Department has directed colleges to use technology that is accessible by all students (Grasgreen, 2013). Unfortunately, as noted previously, technology has created multiple accessibility issues in higher education from simple issues as appropriately providing closed captioned videos to providing software that is compatible with accommodative supports. The issue has arisen because many courses are moving away from a print-based classroom into an online environment that does not have the capacity to retrofit digital content for accessibility (Center on Online Learning and Students with Disabilities, 2012). Lauren McLarney, government affairs specialist at the National Federation of the Blind, states, “There is either an ignorance or lack of clarity about what accessibility and equal access look like,” as “There is no such thing as separate but equal when we’re talking about emerging technology... it’s too new” (Grasgreen, 2013, para. 20). ADA and Section 504 have prompted specific laws and regulations geared toward providing accessibility with ever-changing technology.

In 2010, the Twenty-First Century Communications and Video Accessibility Act (CVAA) was signed into law providing federal statutory requirements for accessible digital media and communications based on the need for embedded accessible design (Center on Online Learning and Students with Disabilities, 2012). The CVAA requires all forms of communication, whether it be Voice Over Internet Protocol, text messaging, email, or instant messaging, be accessible to all based on need (Center on Online Learning and Students with Disabilities, 2012). The CVAA also acknowledges that video programming should be captioned and follow the FCC video description expectations (Center on Online Learning and Students with Disabilities, 2012).

The Rehabilitation Act of 1973, Section 508 regulates accessibility specifications for websites through the World Wide Web Consortium (W3C) (Center on Online Learning and Students with Disabilities, 2012). Section 508 should “eliminate barriers in information technology, open new opportunities for people with disabilities, and encourage development of technologies that will help achieve these goals” (n.p.). The statute only applies to federal agencies, but many institutions are voluntarily adopting this as it represents an accepted set of national accessibility standards (Center on Online Learning and Students with Disabilities, 2012).

In 2009, the Information Technology Industry Council published a Voluntary Product Accessibility Template (VPAT) (Center on Online Learning and Students with Disabilities, 2012). The goal of the VPAT was to standardize the way hardware and software developers could detail compliance with various aspects of accessibility requirements of Section 508 (Center on Online Learning and Students with Disabilities, 2012). In making purchasing decisions, the VPAT can be useful in distinguishing between products that have features that support accessibility.

McKinsey and Company (2001) conclude that there are three lessons that must be remembered. First, typically to improve an institution's capacity, the institution must start with revising and updating the aspirations and strategy. Second, quality management that has a shared vision is essential for any positive changes. Finally, capacity building is complicated and time consuming. Patience is a required skill.

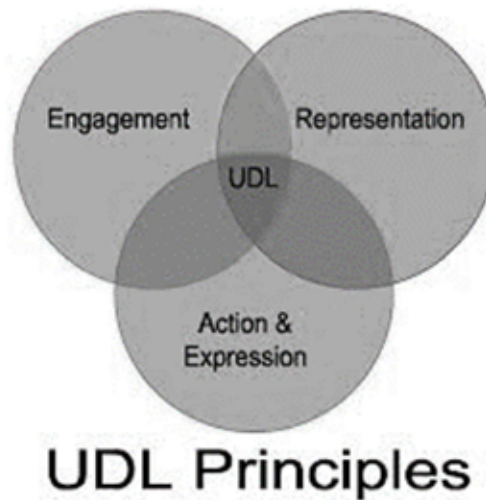
CONCEPTUAL FRAMEWORK

Universal Design for Learning (UDL) was first conceived through an organization called CAST, Center for Applied Special Technology. UDL centers on adjusting the curriculum and instructional methods to be usable by all people rather than accommodating individual student needs. It was not until 1995 that CAST began giving presentations on UDL to disseminate the usefulness and applicability of this method. In 1998, CAST published their first book and began receiving grants to further UDL research. Just ten years later, UDL is now recognized in the Higher Education Opportunity Act. It is defined in the Higher Education Opportunity Act (2008, Sec. 103 (24)) as:

a scientifically valid framework for guiding educational practice that 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 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.

The fundamental premise of UDL is to provide equitable opportunities to reach high standards across a variety of students. UDL was the product of neuroscience and educational research, which helped to develop the three principles of UDL (Nelson, 2014). Many other researcher and theorists support these basic principles (Meyer et al., 2014). The UDL

framework provides multiple means of engagement, representation, and action and expression (see Figure 3). Combined, these three characteristics form UDL.



(Universal Design for Learning, n.d.)

Figure 3. UDL Principles

ENGAGEMENT

The engagement principle brings together the affective networks of the brain and determines how we interpret our situations (Nelson, 2014). This network monitors the environment to set priorities, motivate, and engage learning behaviors (Meyer et al., 2014). This principle asks how to prime and motivate students to learn, hook them into a lesson, and provide structure (Nelson, 2014). Examples of the engagement principle in a classroom would include using circular seating to encourage discussion or using technology, such as videos, clickers, or podcasts to encourage participation in a variety of options to meet the needs of various learners. The engagement principle overlaps with the other principles, as this has to be a continuous effort.

REPRESENTATION

The representation principle brings together the recognition networks of the brain, which help to identify and make connections (Nelson, 2014). This network helps to receive information and translate it into usable knowledge (Meyer et al., 2014). Examples of the representation principle include utilizing case studies to help students relate or introducing techniques such as think, pair, share to encourage creative problem solving. Providing multiple means of representation allows different experiences to deliver information (Nelson, 2014). Students therefore have the opportunity to absorb knowledge in a way they prefer.

ACTION AND EXPRESSION

The action and expression principle works with the strategic networks to help strategize the physical and mental process (Nelson, 2014). Strategic networks help to plan, organize, and use information (Meyer et al., 2014). Examples of the action and expression principle include providing feedback and assessment or promoting study groups to support learning. These strategies help communicate to others what we know and understand (Nelson, 2014). This allows differentiation in expression to meet the need of the student.

Benefits to Students

In higher education, the use of UDL is relatively new, and therefore there are not substantial findings to quantify data to prove effectiveness. There is compelling qualitative data to support UDL and research is continually increasing in this area. According to *A Route for Every Learner Report* (Maryland State Department of Education, 2011), UDL has the potential to decrease the number of students requiring special education services or dropping out of school.

UDL also has the ability to increase engagement in gifted students and number of students who have direct access to general curriculum (Maryland State Department of Education, 2011).

One study performed by Kumar and Wideman (2014) noted a UDL administered course improved flexibility, social presence, stress levels, and success. Kumar and Wideman noted the flexibility of the course design and ability to choose various facets allowed students to feel more in control of their learning and understand the material better. The use of UDL also increased the synergy creating a supportive and caring learning environment, improving student confidence. By providing a UDL administered course, students experienced a decrease in stress. The students in this study recognized UDL as contributing to their success, in both grade earned and knowledge obtained (Kumar & Wideman, 2014).

Benefits to Instructor

Providing a classroom that utilizes UDL has multiple benefits to the instructor. The welcoming learning environment that it creates from the beginning can help connect faculty and students (Burgstahler & Cory, 2008). Instructors can be the most important component in the connection from the student to the college, and that starts with a welcoming environment (McClenney & Arnsperger, 2012). This connection can help retention rates for students.

Following the principles of UDL and proactive planning, communication is clear, and feedback is prompt, allowing the student to have more control and fewer questions (Burgstahler & Cory, 2008). Viewing and preparing the material in multiple ways contributes to providing differing ways of explaining the material (Kumar & Wideman, 2014).

Although it requires a substantial commitment, instructors have noted that using UDL helped reengage in the area of content. A Route for Every Learner Report (Maryland State

Department of Education, 2011) noted that although UDL influences the amount of time teachers spend individualizing instruction, it also increases achievement for all students and reduces the number of accommodations needed during instruction and assessment. Faculty also noted there was less stress when presented with a student who needs accommodations, as course is already prepared for it (Kumar & Wideman, 2014). There is a difference between good teaching and implementing UDL, as UDL requires intentional, detailed planning which translates to positive evaluations and recognition for teaching excellence (Burgstahler & Cory, 2008).

Benefits to Institution

Research showed that using UDL reduced the need for disability services. UDL provides content that is available in multiple formats. In one example, notetakers were no longer needed as guided notes and closed-captioned videos were provided by the instructor (Kumar & Wideman, 2014). This model meets the needs of a variety of students, including those with disabilities, abilities, and different learning styles (DO-IT, 2012). UDL specifically assists students with invisible disabilities and alleviates the need for accommodations for many students.

Research has noted that in higher education, UDL promotes a feeling of community and interaction among students that leads to increased success (Rao et al., 2014). UDL also helps to build a classroom environment of inclusion (Rao et al., 2014). In 2010, UDL was recognized by the U.S. Department of Education's National Education Technology Plan "as a framework that can benefit all learners, in particular those who have been underserved" (Meyer et al., 2014).

UDL is gaining popularity as states, school districts, colleges, and universities in both the United States and Canada are propelling UDL initiatives. Australia, South Korea, and Spain are even joining the movement (Meyer et al., 2014).

UDL IMPLEMENTATION INITIATIVES

In 2010, Maryland passed the Universal Design for Learning Act (Task Force to Explore the Incorporation of the Principles of Universal Design for Learning into the Education Systems in Maryland, S. 457, 2010). This was the first state-level UDL legislation. The Act established a task force to implement UDL principles into the Maryland's educational system. The task force was assigned to make recommendations regarding the feasibility of incorporating and applying UDL principles, evaluating the incorporation of UDL principles, and study the effectiveness of UDL (Task Force to Explore the Incorporation of the Principles of Universal Design for Learning into the Education Systems in Maryland, S. 457, 2010). This Act included using UDL curricula, assessments, and following UDL guidelines for selection of textbooks, course materials, and technology. It also requires UDL principles to be included in all state plans, including the strategic plan, technology plan, master plans, institutions of higher education program approval, and professional development plans. UDL will also be considered in requests for proposals, grant criteria, and program approval criteria (Maryland State Department of Education, 2011). This Act specifically addresses higher education to ensure all faculty understand UDL, embed UDL in the vision and strategic planning of the institution, ensure UDL is modeled throughout in-service programs, and provide active support for implementation (Maryland State Department of Education, 2011). In 2011, the Maryland State Board of Education voted unanimously to incorporate all recommendations made by the task force (Task Force to Explore the Incorporation of the Principles of Universal Design for Learning into the Education Systems in Maryland, S. 457, 2010).

Ensuring Access through Collaboration and Technology (EnAct) was first established through grant funding in 2005, and a second grant, EnAct~Partnership, Technology, and Dissemination (EnACT~PTD) was approved in 2008. EnAct was funded by the Department of Education to support students with disabilities within California State University in attaining a post-secondary education. The awards of over \$2,000,000 were enhanced by the California State University Office of the Chancellor who provided an additional \$91,000 to meet the goals (EnAct, n.d). EnAct's survey feedback concluded the components that most influenced student success were informative and clear syllabi, multiple teaching styles and modes, offering pedagogical practices for engagement and feedback, and differing and detailed guidelines for course assignments (Gradel & Edson, 2009). The goal of EnAct~PTD was to establish partnerships and technology to ensure access to a quality post-secondary education and dissemination of resources to a vast audience (Ayala, n.d.). The EnAct~PTD led to the development of UDL-Universe: A Comprehensive Faculty Development Guide to help educate faculty about UDL. It also establishes faculty learning communities to help reinforce learning objectives and build collaboration.

College STAR (Supporting Transition Access and Retention) is a grant-funded project by the University of North Carolina system helping post-secondary campuses become more inviting of students with various learning barriers. The mission is to direct student support to specific populations of students and create a campus-wide focus on the UDL (College STAR, n.d.). Each campus mission, priority, and culture is considered when creating a unique program to fit the needs of the institution (College STAR, n.d.). The program provides a network for student support and instructional support and enables faculty to see practical uses of the

principles of UDL (University Communications, 2018). The program is expanding nationally to facilitate collaboration, research, resource development, and technical assistance for all colleges and universities (University Communications, 2018).

RECOMMENDED IMPLEMENTATION STRATEGY

Implementation of UDL is an institutional initiative and not individual faculty responsibility. The current student population is increasingly diverse. Students face many barriers to success including learning, sensory and physical disabilities, English language barriers, emotional issues, and low motivation (Gradel & Edson, 2009). CAST has developed a recommended UDL implementation process that involves the following five stages: (a) explore, (b) prepare, (c) integrate, (d) scale, (e) optimize, and begins with the need for change.

Explore

In the first stage, UDL is explored as a solution for a problem. An understanding of how UDL may influence what the institution does and who it reaches, as well as the impact it may have on both short-term and long-term goals, is necessary (Novak & Rodriguez, 2016). The main objective is to answer the question, “What does this institution want to become?” Novak & Rodriguez note that during this stage, awareness is built within the institution as well as the key stakeholders and should begin with the leadership team understanding the work ahead and impacts it may have.

UDL should not be introduced as another initiative, but with intent to show how UDL is a means to accomplish multiple initiatives and solve problems. Buy-in from key stakeholders is essential in this stage. Novak and Rodriguez (2016) suggest the “use thematic coding of

attitudinal data from stakeholders to build consensus and engagement, report data out in meaningful and accessible ways using multiple means of representation, and demonstrate a bridge among information-gathering, district and school goals, and action plan development” (p. 18). Finally, the institution must determine the interest of the involved parties to integrate UDL and begin the implementation phases.

Prepare

The first implementation phase is to prepare. This involves creating a culture that is accepting of change (Novak & Rodriguez, 2016). McKinsey and Company (2001) suggest institutions can change and strengthen their culture by making positive changes that build on a shared commitment and relate back to the mission. Change to culture is a difficult process that requires time and resources, but the favorable outcomes can be significant (McKinsey & Company, 2001). There needs to be a “coherent sense of educational purpose at the institution level” (Fink, 2013, p. 226). If the institution as a whole does not work towards implementation, the disconnect will cause the initiative and motivation to crumble. “The key to building a UDL culture is securing the necessary resources and agreement to support UDL implementation across stakeholder groups” (Meyer et al., 2014, p. 168).

The UDL focused resources needed must be obtained, which can be accomplished by developing a strategic vision, action plan, and assessment of the process that everyone has contributed to and is in agreement with (Novak & Rodriguez, 2016). A strategic vision must be built with feedback from faculty, staff, and community. It requires input from all parties, defining the global context of the work, focusing on the future, and engaging in self-management and action (Novak & Rodriguez, 2016). Creating an action plan includes identifying

goals and objectives that are data-driven, scaled appropriately, align with the mission, and represent community needs (Novak & Rodriguez, 2016). These goals and objectives should be measurable and evaluated regularly in the assessment process. Novak and Rodriguez also suggest that all feedback should be encouraged, analyzed, and communicated to ensure the institution is prepared to integrate UDL.

Integrate

The second phase is to integrate. Awareness and the initial training on UDL began in the explore and prepare phase, but continuous development is necessary throughout the process. As UDL is being implemented, a strong support system should be available. In building a UDL culture, Cadyce Enguist Rennegarben, faculty member at Tacoma Community College noted that “strong administrative support is the most important element” (as cited in Meyer et al., 2014, p. 169). Administrators who are knowledgeable can align faculty evaluations and expectations with the UDL framework and therefore support the integration, improve instructional leadership, and provide meaningful feedback to faculty (Novak & Rodriguez, 2016).

Professional development to educate faculty and staff on how to effectively implement and use UDL is necessary, as well as continued engagement with the community and stakeholders (Novak & Rodriguez, 2016). Fink (2013) warns that faculty need better support to have any chance of making changes. Novak and Rodriguez (2016) suggest building a network of support by having ongoing public engagements, connecting with individuals as owners, reflecting different voices, building common ground, and creating knowledge. Faculty need to

know that their efforts are valued, have time to actually learn and implement new ideas, and receive recognition or awards for improvements and success (Fink, 2013).

Scale

The third phase is scale, or to provide continuous support for growth in UDL (Novak & Rodriguez, 2016). Continued learning is essential to be more effective and proficient (Fink, 2013). Support for UDL can be accomplished with communities of practice. Communities of practice allow for a significant amount of time to provide camaraderie and enhance collaborative learning (Gulamhussein, 2013). They also promote efficacy and confidence (Darling-Hammond et al., 2017). Communities of practice are encouraged for implementation of UDL, as they help connect how the theory works and shape interactively how to put UDL into practice (Meyer et al., 2014). Meyer et al. suggest communities of practice as they

bring members' experience of practice, both individual and collective, to their shared learning experience, and in this way, they collectively make sense of processes, translate these into classroom practices, align new practices with existing ones, and reshape or eliminate practices that no longer allow new processes to work. In this way the community takes responsibility for pushing practice and processes forward. (p. 159)

As faculty and staff continue to grow and learn, advanced training should take place to expand effectiveness. Advanced training can come in forms of team learning, for example, communities of practice. Institutions should also continue to evaluate the process identifying any needed change (Novak & Rodriguez, 2016).

Optimize

The final stage of implementation is optimization. This includes continuing to build a culture that values teaching and learning principles that mirror the UDL principles (Novak &

Rodriguez, 2016). It also requires planning for internal or external changes that may impact growth and includes staying abreast of current technology. Technology increasingly plays a lead role in providing flexibility in the way educational materials can be presented, acted upon, and engaged with, which is essential to implementation of UDL (Center on Online Learning and Students with Disabilities, 2012).

The process is a continuous cycle that will need constant assessment. This can be done by regularly reviewing the capacity development framework to ensure all components are working together to support the mission. Revisiting each phase and how each are being integrated into the capacity development change theory will ensure proper implementation of UDL institution wide.

BARRIERS

Change begins with one individual who becomes an advocate for the cause. The issue is that faculty face many barriers to change. Generally, people are creatures of habit and resist change, as it requires finding time and resources to learn and implement new techniques (Fink, 2013). Fink also suggests that faculty receive little support or encouragement to try something new. A combination of these barriers, along with the lack of research that validates the effectiveness of UDL in higher education, influences faculty and institutional buy-in for implementation (Kumar & Wideman, 2014). Research indicates there are seven distinct challenges in implementing UDL into higher education institutions. Gradel and Edson (2009) identify the following barriers: (a) differing visions of expectations, process, and outcomes; (b) time and competing contingencies needed to “gear up,” implement, and maintain new practices; (c) staff/faculty turnover; (d) technology fears and learning curves, for both students

and faculty; (e) adequacy of campus dissemination/training vehicles; and, (f) resources access and exchange. Essential to implementation are administrative and faculty support, appropriate available technology, professional development opportunities, building awareness, and cultivating a culture centered on UDL.

CONCLUSION

Without understanding the need for change, implementation efforts will not be successful. UDL provides a framework that can accommodate the various learners at the community college and provide flexibility in achieving educational goals. Implementation of change requires a framework that can model the path for success. A theoretical and conceptual framework was provided to influence this change, along with the perceived benefits and challenges. The next chapter addresses the methodology used in this research to understand institutional capacity to implement UDL.

CHAPTER 3: METHODOLOGY

INTRODUCTION

This chapter details the qualitative design and procedures used for research purposes. It explains why qualitative research, specifically the use of a sequential, comparative case study method is appropriate. It also discusses the sampling selection procedures, data collection, and analysis, and addresses other factors in research such as the validity and limitations.

PURPOSE AND DRIVING QUESTIONS

The purpose of this research was to gain in-depth knowledge to help develop a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation. This research may enable institutions to gain an understanding of the capacity requirements to implement UDL successfully. To achieve this understanding, the following driving questions were addressed:

1. What strategies from an administrative and faculty level support successful implementation of UDL?
2. How does available technology make UDL implementation more manageable?
3. What type of professional development opportunities increase the success of UDL initiatives?
4. What is done to create stakeholder, faculty, and staff awareness and acceptance?
5. How does the institutional culture lead to welcoming and adapting to innovation and change?

These driving questions provided guidance to the research plan and were indicative of the methodology best suited for the research design.

QUALITATIVE RESEARCH

A sequential comparative case study, qualitative approach was used to gain in-depth knowledge about characteristics identified as necessary at an institution to effectively implement UDL. Qualitative research is defined in a variety of different structures, but with the similar focus of “understanding the meaning people have constructed” (Merriam & Tisdell, 2016, p. 15). As additional state initiatives for UDL continue to be approved and advocacy groups gain momentum, the necessity to understand the resources and training needed for implementation of UDL among community colleges is important, especially due to the open-access design and the mission of the community college to provide an accessible education. Qualitative research methods should be used to gain a better understanding of a new concept, new perspectives, or to obtain more in-depth information (Heopfl, 1997). UDL is a relatively new design framework, and therefore at the community college level, limited research has been conducted.

One goal of qualitative research is to provide a product that is highly descriptive (Merriam & Tisdell, 2016). Qualitative data analyzed to describe the success of implementation of UDL will give readers an understanding of the necessary characteristics to implement UDL effectively. Finally, by providing in-depth information on implementation features, institutions will be able to use this information to better equip themselves in preparation for UDL initiatives.

CASE STUDY METHOD

A case study approach is appropriate as Yin (1994) states this method is preferred when “how” or “why” questions are being used, the researcher has little control over events, and the phenomenon is contemporary with real-life context. A case study method is defined by Creswell (2013) as a qualitative approach that explores a bounded system with detailed, in-depth data collection involving researching documents, observation, and interviews to report a case description and case-based themes. The goal of this research is to provide enough details to instruct successful implementation of UDL; therefore, a case study approach is appropriate. A case study approach is also appropriate because it highlights the uniqueness of the colleges that demonstrate UDL methods. The methods and resources used to implement this effectively can be shared to help other institutions do the same.

A comparative case study is a sequential method that uses two or more cases to obtain necessary data (Beasley & Kaarbo, 1999). As three institutions were utilized for collection of data, this method is appropriate. This method allows for both focused and structured comparison as it is selective in nature but uses general questions to guide comparative data collection (Beasley & Kaarbo, 1999). A purposeful sample selection was used, along with identical guided interview questions, following this protocol. The comparative method studies a few cases to enhance the descriptive properties of the case and focuses on finding similarities among cases to provide explanations (Collier, 1993). Providing a smaller case study approach for institutions allows for large amounts of information to be collected in a variety of areas demonstrating the qualities these institutions have to support UDL across the institution (Lewis-Beck, Bryman, & Futing Liao, 2004). A comparative smaller case study approach is appropriate

when only a few situations exist that exhibit the attributes under the study (Collier, 1993). There is a scarce number of institutions in higher education that utilize UDL. A comparative method provides sufficient details to assess the required elements to implement UDL.

This research was sequential as a Delphi survey helped provide the initial elements of UDL implementation followed by interviews. The Delphi survey, along with studies done in the field, was used to identify necessary characteristics to implement UDL. A purposeful sample of three colleges that have been recognized as having these UDL features through grants, awards, or by the Center for Applied Special Technology (CAST), the leader in UDL, was selected for sampling. Administrators and faculty at each of these colleges were interviewed to gain knowledge about each characteristic. The data collected was analyzed and coded into common themes by each college. Each coding and theme was compared between colleges to find similarities and common themes. The common themes generated line items necessary for UDL implementation in each category. This developed into a scorecard for community colleges to assess the capacity to implement UDL.

SAMPLING AND DATA COLLECTION

The data collection process for gaining in-depth knowledge on developing a scorecard to assess institutional capacity for UDL implementation required a sequential process. In the first phase, a survey was completed using experts in the field to determine the characteristics necessary to effectively implement UDL at an institution wide level. The second phase included interviews from the sample schools that have these characteristics and have been cited in grants, studies, or awards for UDL implementation. The data collection process included

selecting the sites and people who could provide the most relevant data, determining the permission needed to collect this data, as well as the types of data that were collected. Interview participants were provided with the reasoning for both the method and type of data that was being retrieved. Field notes were taken after each phase of the process. The data collected allowed the researcher to build a strong foundation for the reliability of the scorecard developed. The following approach was taken to develop a scorecard to assess institutional capacity to implement UDL.

Phase 1- Initial Survey

Driscoll (2011) states that surveys are a useful data collection technique if the researcher is looking for general trends in expert opinions, experiences, or behavior. Surveys also provide the ability to find smaller amounts of data from a larger population to support the characteristics required in the implementation of UDL (Driscoll, 2011). The Delphi survey technique is used when the researcher wishes to seek out information from a group of experts to generate a consensus (Hasson, Keeney, & McKenna, 2000). This is a multistage process in which the participants can provide a qualitative initial response and follow up surveys are used to provide a ranking order of the initial characteristics. The following steps were taken to administer this survey.

1. A purposive sampling was used to select the experts. Twitter provides a UDL Chat that allows experts in the field to discuss recent UDL topics. This group represents various experts in the field from different organizations, schools, and colleges. Participants from this group were used as the expert sample.
2. Public information was obtained to contact all individuals. Twitter is widely used by UDL experts and was the main method of contact. Public email addresses were also used when Twitter was not available. The purpose of the study, expectations of the

survey, and potential survey questions were sent to participants (see Appendix A). Participation was voluntary, and consent to participate was noted.

3. To those who agreed to participate, the first round of the survey (see Appendix B) was sent electronically with a link to a SurveyMonkey website. This is the first stage of Delphi, which consists of discovery of opinions (Hasson et al., 2000). The question was posed, "What characteristics do you believe are necessary to successfully implement UDL at a community college?" There were seven open boxes to fill in.
4. This data was analyzed, and, if necessary, confirmed. If an answer is not specific, more details were requested. Common trends were grouped together by category.
5. The second round of Delphi included sending out the common categories to the same participants and asking them to rank in order of importance. This was also done electronically with a link to a SurveyMonkey website (see Appendix B). The top six characteristics noted were sent out to be ranked by the experts.

A flowchart of the Phase 1 process is illustrated in Figure 4.

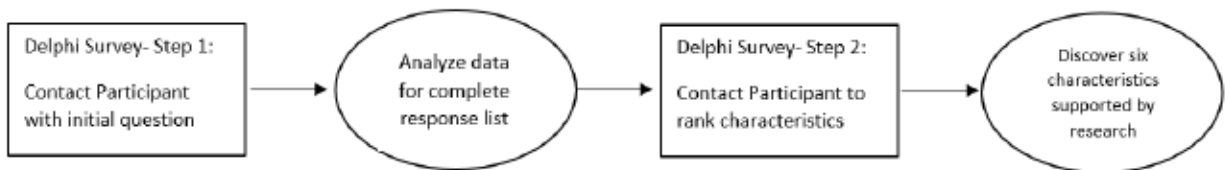


Figure 4. Phase 1 Process

Phase 2- Interview Questions

Based on the information obtained in the Delphi survey, six characteristics were identified. The six characteristics deemed necessary for UDL implementation were culture, awareness, administrative support, faculty support, professional development, and technology. These six characteristics were then researched through studies previously done, grants that were approved, and awards that were received as they relate to UDL implementation. The researcher developed interview questions that relate to the identified characteristics. It is important to have the correct questions during the interview process as the researcher only has one chance to gain insight from the participant. Merriam and Tisdell (2016) suggest the

researcher avoid leading questions to minimize bias as well as “why” directed questions as these types of questions tend to limit conversations.

Panel of Experts

A panel of recommended UDL experts representing a community college administrator, faculty, and implementation staff reviewed these interview questions. These experts have experience with UDL and can assess the questions for clarity and that the objective of the questions could be understood. Questions were tested prior to the actual interview to ensure they were easily understandable and the objective of the question could be understood (Lewis-Beck, et al., 2004). Additionally, the better the quality of questions, the fewer interviews that would be needed to obtain required information (Lewis-Beck, et al., 2004). Changes to the clarity of the questions were then made (see Appendix C).

Pilot

The interview questions were then piloted with a community college faculty member and an administrator who were known to be familiar with and implement UDL on a regular basis. Piloting questions with someone knowledgeable in the research area was helpful to identify any concerns. Based on feedback from pilot, adjustments to interview questions were made. All changes to questions were documented. See Appendix C for interview questions and changes. A flowchart for Phase 2 of the process is illustrated in Figure 5.

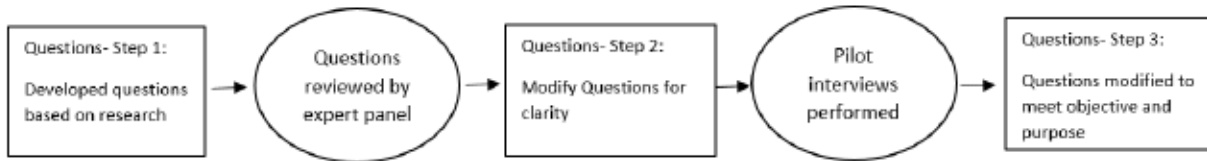


Figure 5. Phase 2 Process

Sample

A purposeful sample of schools that exemplify the characteristics identified by the experts were requested for face-to-face interviews (see Appendix E). The researcher selected three colleges that have been recognized in the area of UDL through grants, awards, or by CAST. The criteria used to determine the case study institutions were:

- an American community college
- open admission policy
- comparable faculty to student ratio within sample
- Students registered with disability services were less than 10%
- grant awarded which would be used specifically for UDL
- exemplified at least three characteristics noted by expert panel

Schools that met the criteria were analyzed to ensure that characteristics exist, personnel were available and willing to participate, and location and timing were feasible with the study timeline. Although online interviewing via Skype and other technology may limit these constraints, this approach does not allow the researcher to build a rapport with the participant that would create possibilities for collection of more meaningful data (Merriam & Tisdell, 2016). The researcher noted that institutions are in different stages of the UDL implementation process and this would possibly provide a broad perception of implementation.

Although this was not purposeful, it would provide richer information. Each institution provided permission to conduct interviews. In all written documents, the research subjects are referred to by a pseudonym connected to their institution, such as Novice College (less than one-year experience implementing UDL), Developing College (less than five years of experience implementing UDL), and Expert College (more than ten years of experience implementing UDL) to remain anonymous.

Novice College is a community college with an open admission policy in the suburbs of Chicago. Novice College received a grant in 2017 to implement and promote professional development in UDL. The Fall 2016 enrollment of Novice College was 6,371, with a student-to-faculty ratio of 18 to 1 (Integrated Postsecondary Education Data System [IPEDS], n.d.). Only 7% of students are registered with disability services, showing a need for UDL implementation as national averages of students needing accommodations is much higher (IPEDS, n.d.). The full-time faculty at this college make up 33% of total faculty (IPEDS, n.d.).

Developing College is a community college with an open admission policy located in southern Illinois. Developing College received a grant in 2013 that was used to develop a faculty fellows program and certification courses for UDL. The Fall 2016 enrollment of Developing College was 5,282, with a 19-to-1 student-to-faculty ratio (IPEDS, n.d.). Only 4% of students are registered with disability services at this college (IPEDS, n.d.). The full-time faculty ratio is 30% (IPEDS, n.d.).

Expert College is a community college with an open admission policy located in central Michigan. CAST recognizes Expert College as a leader in UDL initiatives, mentioned in literature, and received a grant prior to 2012 to provide UDL resources to faculty. The enrollment of

Expert College is slightly higher than Novice College and Developing College with 14,464 in the Fall of 2016, but the student-to-faculty ratio is still comparative at 19 to 1 (IPEDS, n.d.). At this college, only 4% of students are registered with disability services, as with Developing College (IPEDS, n.d.). The full-time faculty ratio is also similar to the other colleges at 41%, as this is the largest college it is understandable that the full-time percentage is higher (IPEDS, n.d.).

Interviews

It is common for qualitative research to begin with in-depth interviews to build deeper understanding of the issue and engage participants in the process (Merriam & Tisdell, 2016). Based on the selection criteria that helped identify the three institutions, interviews with appropriate administrators and faculty were conducted. A semi-structured interview process was used to collect required data. Common in qualitative research methods, this approach provides open-ended questions allowing the researcher to collect experiences and perceptions from the participant (Merriam & Tisdell, 2016). The semi-structured approach allowed for probing questions for clarification or more details of an interviewees' response. An interview guide allows the researcher to have some structure and guidance while the interview takes place (See Appendix E). These questions were provided to the interviewee two weeks prior to the interview. Each interview was expected to last approximately 60 to 90 minutes long and was held at a location of the interviewee's choosing. An interview guide was prepared based on the purpose of the research and the specific details that would need to be known. An interview guide allows more structure to the interview and helps organize and analyze the data obtained from the interview. An interview guide provides a quality, reliable source to substantiate the interview data (Bowen, 2005). Lewis-Beck et al. (2004) noted the following qualification that

prove that an interview guide for comparison data would best fit this research: studies have shown that even the smallest changes in wording of a question may affect the answers that are given. Lewis-Beck et al. (2004) also note that if the wording of questions is not predetermined, it may not achieve the same objective on each interview, and that the answers to questions in an interview can be put into categories so that the answers are not misinterpreted while analyzing the data.

Data Collection

Each interview was recorded upon consent of the participant to fully capture all aspects of the conversation. This also allows the researcher to fully participate and engage in the interview. Bias can be minimized with the use of recording as the researcher does not have to rely on memory and direct quotes can be obtained (Driscoll, 2011). Upon consent of the interviewee, the interview was audio recorded. These recordings were then transcribed by the researcher. The audio file and transcripts reflect pseudonyms for each institution and interviewee identifying only by role at the institution and institution implementation status (novice, developing, or expert). No personal identifiers were used since no personal information was collected or used. Only the researcher had access to the study data. Study data will be stored for seven years after the defense, which is projected to be December, 2018. All study data was encrypted and stored on a password-protected external drive.

Immediately upon completion of each interview, descriptive field notes were taken. The date, time, and location of interview were noted. These notes include information that the researcher has based on all senses, such as feelings, sounds, and sights. A diagram of setting was included so the researcher can put himself or herself back into the moment if desired. A

structured field note document gave the researcher consistent data on each interview. These field notes allow the researcher to be fully engaged during the interview process but provide comparison data between interviews.

DATA ANALYSIS

Data analysis began with a data management plan. The researcher wanted to limit any unnecessary data collected and have a way to organize needed data, so it could be easily retrieved as necessary. Characteristics were developed from the initial survey responses from experts in the field of UDL. The researcher analyzed responses to discover patterns and connections among elements in these surveys. The surveys uncovered the major characteristics that involve UDL implementation. The follow-up survey determined ranking order of importance of these characteristics. A systematic approach was used to begin the data management plan. First, the researcher distinguished information between these characteristics and then assign a coding process to identify categories within each characteristic (Ke & Wenglensky, 2010). Transcripts from interviews and field notes were reviewed multiple times to identify categories through a coding and memoing process. Coding allows the researcher to form concepts around the underlying issues by eliminating the “noise” of the data (Ke & Wenglensky, 2010). Coding is a multiple step process in which a descriptive code is applied to data collected to summarize segments of data. Later, pattern coding was applied to bring smaller amounts of data together for more meaningful pieces (Punch, 2009). This information was used to reveal examples within the categories for UDL implementation. Finally, memoing, which includes recording thoughts, ideas, or feelings, helped the researcher further describe the data. Memoing moved the research from descriptive information to conceptual

information and allowed creativity to be introduced to the research to translate the categories and examples into the UDL implementation scorecard. (Punch, 2009). This process helped make the data collected more understandable and usable to the researcher. A data codebook was used to organize characteristics, categories, and examples.

A framework model was used when developing categories through analysis of semi-structured interviews and field notes. The researcher used the Miles and Huberman framework, which is an interactive model that uses data reduction, data display, and drawing and verifying conclusions (Miles, Huberman, & Saldaña, 2014). The goal was to transform, interpret, and make sense of the data collected. As the volume of data collection increased, the continuous framework of Miles and Huberman helped to effectively manage the data. The first step in the framework was organizing the data with a data reduction technique that included editing, segmenting, and summarizing the data received (Punch, 2009). Categories were used to organize large amounts of data within each characteristic. Merriam & Tisdell (2016) recommend using a smaller number of categories in order to be able to better communicate findings to others.

In the data display step of the framework, the researcher used categories discovered during the data reduction and focused on related information from each college to begin to form necessary categories for UDL implementation. These categories were charted to help the researcher visualize the necessary implementation steps and what is involved in each category. According to Gale, Heath, Cameron, Rashid, & Redwood (2013), "Good charting requires an ability to strike a balance between reducing the data on the one hand and retaining the original meanings and 'feel' of the interviewees' words on the other" (p. 5). It also allowed the

researcher to compare data collected among the different categories and colleges to determine if there were any overlapping ideas. This stage of the process involved sorting and organizing data. It also allowed the researcher to review data collected and perform quality control checks on the information gathered. Good qualitative analysis requires repeating this data display process throughout the entire research process (Punch, 2009).

The data display process was helpful to the researcher to know when enough data had been analyzed to draw and verify conclusions. During the initial phases of the analysis process, conclusions may be discovered, but need more validity. This required the researcher to circle back to the data collection and begin the data reduction process once again. Finally, firm conclusions were drawn from the data collection and properly verified to signify the data analysis process was complete and enough data had been collected.

Other considerations were acknowledged by the researcher during the data analysis process. First, adequate time was needed to be scheduled for proper analysis. The researcher planned for five hours of analysis time for each hour of collected data. This allowed for proper analyzing, describing, coding, memoing, and charting of data. Data was also safely stored. Two copies of data were stored securely in different places to minimize any issues that may cause loss of data. Data will be kept for seven years for verification purposes.

VALIDITY

The researcher was concerned with both internal validity and external validity. Internal validity deals with how the information from interviews and observations were translated by the researcher and how that matches the reality of the situation. Reality can be construed according to varying opinions, and therefore validity cannot be proved and must be assessed

based on the relationship it has to the purpose of the study (Maxwell, 2013). The researcher verified with each interviewee that information retrieved was appropriately construed. External validity refers to how well the conclusions of the study can be applied to another situation. In terms of developing a scorecard for UDL implementation, external validity can be tested by following the audit trail and testing the findings. In this study, each step of the research was thoroughly planned to achieve high quality. For example, in this research, interview questions were tested with someone knowledgeable in the area to verify that they are adequate, and piloted interviews were conducted with subject matter experts. Adjustments were made to ensure the questions met the objectives. An interview guide was used to provide a quality, reliable source to substantiate the interview data (Bowen, 2005). In order to provide quality research, Glaser (1978) explains that increased validity of data relies on its fit, grab, workability, and modifiability. Fit and grab relate to how well the data makes sense and resonates with the research (Glaser, 1978). Workability refers to if the data can describe or explain something, whereas modifiability is its usefulness to accommodate future data (Glaser, 1978). All data retrieved was thoroughly analyzed through a framework that provided clear guidance and was useful in providing substantive data to build the implementation scorecard.

Validity can be achieved by paying “careful attention to a study’s conceptualization and the way in which the data are collected, analyzed, and interpreted, and the way in which findings are presented” (Merriam & Tisdell, 2016, p. 238). The audit trail of the research was well documented for verification purposes, thus could be repeated by any researcher to understand how the researcher obtained and constructed the conclusion.

Trustworthiness continues to build credibility, dependability, and confirmability within the research study. One way to accomplish this is to use references from individuals accredited in the area of study. The surveys done to establish characteristics necessary for UDL implementation at an institution level were determined by experts from CAST, Universal Design for Learning Implementation and Research Network, Universal Design for Learning Credentialing and Certification Initiative, Educause, as well as faculty that implement UDL at various institutions. Detailed interview and analysis techniques built a foundation for a trustworthy interview. Piloting questions with someone knowledgeable in the research area was helpful to identify any concerns before the interview process. Triangulation was also used to further build trustworthiness of the data. Triangulation involves cross-checking and comparing data collected to other sources to increase credibility (Merriam & Tisdell, 2016). Implementation strategies uncovered during interviews were verified by documented research in the field or with a characteristic revealed by the experts. Finally, Krefting (1991) recommends member checking as a way to increase credibility in research data. Member checking was done after interviews and required revealing research data to participants to ensure the researcher has accurately translated the appropriate viewpoint into the data (Krefting, 1991). This was important to verify that the researcher had interpreted accurately the viewpoints of the interviews.

The researcher must be ethical in the sample selection, collection, and analysis of data. The Belmont Report summarizes the ethical principles and guidelines to follow while completing research with human participants. The Report has three basic ethical principles that are the foundation for the regulations: respect for persons, beneficence, and justice (National

Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). Respect for persons relates to protecting the autonomy of all people (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). This requires treating people with courtesy and obtaining informed consent. Beneficence refers to a cost benefit analysis whereas the researcher is responsible for minimizing risks to the participants while trying to maximize the benefits of research, and justice requires that research methods be fair and reasonable (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). To ensure these guidelines were followed, approval from the Institutional Review Board (IRB) was sought. The IRB determined that this research does not meet the Federal Definition of research on human subjects, as defined by the Department of Health and Human Services or the Food and Drug Administration (see Appendix F). Therefore, approval by the IRB was not required for this project. Each college researched also determined individually that additional IRB approval was not necessary.

DELIMITATIONS AND LIMITATIONS

In all qualitative research, there is potential for researcher or participant bias. Yin (1984) states that informal manipulation can occur based on participant observations. The researcher acknowledges that prior experiences and knowledge of the subject matter prior to research may influence perceptions gained. To limit these biases, the researcher was careful to utilize the interview guide with participants, which was verified through a review process, and adhere to the goal of obtaining information to build a useful UDL implementation scorecard.

This study also had time restrictions and funding limitations that may have impacted the data collected and analyzed. These delimitations included travel distance, available

documentation of community colleges that utilize UDL in these areas, and the number of interviews that could be performed. To address these delimitations, the researcher selected a purposeful sample of community colleges for the case study that was a reasonable representation of the community colleges that implement UDL at various stages.

The interviews were designed to obtain the in-depth knowledge required access institutions' capacity to implement UDL and build a scorecard to allow transferability of these findings to other community colleges. Some limitations were seen during this process that could influence findings. One interview participant was in the process of changing roles in the organization, and other interviewees had additional responsibilities after the interview timeline, both of which may have influenced their answers to interview questions. The researcher was able to send transcripts back to participants to verify accuracy and ask for any additional comments to restrict these limitations.

The analysis process required sorting and coding large amounts of data. The researcher acknowledges that the process may have overlooked data meaningful to the steps or activities to implement UDL. To help overcome these limitations, a framework was used to systematically and methodologically review data. The data was also reviewed multiple times to ensure all necessary information was taken from the analysis.

CONCLUSION

This study utilized a qualitative, sequential comparative case study approach to assess an institution's capacity to implement UDL in community colleges. Data collection was accomplished in phases. First, a Delphi Survey was sent to experts in the field to determine characteristics necessary to implement UDL, and information was obtained to rank these

characteristics in order of importance. Next, a sample was selected of three community colleges that portrayed these characteristics and were recognized through grants, awards, or by CAST. Interviews were completed using an interview guide. Field notes were also completed after each interview. Data was then analyzed using a comparative method and coding process to highlight the best practices when implementing UDL under each characteristic to build an effective scorecard. Appropriate measures were applied during the process to ensure validity, reliability, and transferability of data collected. Finally, limitation and bias were addressed.

CHAPTER 4: SUMMARY OF QUALITATIVE FINDINGS

INTRODUCTION

This study sought to discover insights and information on developing a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation. This research may enable institutions to gain an understanding of the requirements to implement UDL and information on areas that may need improvement to meet the needs of all students. A qualitative, sequential comparative case study approach was used to gain in-depth summaries of the qualitative data collected through semi-structured interviews. Data from these interviews was used to address the research questions and build the scorecard to assess institutional capacity of UDL implementation. The qualitative data was analyzed to identify convergent and divergent themes among the colleges. The data from the interviews was then further scrutinized to find actions and examples of activities for each theme to create the scorecard.

PURPOSE AND RESEARCH QUESTIONS

The purpose of this research was to gain in-depth knowledge on developing a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation. This research enables institutions to gain an understanding of the requirements to implement UDL successfully. To achieve this understanding, the following driving questions were addressed:

1. What strategies from an administrative and faculty level support successful implementation of UDL?

2. How does available technology make UDL implementation more manageable?
3. What type of professional development opportunities increase the success of UDL initiatives?
4. What is done to create stakeholder, faculty, and staff awareness and acceptance?
5. How does the institutional culture lead to welcoming and adapting to innovation and change?

DATA COLLECTION PROTOCOL

Qualitative data was collected from two sources. First, a Delphi survey was conducted with experts in the field to identify characteristics necessary to implement UDL. The findings of the survey were then sent back to participants to rank the order of importance of the characteristics identified. The top six characteristics were researched to construct the appropriate interview questions.

Interviews were conducted at three institutions with similar characteristics but in different stages of UDL implementation. Novice College was in the first year of UDL implementation. Developing College had been implementing UDL for less than five years. Expert College had been implementing UDL at the institution for over ten years. Semi-structured interviews were conducted with two individuals at each institution, one interview with a faculty member and one with an administrator. Each individual had participated at some level in the UDL implementation. An interview document (Appendix E) was used to guide the interview and facilitate similar conversations among interviews.

Prior to the fieldwork, a panel of experts representing both administration and faculty personnel reviewed the interview questions for clarity. The recommendations of the panel were incorporated into the interview guide. Pilot interviews were then conducted with

additional administration and faculty to further refine the interview questions (see Appendix C). Data collected from pilot interviews were not included in research results.

Interview participants were identified through grant applications and recommendations. They were then contacted via email with the specifics of the study to determine if they were interested in participating in the interview. Semi-structured interviews were conducted on each campus. Interviews were recorded and transcribed to identify coding and themes. Member checks were also performed to verify accuracy of transcribed interviews.

INTERVIEW PARTICIPANT PROFILES

Two interviews were completed at each college, for a total of six interviews in the study. The individuals selected represented one faculty and one administrator from each college. Novice College included an interview with the manager of access and disabilities. This interviewee has over 20 years of experience in postsecondary education with a background in education and communication sciences and disorders. The faculty member chosen from Novice College has taught accounting in higher education for over 25 years. Developing College included an interview with the director of online learning and instructional technologies. This interviewee has a doctorate degree in curriculum and instruction and has experience at both the community college and four-year university levels. This interviewee's career also began as a teacher and guidance counselor. The faculty member from Developing College is an associate professor who has been teaching in liberal arts for 13 years and has participated in a fellowship for UDL. Expert College included an interview with the director for the center of teaching excellence and who was previously a professor at the college. The professor interviewed from

Expert College has been practicing and teaching law for over 25 years. This interviewee is also the online faculty trainer at this college.

QUALITATIVE FINDINGS

During Phase I of the research, the Delphi survey revealed that administrative support, faculty support, technology, professional development, awareness, and culture were necessary characteristics to implement UDL. These were set as *a priori* characteristics and supported through research during the literature review. In this section, findings from the semi-structured interview process were used to address the research questions and analyze the six characteristics identified during the Delphi survey. As shown in the interview questions (Appendix E), each question was designed to find detailed information on the six characteristics to discover additional themes. The interview questions based on these characteristics helped to answer the initial research questions.

The interview transcripts were coded to determine themes. Themes that answered each interview question were identified, along with actions and examples of activities that provided support for the theme. The findings that supported each research question based on the interviews are summarized below, sorted by the different college perspectives.

RESEARCH QUESTION 1:

What strategies from an administrative and faculty level support successful implementation of UDL?

Administrative Support

A summary of all findings related to administrative support are summarized in Table 1.

Table 1: Administrative Support

COLLEGE	SUMMARY OF FINDINGS
Novice College	<ul style="list-style-type: none"> Infuse into daily activities Give rewards/show recognition Build relationships across campus Provide release time
Developing College	<ul style="list-style-type: none"> Nominations for national recognition Partner with faculty on grant applications Use UDL at administrative level Provide compensation for implementation Include in promotion, tenure, and assessments Require training Provide release time Provide resources
Expert College	<ul style="list-style-type: none"> Model UDL in training and teaching Set expectations Provide release time Prepare procedural manual for possible turnover Provide open communication Focus on academic leadership Employ specified person to monitor and facilitate implementation Monitor for compliance Provide recognition Show commitment of resources

Data collected from the interview process determined that all administrators should recognize that release time provided to faculty and staff for UDL implementation influences effectiveness. All colleges also noted that recognition provided to individuals who have implemented UDL creates a positive awareness. Interview data from all colleges revealed that if administrators model the use of UDL, acceptance is created. All colleges collectively agreed that providing the necessary resources for implementation makes the implementation of UDL more manageable.

The specific strategies for providing these incentives varied based on institutional experience with UDL. Novice College recommended implementing these themes to build awareness of UDL and get more individuals involved. Administration was using UDL and promoting it from an individual standpoint, instead of a college-wide goal. Progressing to a developing college, it was observed that responses often began with “we” instead of “I,” signaling a collective transition and not individual effort. Developing College is using these administrative tasks to continue to promote the use of UDL but is also starting to realize the impact. As the value of UDL is recognized, administration at Developing College is beginning to use UDL themselves and embedding it in required faculty evaluations. The administrative support given is building knowledge of UDL and sharing it among faculty. Expert College administration are more firm in their understanding and support of UDL and use it in training and assessments. Administrative support at the Expert College is proactive, providing reinforcement and commitment to UDL implementation.

The following themes of release time, recognition, modeling use of UDL, and providing resources are explored in further detail as described by interview participants. Analyzation and coding of qualitative data received during the interview process revealed actions and examples of activities that provide guidance on effectiveness of implementation of each theme.

Release Time

Release time proved to be an *a priori* theme as all colleges noted availability of time to research, learn, and implement any new ideas is limited among all competing priorities of faculty. Fink (2013) recognizes time as a critical condition necessary for faculty to implement change. Fink mentions faculty need support not only to learn, revise, and implement, but also

need help to find time to do this. All colleges interviewed had the ability to make resources available but did not allow sufficient time to understand how to use them. The faculty member from Developing College noted, “To me, it isn’t about the tools, we are really good about getting that stuff together.” What we really need is to “give more people more time to look at it.”

Release time came in different forms across the colleges. Novice College noted the importance of this release time but had not yet implemented anything. Developing College used two methods to create equivalency of release time by providing additional compensation. Developing College began a stipend UDL fellowship, which included training over multiple years. This fellowship created long-lasting benefits, as faculty at Developing College noted, we “spent so much time with this, we all really cared about it.” Faculty were “paid for a year, and now...[they have] us for life.” Developing College also supported UDL by providing compensation for approved implementation of UDL into a course. Training was provided, but faculty are not compensated for the professional development until proof of implementation. Expert College actually provided release time. Advocates who are willing to help train other members are provided one hour of release time per semester.

Recognition

All colleges noted the emerging theme of recognition as it was used to create awareness and reward those who have effectively implemented UDL. Recognition was available in a variety of formats. Interviewees recommended nominations through campus-wide awards, national awards, or including UDL factors in tenure, promotion, and assessments. At Novice College, a UDL faculty award was created to promote the use of UDL. Faculty at Novice College

also mentioned that recognition by awards is important and faculty strive for “Faculty of the Year, and NISOD nominees” and these are “all about embracing change in the classroom.”

Developing College supports recognition with encouragement of submissions to databases such as the College STAR (Supporting Transition Access and Retention), which can provide awards for scholarships for teaching and learning.

Developing College requires faculty to provide yearly assessments. The faculty at Developing College takes advantage of this requirement by monitoring use of UDL features. This faculty member explained, “We also have yearly assessment forms. Each year we are required to assess two things ... whatever you want to assess. Recently, I have been trying to assess this kind of stuff because it is a requirement and I am trying to make it useful for myself.” At Expert College, individual yearly action plans are guided by the college action plan. Each faculty evaluation was based on how they try to fit into the college’s overall plan.

UDL implementation provides recognition opportunities that can be beneficial for the tenure or the promotion process. Developing College administration noted these provide “opportunity for faculty who are up for promotion or tenure,” mentioning that administration should “try to provide options for them to build themselves up not only here but outside of the campus.”

Model Use of UDL

All interview data noted acceptance could be more easily achieved if administration is utilizing UDL effectively and showing value. The emerging theme of modeling the use of UDL by administration was strongly noted by each college. Developing College recently made a change to their orientation week. The administration at Developing College thought they should be

using UDL if they expected faculty to try it too. It was a success and created interest in UDL. The

Developing College administrator describe this experience:

We used to have a huge kick-off, an hour-and-a-half presentation from the president. It used to be all lecture, all PowerPoint. I am on the committee. I was like, we have to do something different. We have to be enthused, engaged. This is kick-off! This is key time! Could we bring UDL into this? So, we started the vice-president using Kahoot. People loved it! Not everyone had a smartphone, but this got me engaged. It is those subtle things that we are trying to do.

At Developing College, UDL is not recognized as a top-down initiative, which is why it was so important for administrators to use and support UDL. The faculty at Developing College noted,

We don't have top down directives very often. Which is why our UDL initiative has been challenging. It is easier top down, but then it is shorter lived, so having it be so open around here, people want to stay, they want to work, but getting them to buy into something might take them a little longer.

The buy-in process was more easily achieved if administrators modeled the use of UDL, showing value and support. Providing actions of UDL, such as using it in meetings, over the direction to use it produced a longer lasting benefit at Developing College.

Novice College and Expert College also noted the importance of modeling UDL. The administration at Novice College explained, "While it is hard to talk about disability services without talking about UDL, it is infused in there. I have done a couple of workshops that are specifically UDL, but it is infused in everything I do." Administration at Expert College also noted the importance of when speaking of providing any professional development by stating,

We focus...on teaching techniques, while modeling them through the whole thing. So, we make them participate in active learning when they come in. I think they catch that. It is embedded in the whole thing. We are modeling good teaching as we teach.

Providing Resources

The emerging theme of providing necessary resources to make UDL more manageable for faculty and staff to start implementation was noted by all colleges interviewed. All colleges noted they had no issues receiving necessary tangible resources, such as money, software, or technology. Colleges noted that if resources were not immediately available, they would collaborate among multiple department budgets to achieve the goal. Novice College applied for grants to get necessary resources. Developing College had faculty and administration collaborating together to apply for various grants to get tangible resources. The administrative support needed in this area is regarding faculty implementation support. As noted previously, faculty time and expectations are stretched. Faculty at Expert College address the need for support in this area:

There is kind of a friction between trying to make everything accessible ahead of time versus just in time. There is feeling that faculty are the ones responsible for it because they are the one that is offering the content to the student, therefore they are the ones that need to comply. At the same time, faculty are the subject matter experts, not the creator of accessible content experts. So, in terms of a barrier, I have been advocating for some support in the terms of some staff who would help them actually create the accessible content. So far, we don't have that, but I do think we need it. You can't put all the emphasis on faculty to do this upfront. You can't create a policy that just says you have to do it. But then, not offer them some way to do it. What I would love to see is even a pulling of resources around creating accessible content or structural designers with that background and sharing that knowledge across institutions. We've come a long way, but there is still a long way to go.

Expert College, having the most experience, noted that, "Students have appreciated it. If you asked our disability support service, the number of issues they have seen upfront has gone down substantially." The issue is providing enough support staff for all faculty to be able to implement this.

Faculty Support

A summary of all interviewee's perceptions on what is needed to implement UDL in regard to faculty support is summarized by college in Table 2.

All colleges noted that all instructors have issues and problems that need to be addressed. They all agree that UDL can address all of these problems, forming a theme of using UDL as a resource to solve faculty issues. In comparing the three colleges, all stress the importance of finding advocates that support UDL. Novice College recommends starting small and building buy-in to get faculty involved. This can be done by using one-on-one meetings to address specific problems. As value is created, faculty will become advocates for the cause. Developing College relied on these advocates to help train and support faculty on an individual basis. These advocates also began to present workshops and other learning opportunities to help faculty become aware of how to begin change. Expert College still deploys advocates, but focuses on team learning, especially communities of practice. Expert College has even broadened the support for faculty by expanding the communities of practice beyond the campus to collaborate with other institutions and build state-wide partnerships. Three actions remained consistent among all colleges: being a resource to solve problems, finding advocates who support UDL and one another, and facilitating team learning as necessary for UDL implementation. It was noted that as UDL implementation progressed in the colleges, the faculty support offered also continued to advance from providing individual support to creating initiative momentum with community collaboration. These actions are explored in more detail below as they relate to faculty support.

Table 2: Faculty Support

COLLEGE	SUMMARY OF FINDINGS
Novice College	Offer as a solution to the problem Incrementally implement Form allies Show value
Developing College	Create buy-in from understanding need Show value of small changes Address problems with UDL principles Provide opportunities to learn and try Find respected faculty and staff to promote Utilize one-on-one conversations Have knowledgeable faculty in multiple divisions Be a resource to solve issues
Expert College	Have UDL advocates Accessibility support team Institution and/or state-wide collaboration Reach out to faculty to help implement Knowledge sharing across institutions Team learning

Resource to Solve Problems

The process of implementing UDL can be overwhelming for faculty. With limited time, instructors are not looking for the newest trend. They want something that will solve immediate concerns. The emerging theme from all interview data showed colleges present the use of UDL as a resource to solve these immediate concerns. The best way to accomplish this is to have one-on-one conversations with faculty about their individual issues. As the administrator at Novice College said, “Teachers are looking for ways to be better teachers.” Developing College administrator promotes UDL to faculty in this way, saying, “it’s not, here is this new thing to do, it’s what are you struggling with in your classroom. Then once you find that out, then you can show them how UDL can assist.” Implementation of UDL then can be

incrementally infused into teaching to help balance time and feasibility. As value is seen, more is added. As Expert College stated, faculty are content experts. Administration at Novice College mentioned this as well, noting that faculty “are welcoming of things that are going to make teaching easier for them because nobody trained them how to teach.” UDL can assist them in becoming better teachers, while eliminating issues and concerns about teaching.

Find Advocates

Interview data revealed one supportive technique to make UDL implementation more manageable is to have peers knowledgeable and willing to help, presenting an emerging theme of finding advocates. As seen at all colleges, faculty commiserate with each other and share ideas. The first step in this process is to find faculty who are in favor of understanding and learning how to implement UDL to create advocates. Developing College has grown their advocacy program with the goal of having an advocate in each division of the college, so they are easily accessible to all faculty. Faculty at Expert College explained they also employ this program and provide release time for advocates: “They are faculty who get time to meet with faculty and support faculty as they do this.” The administration at Expert College recognize that peer education is part of a faculty role, stating, “I think that people are defining the teaching role as more than just teaching in the classroom.” Faculty are being expected to continue to educate themselves about teaching and learning and pass that knowledge to others.

Team Learning

Team learning is an effective way to build collaboration and consensus among an institution and promotes assurance and effectiveness in implementation (Darling-Hammond et

al., 2017). All institutions recognize this *a priori* theme of team learning by utilizing communities of practice to achieve the positive impact and promote strategic goals. Developing College and Expert College both employ communities of practice to support implementation of UDL. The administration at Expert College supports this form of learning as,

It is the adult learning model, they come in and bring what they know, and we share with each other. They get exposed to what the group knows, and what the facilitator knows as well. We let that organically happens, and it does because we have hired people that are aware of multiple techniques of teaching, and they bring that in.

Developing College admits that momentum to keep the community of practice as a formal activity is difficult with other things competing for valuable time. Expert College has a thriving community of practice by ensuring that new material is presented regularly. They invite speakers from other organizations to present, invite other colleges to join the community of practice to ignite contemporary ideas, and make sure it is a regular event on the calendar.

RESEARCH QUESTION 2

How does available technology make UDL implementation more manageable?

Technology

A summary of interviewees' perceptions on the impact of technology on UDL implementation is presented in Table 3.

Table 3: Technology

COLLEGE	SUMMARY OF FINDINGS
Novice College	Stay abreast of advanced technology Require the use of learning management systems Use online gaming platforms Good stewardship of funds allows for appropriate purchases

COLLEGE	SUMMARY OF FINDINGS
Developing College	Understand why it is being used Understand the purpose Understand how it relates to UDL Technology conferences to showcase use Innovation lab to explore Makes required accessibility easier to accomplish
Expert College	Availability of resources Multiple locations of available technology for faculty and students Combining budgets for purchases Technical and software support for faculty Testing of technology to uncover potential issues

There was evidence in the data that suggested technology, although not necessary, makes the implementation of UDL more manageable. Obtaining the appropriate technology did not appear to be of concern among any of the colleges with the availability of the wide range of grants, divisional budgets, and even collaboration of resources. The interview data showed that approval of technology purchases should be based on supportiveness of student learning. All colleges noted that faculty had to be aware of technology and properly trained on it, noting the wastefulness of obtaining technology and not using it. Data from interviews also revealed the theme of providing good stewardship of technology funds to support UDL that related to the mission and vision of the college. These themes and actions that promote implementation of UDL are explored in more detail as described by interviewees.

The divergent mission of technology use varies depending on the level of UDL implementation. The Novice College is aligning funds with UDL to create an impact on student success. The Developing College spending is geared towards understanding why and how these funds will increase the use of UDL and impact student learning. The Expert College has gone

beyond student success and looks to spend resources on UDL with the sole reason to remain compliant with laws and regulations. The Novice and Developing College focus is more on engagement, and the Expert College resources are maintained for accessibility.

Supportive of Student Learning

The emerging theme detected in the interview data was that the goal of implementation of UDL is to support the diverse student in the learning process, and that technology should assist this and make the implementation of UDL more manageable for instructors. The availability of the types of technology is endless and ever changing. It is important to ensure that investments in technology support student learning and UDL. The administration at Developing College approach investments by asking,

My approach is why are you doing it, there has to be a purpose to it. You can get all caught up in the cool thing, but the cool thing goes away. So I ask, how does it support students, how are you using it?

Developing College has been successful by implementing technology showcases where faculty present the technology purchase requests by demonstrating its use. These are then put together into a presentation for all faculty and staff to observe. This creates awareness of available technology and shows other faculty how it could be used in their courses to support UDL and student learning.

Awareness and Availability Technology

Awareness is important to stress as many faculty and staff are uninformed of availability of technology, an emerging theme discovered in analyzing interview data. Different divisions

may make investments in resources that would support UDL, but promotion of these resources is limited. The faculty at Expert College acknowledge this by stating,

Does every faculty member know that this is there? Maybe not. But, if they would ask, we can communicate that to them. If a faculty member came to me and said I need to know if my course is accessible, I can look at it with them, I can give them resources, I can direct them to do what I did, but there is no requirement.

Many purchases made throughout the college could support and make implementation of UDL more successful, but faculty do not realize they are there. One goal for both the Developing College and Expert College is to have an innovation lab available where faculty knows it is there, and they can come and test all the new technology available and see the use.

Stewardship of Funds Available

The stewardship of resources, especially for technology available to support UDL implementation, is the responsibility of administration, as they typically have the final say in how resources from the budget are spent. Providing good steward of funds was an emerging theme all colleges noted. Relating back to administrative support area, administration can help ensure technology funds are available and allocated to support implementation of UDL. Novice College explained that this can happen by building strategic relationships across campus. The administrator there said, to “build relationships is so important. Building relationships and taking the time to do it. And recognize the value.” This ensures that if collaboration is needed, a foundation already exists. For example, Developing College was trying to build a light board to assist with UDL implementation in the classroom. Funding was not available, so administration sought collaboration among multiple departments to find the necessary people to build it, resources already available from college, and used students to build the project as part of

assignments in a class. This kind of innovation is needed to show successful stewardship of resources.

Expert College ensures that all technology purchases specifically support the accessibility and compliance aspect of UDL. They want to ensure there are proper approval procedures in place before an investment is made so that spending of resources align with the overall goals of the college and will be useful as they continue to elucidate the need for accessibility and compliance.

RESEARCH QUESTION 3

What types of UDL professional development opportunities are available?

Professional Development

Professional development opportunities are summarized by college in Table 4.

Table 4: Professional Development

COLLEGE	SUMMARY OF FINDINGS
Novice College	Speakers Conferences Workshops Include in faculty development day One on one support Small group facilitation
Developing College	Embed UDL principles in all learning and development Exchange programs with other colleges/countries Lunch workshops Focuses on teaching and supporting students Aligns with strategic plan

COLLEGE	SUMMARY OF FINDINGS
Expert College	Online modules Webinars Required module for online teaching Institution implemented annual compliance module Summer courses available Required as part of new faculty training

Evaluating the convergent themes of professional development to support UDL implementation, three remained consistent among all colleges. Data showed that professional development should focus on teaching development to meet the needs of the diverse community college learner. These colleges offer a wide array of types of professional development in UDL to try to meet the needs of all individuals. With the limited amount of time and significant amount of priorities, faculty need to see balance between time spent and value added. Professional development has to be both convenient and useful. All colleges noted they provide online modules, workshops, conferences, courses, or one-on-one support. All colleges also mentioned bringing in speakers from professional organizations, such as CAST, or other colleges who are proficient in this area. Finally, all colleges noted that making UDL a required component of training would influence the implementation of UDL. These themes are explored in more detail as analyzed from participant interviews.

The divergent theme in professional development offerings across the colleges interviewed followed the same pattern noted in other characteristics. The divergent theme for professional development centers on the level of implementation of UDL at the college. Novice College professional development concentrates on building awareness of UDL. Developing College is beginning to share this as a college-wide initiative by embedding UDL in all training to

show the use and value. Expert College is making aspects of UDL a part of a required training to ensure all faculty are exposed to it.

Focus on Teaching Development

All of the colleges agreed that UDL should not be presented as another trend or fad. It should be conveyed as a way to improve teaching, revealing an emerging theme to focus on teaching development. Administration at Novice College and faculty at Expert College both specifically stated that faculty are specialized in their own content area, not in teaching. They need to learn how to teach. Faculty at Developing College also agreed, stating that community college professional development should focus on “teaching....Can the person support students, especially a community college student population. Can they interact with student? Can they professional develop themselves in the field of teaching, not necessarily in the subject area.” Professional development time should be evaluated to make sure it is focused on ways to transfer knowledge to students, and not necessarily gaining more individual knowledge in the subject area.

Balance Time Spent with Value Provided

All interviewees noted time as a precious commodity, producing an *a priori* theme.

When faculty members have a long list of activities they want to do, and the institution has a long list of activities it needs faculty to do, this can easily create a situation in which the lists are longer than the time available. (Fink, 2013, p. 244)

As previously recognized, time available to improve yourself is limited, so training must have value that exceeds the time allocated to it. Fink (2013) recommends providing at minimum 5% of faculty time to be set aside for professional development. The colleges noted providing

different methods of presentation is more beneficial to accommodate faculty schedules.

Developing College faculty suggest keeping a variety of offerings available with different people presenting. They have six different individuals specifically trained in UDL who take turns providing different professional development. This provides a different face, different type of training, and gives faces to UDL for individuals to contact if they want to learn more. All colleges offer the option of online modules to complete at one's own convenience. The issue is this does not provide collaborative learning, which has proven to be effective. The colleges are trying to meet many needs, and there is not a one-size-fits-all solution. Administration at Novice College said,

I find the workshops are not as effective as working one-on-one or in small groups with faculty with specific issues. The UDL presentations were poorly attended. If is not contextualized, it doesn't mean anything. The best class I ever taught was the model was making it relevant, contextualized, and you see a payoff.

Expert College has been providing training during the summer session when faculty are either teaching a lighter load or nothing at all. Training is usually done about the time faculty would begin to prepare classes for the next semester, making it useful and productive.

Developing College recognizes the lack of available time by offering smaller segments to introduce UDL incrementally. Faculty at Developing College explained,

What we are trying to do now is give a strategic plan for course offerings using UDL, so let's do a couple different ways of engaging students and then next section, let's do a couple of different ways of representing students, so we can fold all of these different things into the framework of UDL. You don't want to walk to someone who is a really big component of flipped classrooms and say that is great, but you should switch to this, we want to say this is amazing, keep doing it, but have you thought about how this would work with [UDL].

Require Training

The progression moves beyond encouraging improvement in teaching and becomes part of required courses. UDL itself is not a requirement at any of the colleges but is embedded in parts of the required training and proved to be an emerging theme from the data collected. For example, Developing College provides required training for online teaching, of which UDL is a module. Expert College focuses on accessibility and compliance. These terms are deemed necessary, and therefore the aspects of UDL are providing within this training. At Expert College, there are sessions required for all new faculty, any online teaching, and an annual training that must be completed by all faculty.

RESEARCH QUESTION 4

What is done to create stakeholder, faculty, and staff awareness and acceptance?

Awareness

Table 5 summarizes the findings by college.

Table 5: Awareness

COLLEGE	SUMMARY OF FINDINGS
Novice College	Specifically embed UDL into grant applications Awards/recognition Publishing opportunities Advocates joining various committees across campus Education to understand the need Voluntary audits Look for opportunities to present at meetings Include in professional development choices

COLLEGE	SUMMARY OF FINDINGS
Developing College	Used as a solution for completion and retention rates Embedded in campus wide events and meetings Show individual impact Clear descriptions of relations with accommodations Specified person to promote Multiple individuals known that associate with UDL Bring to different platforms for approval
Expert College	Show as a proactive response, not reactive Communication through email and website Convey in terms of required accessibility

Qualitative data revealed three convergent themes that support awareness in UDL implementation. All colleges agreed that being proactive in implementing UDL would save time, frustration, and cost over the long term. The interviewees noted that a barrier to UDL implementation was complexity, which could be eliminated by presenting UDL in relatable terms. In terms of creating awareness, all colleges recognize that creating opportunities for public recognition promotes the use and value of UDL. These themes are explored in more detail below as they relate to awareness.

The convergent themes of awareness are presented at all colleges but vary in the reasoning based on the level of implementation. Novice College was the strongest in the area of awareness and had the most suggestions and ideas for creating and building UDL on campus. This is not necessarily because the other colleges do not find this aspect important, but rather because they have already created awareness, and the focus of UDL has shifted. Developing College is trying to encourage momentum at this point, and therefore awareness is still in the forefront. Expert College has been promoting UDL for over ten years; people are aware of the

benefit. It is now being used as a proactive resource against compliance issues and to meet the needs of the students before the need is there.

Be Proactive

All colleges noted it was necessary to be proactive in creating awareness of UDL to build implementation momentum, creating an emerging theme. There are many ways to be proactive in terms of promotion of UDL. All colleges agreed that awareness begins with education. Administration at Novice College say, "I think that took some educating to have them understand the need." Sometimes it takes time to convey the urgency of this need, as this same administrator pointed out, "Sometimes you when you are further down the reporting structure, it takes a while to get heard." Diligence and creative ways to show this need evoke interest from skeptics or those unfamiliar with UDL. Novice College has tried many ways to include UDL in order to present to topic and provoke questions. Novice College includes UDL in grant applications, awards, and finding publishing opportunities. Speaking of some grants Novice College just received, administration stated,

I put in stuff about UDL, there was no budget specifically in those grants earmarked towards UDL. It was just another way of me trying to get UDL on the radar, on the table, talking about it, using it.... I guess the best was to say it is to promote UDL.

These grants include approval for others within the college, and therefore these individuals are reading or learning something about UDL.

Another way to be proactive and show the need across the college is to participate in a voluntary audit. These audits help prevent issues by making recommendations prior to an incident being reported. Novice College administrator decided this would be advantageous and noted,

We did just go through a civil rights audit this year. It went really well. They are good for us. They are free. People see them from the ICCB that – they are coming in, inspecting us, and we are going to get in trouble. But it is not punitive, it is an evaluation. They do the whole campus. They give you what you need to work on before it happens. I came in saying this is great, this is an opportunity.

Just as UDL is promoted to faculty as a way to find a solution to an issue perceived in a course, UDL is promoted to administration for help fix a college-wide concern. Developing College is presenting UDL as a way to increase retention and success rates, which is part of the college's current mission. This brings UDL to the forefront and helps capture attention of individuals in decision-making positions. Awareness has to go beyond people who already see the value. Faculty at Expert College said this "is like preaching to the choir, everyone says it is important, and sometimes our job is convincing others and the only time they listen is when something negative happens."

It is individuals in these decision-making positions who can make the biggest impact on awareness before it becomes a dire reaction instead of preventative maintenance. Faculty at Expert College experienced this, "In terms of making that a priority... honestly, when there is a complaint about it, then we all focus on it a lot." The faculty detailed,

The history is we had a complaint and immediately we had a faculty learning day. A day committed to it. We had someone come in and present, a key note. After that, we started doing training. I think there has been a big shift from, this is how we needed to respond, to areas to be more proactive. I would say we are more on the side of trying to ensure our content is accessible to start with. It seems to be a big conversation right now. Do you accommodate the needs of students when they ask for it or do you try to make all of your content accessible to start with? We have moved more towards that because it just doesn't work at the last minute to try to change content to try to make it accessible.

Present in Relatable Terms

It takes time and training to fully understand the conceptual framework of UDL. Individuals have to have the desire to want this knowledge, and therefore it must first be presented in relatable terms. Data revealed this component, to initiate UDL implementation, as an emerging theme from all colleges. Administration from Developing College noted, "I think people understand what the principles and framework are once you approach it from their perspective." Developing College gave an example of how they are using UDL to help in the student service area by providing videos and multiple means of instruction for registration, as well as for the building and maintenance facilities by providing an understanding of placement and use of signs and walkways. Individuals need to understand how this framework can eventually provide efficiency and enhance the learning experience.

Expert College acknowledges that they have in some areas moved away from using the term UDL. Faculty explains, "I keep saying 'accessibility' because we don't call everything UDL. We are kind of pushing those principles and talking about accessibility for all students, but that seems to be where the interest lies right now." Faculty and staff understand the term accessibility and its effects. Presented in these terms, UDL is shown as a way to accommodate accessibility. Once it becomes an issue, the college gets serious about training. Administration at Expert Colleges said, "It was really a nascent idea in people's head at that point. It is such a slow process." Once the need is established, it still requires buy-in and time to implement, which is more of a reason being proactive is so important.

Public Recognition

All colleges noted an emerging theme of causing public recognition in some form to create awareness of UDL. Administration at Novice College focused on awards to build awareness stating,

Faculty awards should be done. In the first two years, we nominated, because we didn't get any nominations. But, that is OK, because we get up there in front of them and their peers, and we say they are doing this, and then they see that their peers are doing it, it is doable, and they are recognized for it. In the third year, we got nominations.

Novice College administration also states, "I get on committees." Another option to create awareness to strategically place UDL advocates on various committees. This is a way to build relationships and present UDL across campus. Shown as a valuable solution to a variety of issues, UDL can be implemented successfully not only during committee meetings, but for events and outcomes committees are trying to achieve. Developing College also uses the shared governance structure to promote the use of UDL. Administration explained,

We did get official approval to use UDL in the assessment forms. It was not required because the assessment forms are so wide open anyway. But that was another way we were pushing the idea of UDL. We went to the assessment committee and talked about it. Up through the administration ranks, and they gave the "is UDL necessary?" but it just got the conversation, the idea of the word out there.

As previously mentioned, Developing College also uses recognition of faculty to spread awareness of UDL. Faculty there explain,

Our professional development person, she hosts different kind of faculty academies, so there are book clubs on UDL, workshops on assignments, all hosted by different faculty fellows. When the required training happens, the six take turns rotating thru, so we reduce the load on any individual. It also gets different names and different faces. So those are different avenues to try to get people to know that here are the different people you need to go to.

Understanding who is doing this and how they are implementing UDL can provide avenues for other individuals to connect and understand UDL.

RESEARCH QUESTION 5

How does the institutional culture lead to welcoming and adapting to innovation and change?

Culture

Qualitative findings of the colleges are summarized in Table 6.

Table 6: Culture

COLLEGE	SUMMARY OF FINDINGS
Novice College	New hires must be willing to embrace change College promotes excellence Infuse it in mission statement
Developing College	Include UDL in academic and strategic plan Include in college mission statement
Expert College	Creating individual action plans guided by college plan Focus on student success Being proactive Showing as a necessity

There are only similarities between the colleges when discussing how the culture of an institution can embrace innovation and change. A strong emerging theme of all colleges was that UDL must be a part of the mission, vision, or strategic plan to prioritize this as a goal of the college. This not only places importance on this topic, but also includes it as a college initiative and keeps it a priority if there are changes in administration. Actions and examples of this theme are explored in more detail from data provided by participant interviewees.

Include in Mission, Vision, and Strategic Plan

To maintain UDL as a college-wide priority, it has to be included and approved in some way in the mission, vision, or strategic plan of the college. If UDL can be used to support the current mission and vision, it may suffice. The administration at Novice College uses this to promote UDL by saying, “We have a short mission statement— focus is our learning, student success is our goal. That was like giving me a gift. Everything I am going for (in UDL), I can say, ‘what is the mission?’” Faculty at Expert College agrees with this stating, “We are genuinely focused on student success, and we realize (UDL) is a component of that.”

An important reason to keep UDL specifically in the mission, vision, or strategic plan is that it will remain a priority even if other changes in administration take place. Developing College includes UDL in their strategic plan and is currently going through some administration changes. Faculty have stability in terms of UDL priority recognizing, “The theory is by having a cycle with our strategic plan, it sets it in a direction that isn’t going to shift radically, at least until the next strategic plan.”

UDL also has to be maintained as a college-wide priority in actions as well as words.

Faculty at Expert College gave an example of this saying,

All the content that we provide students in the classroom is captioned correctly, not auto captioned... it is proactive. That is an example of something college-wide that has worked really well, and as I talk to other institutions, that is more on the leading edge and where it is headed. I have seen other institutions that have really slowed down on production of video content like that because of accessibility issues. I think we have done a pretty good job of letting faculty do that.

All videos at Expert College are submitted through a college YouTube website and captioned before being made available for learning management systems deployment. Expert College has

specific individuals whose responsibility at the college is accessibility compliance and they monitor materials provided through the college to meet these standards.

All of the colleges agreed that any new hires coming into this college should be willing to embrace change and value the components of the current mission, vision, and plan. Expert College includes individual plans for employees that align with the college strategic plan to ensure individuals are improving in areas that are priorities of the college.

Through negative experiences, Expert College realizes the need to implement UDL goes beyond providing accommodations for disability support services. Faculty there believe “Disability support services is more of an advocate for students who have an accommodation request.” They also agree that all individuals at the college have to have these priorities noting, “I think we have the right people, but don’t know if they are involved in the bigger picture or not.”

CONCLUSION

Table 7 summarizes the conclusion based on each research question.

Table 7: Divergent and Convergent Themes

RESEARCH QUESTION	CONVERGENT THEMES	DIVERGENT THEMES
What strategies from an administrative and faculty level support successful implementation of UDL?	<ul style="list-style-type: none"> Release time Recognition Model use of UDL Resources Use to solve problems Find advocates Team learning 	Strategies vary based on level of implementation moving from individual efforts to a collaborate approach

RESEARCH QUESTION	CONVERGENT THEMES	DIVERGENT THEMES
How does available technology make UDL implementation more manageable?	Supportive of student learning Awareness and availability Stewardship of funds	Strategies vary based on level of implementation. Focus on student success becomes providing technology to comply with laws and regulations in regards to accessibility
What type of professional development opportunities increase the success of UDL initiatives?	Focus on teaching development Balance time spent and value Require training	Types vary based on level of implementation. Beginning with creating awareness to embedded in required training as progress further into UDL implementation
What is done to create stakeholder, faculty, and staff awareness and acceptance?	Proactive Present in relatable terms Public recognition	Awareness is dependent of level of implementation, moving from creating knowledge, to retaining momentum, and to provide awareness of compliance
How does the institutional culture lead to welcoming and adapting to innovation and change?	Include in mission, vision, and strategic plan	Not applicable

All colleges noted that the six characteristics of administration and faculty support, technology, professional development, awareness, and culture that were noted through the Delphi survey and verified with research are necessary for the implementation of UDL. Although there were some convergent themes identified, the reasoning and examples of these themes differed among the colleges. Table 7 identifies the divergent and convergent themes as they relate to each research question.

The progression of UDL implementation varies over time. Novice College focuses on building awareness, having the “I” mentality, and focusing on using UDL for achieving students’

success. Developing College has a goal of continued momentum and bringing awareness to key players in the college. They are building the initiative by embedding UDL in college-wide events and showing how UDL can solve college-wide concerns. There is a shift from individuals being responsible to carry on this task to a “we” mentality as the entire college starts the buy-in process. Expert College recognizes the necessity of UDL as it supports accessibility and compliance. This continues to be a college-supported initiative, and it becomes a requirement to meet specifications to abide by laws and regulations. All colleges agree on the importance of UDL and encourage it to be included in the mission, vision, and strategic plan in order for it to be included as a transformational change to reach the goals of the institution.

CHAPTER 5: SCORECARD

INTRODUCTION

This study obtained and analyzed qualitative data to build a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation. This scorecard enables institutions to gain an understanding of the requirements to implement UDL and information on areas that may need improvement to meet the needs of all students. This chapter will introduce and demonstrate the scorecard and how it can be used to assess the institutional capacity to implement UDL.

PURPOSE AND RESEARCH QUESTIONS

To achieve an understanding of the UDL implementation process, the following driving questions were addressed:

1. What strategies from an administrative and faculty level support successful implementation of UDL?
2. How does available technology make UDL implementation more manageable?
3. What type of professional development opportunities increase the success of UDL initiatives?
4. What is done to create stakeholder, faculty, and staff awareness and acceptance?
5. How does the institutional culture lead to welcoming and adapting to innovation and change?

Procedures

A sequential, qualitative research design was used to gather information from a comparative case study. First, a Delphi survey was conducted with experts in the field to identify characteristics necessary to implement UDL. Six characteristics of administrative and faculty support, professional development, technology, awareness, and culture were identified and researched to construct the appropriate interview questions.

Interviews were conducted at three institutions with similar characteristics that were noted for UDL implementation. Each institution happened to be in different stages of UDL implementation, which resulted in significant divergence to the reasoning for implementation procedures and features. Novice College was in the first year of UDL implementation. Developing College had been implementing UDL for less than five years. Expert College had been implementing UDL at the institution for over ten years. Semi-structured interviews were conducted with two individuals at each institution: one interview with a faculty member and one with an administrator. Each individual had participated at some level in the UDL implementation.

Convergent themes were taken from the qualitative data to support the six characteristics that were identified by the expert panel during the Delphi survey. Each college also provided examples of how themes were implemented which determined attributes to each theme in the scorecard.

The presentation of the scorecard is UDL, showing the “why” or addressing the affective networks to understand the motivation to learn. Next, the “what,” or recognition network is

engaged to process what the user will learn through this process. Finally, the “how,” or strategic network, reviews how the information will be utilized.

Assess Institutional Capacity for Implementation of Universal Design for Learning

The “Why”

The core mission of the community college is to provide education and training to all who have this desire to learn. Community colleges have no admission policy beyond a high school diploma or equivalent. This open access agenda enables students from various backgrounds and abilities to obtain an education that allows them to contribute to society and help create global competitiveness.

Beyond mission, certain requirements under the law require community colleges to provide this access. The Rehabilitation Act of 1973, Section 504 and the American Disability Act (ADA) seek to provide equal opportunity by prohibiting against discrimination. The Individuals with Disabilities Education Act (IDEA) do not apply to post-secondary education but does substantially increase the number of students with disabilities who are eligible to enroll at the community college level (Rothstein & Johnson, 2014).

To meet the needs of the diverse learner, a growing trend in education is the use of Universal Design for Learning (UDL). UDL attempts to meet needs of every learner as lessons are intentionally planned for learning that is both challenging and supporting for meaningful ways to grow (Meyer et al., 2014). This model meets the needs of a variety of students, including those with disabilities, abilities, and different learning styles (DO-IT, 2012). UDL is defined in the Higher Education Opportunity Act (2008, Sec. 103 (24)) as:

a scientifically valid framework for guiding educational practice that 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 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.

UDL specifically assists students with invisible disabilities and alleviates the need for accommodations for many students. Research has noted that in higher education, UDL promotes a feeling of community and interaction among students that leads to increased success (Rao et al., 2014). Community colleges' current agenda to increase retention and completion relies on the implementation of UDL.

The "What"

Implementation of UDL should be done incrementally. Those colleges that are just beginning to discover UDL have different needs from those who have already begun to see the benefits. In order to build the appropriate foundation necessary for successful fruition of the UDL implementation with long-term benefits, it is necessary to obtain and achieve each implementation status in sequence: Novice, Developing, and Expert. A description of each status is given below.

Novice: Colleges are in the initial discovery stage to verify if UDL is the appropriate avenue to fit the needs of the college. Novice stage involves understanding the UDL principles and framework as well as learning the impact on student success. In this stage, it may be an individual passion that is looking to build awareness and momentum of UDL across campus.

Developing: The UDL principles and framework have shown value to multiple individuals on campus. The platform has moved from building awareness to developing an initiative. UDL is

being promoted as a college-wide goal as a means to increase retention and success rates of students. Developing colleges are focused on obtaining buy-in from key players in the college to elevate advocacy for UDL implementation.

Expert: Colleges have obtained this buy-in and are now using UDL implementation as a means to achieve compliance to laws and regulations regarding accessibility. Aspects of UDL are taught in required training to expose staff and faculty to understand the necessity and value.

The implementation scorecard helps assess the characteristics necessary to implement UDL. Each characteristic is broken down into themes that strengthen that characteristic. These themes are followed by actions and examples of that action that can be implemented to excel at UDL implementation in that area. Each scorecard is designed to progress the institution in UDL implementation from Novice to Developing and finally to Expert levels. The following are descriptions of each scorecard description.

UDL Novice Scorecard: These are actions that you should begin with to help build awareness and interest. As Novice colleges are just beginning the UDL implementation process, these actions should be addressed on an individual level.

UDL Developing Scorecard: These actions should be introduced to ignite motivation and excitement to increase involvement. Developing Colleges are progressing to include UDL across campus, therefore these actions should be addressed on an institution level.

UDL Expert Scorecard: These actions should be implemented once UDL has been established at the institutions. These actions are embedded as part of required activities at the college. The scorecard actions should be assessed at an institution level.

The “How”

Begin with the novice scorecard. Indicate with a checkmark if the action is non-existent, partially implemented, or effectively implemented. Once the novice scorecard shows that 80% of these activities have been effectively implemented, begin the developing scorecard. When the developing scorecard indicates that 80% of the activities have been effectively implemented, move to the expert scorecard. The goal is to reach 80% effectively implemented on the expert scorecard. The scorecard is shown in Figure 6. For an online version click [here](#), [UDL Scorecard](#) and download as your preferred source.

These scorecards should bring awareness to the level of implementation the college has achieved and help to determine the next steps for successful implementation.

DETERMINING NEXT STEPS

1. If you have determined your college is in the Novice level:
 - a. Complete activities in awareness area to build a foundation
 - b. Begin to expand the culture characteristic to transform the “I” into a “we” focus
2. If you have determined your college is in the Developing level:
 - a. Focus on building administrative and faculty support areas to increase use of UDL
 - b. Ensure technology resources are used to support UDL implementation and continue awareness and training of these resources
3. If you have determined your college is in the Expert level:
 - a. Continue to enhance professional development to encourage continuous learning of UDL
 - b. Become a college advocate, making yourself available to Novice and Developing colleges to help spread successful UDL implementation in higher education.

NOVICE SCORECARD

Administrative Support- Novice Level

Action

Example

	Non-Existent	Partially Implemented	Effectively Implemented
<i>Recognition</i>			
Build strategic relationships			
Internal Awards			

Be known as a UDL advocate and network across campus

Create UDL specific award

Model use of UDL

Use UDL yourself

Individual meetings have predetermined goal, and use multiple means of engagement, representation, and action and expression

Faculty Support- Novice Level

Action

Example

	Non-Existent	Partially Implemented	Effectively Implemented
<i>Become a Resource to Solve a Problem</i>			
Meet one-on-one			
<i>Find Advocates</i>			
Form allies			

Schedule time for one-on-one meetings with faculty and staff to address problems

Follow up with one-on-one meetings to create buy-in and see if individual will support UDL

Technology- Novice Level		Non-Existent	Partially Implemented	Effectively Implemented
Action		Example		
<i>Supportive of students learning</i>				
Create consistency by requiring use of LMS	Supports students and resources requiring use of college investments			
<i>Awareness and availability of technology</i>				
Keep Current	Keep current on available technology that impacts UDL implementation			
<i>Stewardship of funds available</i>				
Build relationships	Networking to share resources when necessary			
Professional Development- Novice Level		Non-Existent	Partially Implemented	Effectively Implemented
Action		Example		
<i>Focus on Teaching Development</i>				
Provide one-on-one support	Meet individually to address specific teaching concerns			
Improves Teaching	Ensure professional development meets goal of UDL on campus			

Awareness- Novice Level		Example			
Action	Non-Existent	Partially Implemented	Effectively Implemented		
<i>Proactive</i>					
Educate to understand the need				Present UDL as a solution to a problem and explain framework and principles	
Include in document requiring approval of others				Strategically place UDL in documents, such as grants, which require approval to initiate conversation	
Voluntary audit				Participate in voluntary audit to understand where improvements need to be made and show how UDL can address this	
<i>Public recognition</i>					
Awards				Create internal and promote external UDL specific awards	
Utilize shared governance				Get on different committees and continue advocacy and/or present at committee meetings	

Culture - Novice Level		Non-Existent	Partially Implemented	Effectively Implemented
<i>Include in Mission, Vision, and Strategic Plan</i>		Example		
Action				
Show how UDL can accompany mission	Stress importance of how UDL can accomplish the mission			
Totals		0	0	0
Move to Developing Level Scorecard after checking 13 effectively implemented actions				

DEVELOPING SCORECARD

Administrative Support- Developing Level

		Example			Non-Existent	Partially Implemented	Effectively Implemented
Action							
<i>Release Time</i>							
Stipend Fellowship Program	Provide compensation for individuals willing to embark on training program						
Additional Compensation	Provide compensation for implementation of aspects of UDL after training						
<i>Recognition</i>							
Promote External Awards	Promote UDL entries in College STAR, or other external databases						
Compensation	Offer stipend for learning and implementing						
Promotion	UDL specifically mentioned on promotion criteria						
<i>Model use of UDL</i>							
Use in meetings	College meetings have predetermined goal, and use multiple means of engagement, representation, and action and expression						

<i>Resources</i>						
		Facilitate collaborate among departments and divisions to obtain resources or implement UDL				
		Support grant applications by partnering and applying together with faculty				
Faculty Support- Developing Level						
	Action	Example	Non-Existent	Partially Implemented	Effectively Implemented	
<i>Become a Resource to Solve a Problem</i>						
	Show value with small changes	Solutions to problems include UDL framework and principles, given in incremental implementation steps				
	Address problems with the UDL framework	Model the use of UDL by proving the solution with predetermined goal, and use multiple means of engagement, representation, and action and expression				
<i>Find Advocates</i>						
	Train advocates	Specify individuals that will receive additional training to become UDL experts				
<i>Team Learning</i>						
	CoP	Form a communities of practice				

Technology- Developing Level		Non-Existent	Partially Implemented	Effectively Implemented
Example				
<i>Supportive of students learning</i>				
Action				
Show value and need before investment	Technology purchases are proven worthy to support students			
Exclusiveness of purchases based on relation to UDL	Approval by appropriate personnel with knowledge of UDL before purchase			
<i>Awareness and availability of technology</i>				
Action				
Showcase use	Provide showcase or presentations to demonstrate use of technology			
<i>Stewardship of funds available</i>				
Action				
Collaboration of resources	Combine budgets, tangible resources, etc. to meet UDL needs			
Professional Development- Developing Level		Non-Existent	Partially Implemented	Effectively Implemented
Example				
<i>Focus on Teaching Development</i>				
Action				
Approved based on meeting college mission and goals	The use of professional development funds are approved based on strategic vision of college			

<i>Balance time spent with value added</i>			
Offer a variety of presenters in different formats	Speakers, conferences, workshops, etc. are offered. Provide different faces so individuals see different uses		
Provide convenient time (online, one-on-one training)	Offer smaller segments to implement incrementally		
<i>Required Training</i>			
Embed UDL training in other required training	Include UDL modules on required online training		
Awareness- Developing Level			
Action	Example	Non-Existent	Partially Implemented
<i>Proactive</i>			
Show as solution to college-wide concern	Provide as a solution to key players in college for concerns such as student success, and explain concept of UDL in doing so		
<i>Relatable</i>			
Presented from each individual perceptive	Specifically show how use will impact individual		
<i>Public recognition</i>			
Provide multiple UDL faces	Create individuals known for UDL implementation		

Culture- Developing Level		Non-Existent	Partially Implemented	Effectively Implemented
Action	Example			
<i>Include in Mission, Vision, and Strategic Plan</i>				
Keep as a priority among changes in personnel	Provide procedural manuals, and include UDL specifically in college plan			
Totals		0	0	0
Move to Expert Level Scorecard after checking 19 effectively implemented actions				

EXPERT SCORECARD

Administrative Support-Expert Level		Non-Existent	Partially Implemented	Effectively Implemented
Action		Example		
<i>Release Time</i>				
As part of required load	Provide release time to advocates who are required to have specific time designated to train and help others implement UDL			
<i>Recognition</i>				
Assessment	Evaluated and used as assessment for teaching or student success			
Individual Action Plans	Included in evaluations, used for teaching improvement			
<i>Model use of UDL</i>				
evaluations	Teaching evaluations include the use of UDL and feedback is given with the framework in mind			
New hires share UDL values	Specifically address change theory and adaption in interview process			

<i>Resources</i>						
		Explain the processes and importance of the use of UDL for turnover purposes				
		The college employees individual(s) specifically designated to help implement UDL				
Faculty Support- Expert Level			Non-Existent	Partially Implemented	Effectively Implemented	
Action		Example				
<i>Find Advocates</i>						
Availability across campus		Ensure trained individuals represent various departments and division across campus				
<i>Team Learning</i>						
Collaboration beyond campus		Expand knowledge by growing community with other colleges				
Provide Professional speakers		Bring in organizations, such as CAST, to present				

Technology- Expert Level		Non-Existent	Partially Implemented	Effectively Implemented
Action		Example		
<i>Awareness and availability of technology</i>				
Technology Lab	Place where staff is available to show use, train, and test new technology			
<i>Stewardship of funds available</i>				
Obtain approval based laws and regulation	Ensure all purchases comply with standards before purchase			
Professional Development- Expert Level		Non-Existent	Partially Implemented	Effectively Implemented
Action		Example		
<i>Balance time spent with value added</i>				
Provide training during course preparation	To increase efficiency and productivity offer course in summer when faculty have more time and are preparing for the semester			
<i>Required Training</i>				
Include UDL awareness in all new faculty courses	Facilitate UDL session in new faculty courses, providing awareness and use of UDL			
Include as mandatory annual compliance training	Any mandatory training includes module on UDL and how it can help accomplish desired outcome			

Awareness- Expert Level		Non-Existent	Partially Implemented	Effectively Implemented
<i>Proactive</i>	Action	Example		
Promote accessibility before accommodation request	Show UDL as a required need to address accessibility concerns and effectiveness of proactive implementation			
<i>Relatable</i>	Action	Example		
Use of buzz word terms	Use terms people already know and understand, such as accessibility			
Culture- Expert Level		Non-Existent	Partially Implemented	Effectively Implemented
<i>Include in Mission, Vision, and Strategic Plan</i>	Action	Example		
Show in actions, not only in words	Utilize UDL to show support of the framework and principles			
Totals		0	0	0

The Expert Level Scorecard goal is to check 14 effectively implemented actions

Figure 6: UDL Scorecard

CONCLUSION

This chapter reviewed the research plan to develop a scorecard to assess institutional capacity to implement UDL. It then presented the “why,” discussing the importance of implementation of UDL, especially at the community college level. The chapter reveals the “what” of UDL scorecard explaining the goal of the scorecard and its capabilities. Finally, the “how” is presented in the scorecard itself, showing activity coded by level of UDL implementation to determine status. The scorecard then presents the next steps for colleges to continually improve in the implementation of UDL.

CHAPTER 6: SUMMARY AND RECOMMEDATIONS

INTRODUCTION

This study sought to discover information on developing a scorecard to assess institutional capacity for Universal Design for Learning (UDL) implementation, which would enable institutions the ability to gain an understanding of the requirements to implement UDL. This chapter discusses determents, assesses the applicability of the scorecard to institutions, and makes recommendations for further investigation.

RESEARCH SUMMARY

A qualitative research method was used to gain in-depth information to address research questions that would enable the development of the UDL implementation scorecard. First, a Delphi survey was conducted with experts in the field to identify characteristics necessary to implement UDL. Six characteristics of administrative and faculty support, professional development, technology, awareness, and culture were identified and researched to construct the appropriate interview questions. Interviews were conducted at three institutions with similar characteristics but in different stages of UDL implementation. Convergent themes were taken from the qualitative data to support the six characteristics that were identified by the expert panel during the Delphi survey. Each college also provided examples of how themes were implemented which determined attributes to each theme in the scorecard.

DELIMITATIONS AND LIMITATIONS

Delimitations imposed by the researcher included using a Delphi survey, whose responses may have been limited, as well as purposeful sample of community colleges within the specified restrictions of time and location. Limitations of the study included the assumption that all participants interviewed responded openly and honestly, and all communication was received as intended. Responses may have also been influenced by personal bias. It may also be possible that interview questions were not construed as intended.

RECOMMENDATIONS FOR FURTHER RESEARCH

Due to time and resources limitations, only three colleges were selected for research. Opportunities exist to explore colleges in other areas of the country, such as areas that have a higher concentration of UDL implementation at the community college level, to gain a broader understanding of implementation efforts.

Research suggested that the stage of UDL implementation affected the reasoning to pursue implementation. This statement could be addressed further to prove validity. Does progression of UDL implementation always lead to focusing on accessibility compared to student success?

The development of the scorecard was based on interviews across three institutions. Testing the effectiveness of this scorecard should be completed to determine if the activities suggested could effectively move the college from a novice to an expert college. This scorecard should be tested for reliability and validity for the community college to advance UDL initiatives.

Finally, two main reasons for implementation of UDL were determined to be to help with student success and retention and for assistance with compliance of laws and regulations. Further research could be done on the scorecard to assess if implementation of activities impacts either of these intended goals of UDL implementation.

CONCLUSION

As a result of this research, a scorecard was developed to assist in determining improvements in implementation of UDL in community colleges. It was determined by researching similar colleges in three different stages of implementation that six characteristics are necessary to implement UDL. These six characteristics are administrative and faculty support, technology, professional development, awareness, and culture. The colleges researched were at the Novice level (less than one year), the Developing level (less than five years, and the Expert level (more than ten years). These perceptions gave convergent and divergent ideas on the implementation process. Convergent themes were determined by each characteristic. Each college also gave examples of implementation of these themes.

The variation between colleges came from the reasoning behind and methods of implementation. The Novice college focus was on awareness. Implementation activities under each characteristic had an underlying goal of creating recognition of UDL. The focus at the Developing college was creating buy-in with administrative and faculty support. The goal for this college was to attract key individuals to build a culture accepting of UDL. Expert College has moved beyond creating awareness and use UDL to facilitate compliance with laws and regulations. Expert College focus is on continuous professional development of faculty and staff to illustrate the use and necessity of UDL.

The goal of the scorecard is to assess current capacity to implement UDL and to give potential improvements to expand the use of UDL at the community college level. It provides activities and examples that can be implemented to effectively implement UDL at these various stages. This scorecard was developed based on limited research and resources. Further testing of the scorecard itself could be performed to determine its effectiveness in assisting to implement UDL. There is also the opportunity to investigate if implementation of these suggestions would impact student success or reduce compliance issues. UDL has scarce research available at the community college level. This research provides some initial steps on implementing UDL that can help contribute to more studies done in this area.

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APPENDIX A: PHASE I- DELPHI SURVEY CORRESPONDENCE

Email/Twitter Correspondence sent September 29, 2017:

Please consider filling out a short one-question survey to help with my dissertation research on accessing the capacity of community colleges to implement UDL. To learn more about my research, view the below image or document. To take the short survey, click here [UDL Characteristics](#)

Thank you for your time and assistance. Please respond by November 1, 2017.

Cammy Wayne
Doctoral Student
Ferris State University

In my research, I plan to access the capacity for institutions to implement Universal Design for Learning (UDL). The result of the research will produce a scorecard to assist in evaluating strengths and weaknesses of each institution. In order to do so, I need to obtain the necessary characteristics that each institution should have to successfully implement UDL. Through research, I can verify most necessary characteristics, but to provide even more validity, plan to use the Delphi Survey Technique (Delphi).

The Delphi is used when the researcher wants to seek out information from a group of experts to generate a consensus. This is a multistage process in which the participants can provide a qualitative initial response and following up surveys are used to form more quantitative features. The following steps will be taken to administer this survey.

1. A purposive sampling will be used to select the experts. Twitter provides a UDL Chat that allows experts in the field to discuss recent UDL topics. This group represents various experts in the field from different organizations, schools, and colleges. Participants from this group will be used as the expert sample.
2. Public information has been obtained to contact all individuals. Twitter is widely used by UDL experts and will be the main method of contact. The purpose of the study, expectations of the survey and potential survey questions will be sent to participants. Participation is voluntary.
3. To those who agree to participate, the first round of the survey will be sent. This is the first stage of Delphi, which consists of discovery of opinions. The question will be raised, "What characteristics do you believe are necessary to successfully implement UDL at a community college?" There will be seven open boxes to fill in.
4. This data will be analyzed, and if necessary confirmed. If an answer is not specific, more details will be requested. Common trends will be grouped together by category.
5. The second round of Delphi includes sending out the common categories to the same participants and asking them to rank in order of importance. The top ten characteristics noted will be sent out to be ranked by the experts.

Based on this survey, I will find the colleges that are noted for implementing these specific characteristics and seek out interviews with individuals to obtain more in-depth knowledge on the implementation process for each specific characteristic.

Email/Twitter Correspondence sent November 8, 2017:

My name is Cammy Wayne and I am a doctoral student with Ferris State University in Big Rapids, Michigan. I am passionate about the use of Universal Design for Learning in Higher Education and have chosen to focus my dissertation on assessing institutional capacity to implement UDL. The finished product will include a scorecard that institutions can use to assess their current strengths and weaknesses as more post-secondary institutions begin to implement UDL.

This is the second phase of my survey. **I am asking for your help in answering just one question, ranking the importance of UDL characteristics. This survey should take less than one minute to complete.**

If my research can be of any assistance to your organization in the future, I would be more than happy to contribute. I appreciate your time and willingness to help with my research.

Survey Link: [Ranking of UDL Characteristics](#)

Thank you once again. I ask that the survey be completed by December 1, 2017.

Cammy Wayne
waynec2@ferris.edu

APPENDIX B: PHASE 1- DELPHI SURVEY QUESTIONS

Initial survey:

Survey Monkey Link: <https://www.surveymonkey.com/r/X7QCXFC>

1. What institutional characteristics do you believe are necessary to successfully implement UDL at a community college?

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

2. Optional Additional Comments

Follow up survey:

Survey Monkey Link: <https://www.surveymonkey.com/r/JS58C62>

The following characteristics were identified as necessary to implement UDL at a community college. Please rank the following UDL Characteristics in order of importance. 1 being the highest and 6 being the lowest priority.

- Faculty Support
- Administrative Support
- Available Technology
- Training
- Creating Awareness of Need
- Campus Culture

APPENDIX C: PHASE 2- INTERVIEW QUESTION DEVELOPMENT

Original Interview Question Reviewed by Panel of Experts	Revised Interview Questions Used in the Pilot Study	Final Interview Questions Incorporating Panel and Pilot Input
<p>1. What values or competencies are associated with high quality teaching at your institution? (A, B) a. How are these expressed or promoted to faculty?</p> <p>2. What types of UDL professional development are available? (A, B, D, E) a. How are these prioritized among all other learning opportunities?</p> <p>3. In what ways does the institution provide recognition or motivation among faculty to implement UDL? (A, B, D) a. Do you believe these efforts impact the use of UDL? b. What UDL features are included in evaluations?</p> <p>4. Can you provide examples of administrative and faculty support centered on UDL? (A, B)</p> <p>5. How are completion or success goals, specifically for students with disabilities, measured and communicated? (E)</p>	<p>1. What values or competencies are associated with high quality teaching at your institution? (A, B) a. How are these expressed or promoted to faculty? b. How is momentum sustained?</p>	<p>1. What values or competencies are associated with high quality teaching at your institution? (A, B)a. How are these expressed or promoted to faculty? b. How does the college support development of these competencies?</p> <p>2. What types of UDL professional development opportunities are available? (A, B, D, E) a. How are these professional development opportunities prioritized among all other learning opportunities?</p> <p>3. In what ways does the institution provide recognition or motivation among faculty to implement UDL? (A, B, D) a. How do you believe these efforts impact the use of UDL? b. What UDL features are included in evaluations, whether by design or not?</p> <p>4. Can you provide examples of administrative and/or faculty support centered on UDL? (A, B)</p> <p>How are different teaching methods, or use of technology evaluated to see if they impact student success? A. Are these tracked by any specific student population(s)? B.How are the results communicated across the institution?</p>

Original Interview Question Reviewed by Panel of Experts	Revised Interview Questions Used in the Pilot Study	Final Interview Questions Incorporating Panel and Pilot Input
6. What is done to create awareness of learner variability and instructional barriers? (E)		6. What is done to create awareness of learner variability and instructional barriers? (E)
7. Please provide examples of technology that your college has implemented that have helped to meet the needs of a diverse student population. (C)a. Where any of these purchased with the specific goal of implementing UDL?	7. Please provide examples of technology that your college has implemented that have helped to meet the needs of a diverse student population (such as economically disadvantaged, at risk, or students with disabilities). (C)a. Where any of these purchased with the specific goal of implementing UDL?	7. Please provide examples of technology that your college has implemented that have helped to meet the needs of all students. (C) a. Where any of these purchased with the specific goal of implementing UDL? b. Where any of these purchased for a specific student population?
8. How are resources allocated for technology purchases and how is additional funding acquired if not available? (C)		8. How are resources allocated for technology purchases and how is additional funding acquired if not available? (A,C) A. Is there an approval process that includes institutional policies that foster institution wide compliance?
9. Once technology is obtained, how is the use of this technology promoted to faculty and staff? (A, B,C,E)		9. Once technology is obtained, how is the use of this technology promoted to faculty and staff? (A, B,C,E) a. How is this technology shared amongst divisions or departments?
10.What are some barriers to change that you have experienced, and how have these been overcome? (A, B, F)		10.What are some barriers to change that you have experienced, and how have these been overcome? (A, B, F)
11. How is the mission and environment of the college conducive for UDL? (F)		11. How is the mission and environment of the college conducive for UDL? (F)
12. What would need to be included for a vision of success for all student in higher education? (F)		12. What would need to be included for a five-year plan of success for all students in higher education? (F)

APPENDIX D: PARTICIPANT EMAIL CORRESPONDENCE

Hello-

My name is Cammy Wayne, and I am currently a full-time instructor at Harper College in Palatine, Illinois. I am in the Community College Leadership doctoral program with Ferris State in Big Rapids, Michigan. In my research, I plan to assess the capacity for institutions to implement Universal Design for Learning (UDL) by building a UDL implementation scorecard. An expert panel has contributed to six areas that are required to implement UDL. These six areas are administrative support, faculty support, technology, training, awareness, and culture. My goal is to explore these areas in depth as they relate to UDL.

I plan to interview three different institutions, and hope that you agree to be a part of this. The work done at your institution has come up in my research studies. My goal would be to interview someone involved in this process both at the administrative and faculty levels. I plan to begin the interview process in March to make on-site visits to speak with people. If you would agree to participate, I will forward a copy of the interview questions two weeks prior to the interview. The interviews should take 60 to 90 minutes. I have attached below the letter I received stating that my research does not require IRB approval from Ferris State based on the type of research. Please let me know if your institution would also specifically need any other approval. I have also attached more details on the research that I am doing as well as the procedures I will be following. Please let me know if there are any additional questions.

If you believe there are others I should speak with that would provide some insight, please let me know.

Thank you for your time and consideration. I look forward to hearing a response from you. If you are willing to participate, please let me know of any availability that you have for interviews. I am able to conduct interviews on Thursday or Friday of each week.

Cammy Wayne

847-392-8360

waynec2@ferris.edu

cwayne@harpercollege.edu

APPENDIX E: INTERVIEW GUIDE

Introduction

In my research, I plan to assess the capacity for institutions to implement Universal Design for Learning (UDL) by building a UDL implementation scorecard. An expert panel has contributed to six categories that are required to implement UDL. These six areas identified by these experts are: (a) administrative support, (b) faculty support, (c) technology, (d) professional development, (e) awareness, and (f) culture. My goal is to explore these areas in depth as they relate to UDL. I appreciate your time and contributions to this study.

Universal Design for Learning

A growing trend in education is the use of Universal Design for Learning (UDL). UDL attempts to meet needs of every learner as lessons are intentionally planned for learning that is both challenging and supporting for meaningful ways to grow (Meyer, Rose, & Gordon, 2014). This model meets the needs of a variety of students, including those with disabilities, abilities, and different learning styles (DO-IT, 2012). The model's success is based on the following aspects of design and implementation: (a) multiple means of representation, (b) action and expression, and (c) engagement. It is defined in the Higher Education Opportunity Act (2008, Sec. 103 (24)) as:

a scientifically valid framework for guiding educational practice that 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 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.

UDL specifically assists students with invisible disabilities and alleviates the need for accommodations for many students. Research has noted that in higher education, UDL promotes a feeling of community and interaction among students that leads to increased success (Rao, Ok, & Bryant, 2014).

Interview Questions

Categories

- A: Administrative Support
- B: Faculty Support
- C: Technology
- D: Professional Development
- E: Awareness
- F: Culture

1. What values or competencies are associated with high quality teaching at your institution? (A, B)
 - a. How are these expressed or promoted to faculty?
 - b. How does the college support development of these competencies?
2. What types of UDL professional development opportunities are available? (A, B, D, E)
 - a. How are these professional development opportunities prioritized among all other learning opportunities?
3. In what ways does the institution provide recognition or motivation among faculty to implement UDL? (A, B, D)
 - a. How do you believe these efforts impact the use of UDL?
 - b. What UDL features are included in evaluations, whether by design or not?
4. Can you provide examples of administrative and/or faculty support centered on UDL? (A, B)
5. How are different teaching methods, or use of technology evaluated to see if they impact student success? (C)
 - a. Are these tracked by any specific student population(s)?
 - b. How are the results communicated across the institution?
6. What is done to create awareness of learner variability and instructional barriers? (E)
7. Please provide examples of technology that your college has implemented that have helped to meet the needs of all students. (C)
 - a. Where any of these purchased with the specific goal of implementing UDL?
 - b. Where any of these purchased for a specific student population?
8. How are resources allocated for technology purchases and how is additional funding acquired if not available? (A,C)
 - a. Is there an approval process that includes institutional policies that foster institution wide compliance?
9. Once technology is obtained, how is the use of this technology promoted to faculty and staff? (A,B,C,E)
 - a. How is this technology shared within and across divisions or departments?
10. What are some barriers to change that you have experienced, and how have these been overcome? (A, B, F)
11. How is the mission and environment of the college conducive for UDL? (F)
12. What would need to be included for a five-year plan of success for all students in higher education? (F)

APPENDIX F: IRB APPROVAL LETTER

FERRIS STATE UNIVERSITY

Institutional Review Board for Human Subjects in Research

Office of Research & Sponsored Programs, 1010 Campus Drive, FLITE 4100 - Big Rapids, MI 49307

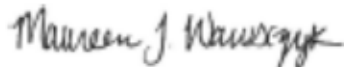
Date: November 30, 2017
To: Dr. Sandra Balkema and Christine Wayne
From: Maureen Wawsczyk, Research Integrity & Compliance Officer
Re: IRB Application, *Evaluating Institutional Capacity to Implement Universal Design for Learning in Community Colleges*

The Ferris State University Institutional Review Board (IRB) has reviewed your application for using human subjects in the study, "*Evaluating Institutional Capacity to Implement Universal Design for Learning in Community Colleges*" and determined that it does not meet the Federal Definition of research on human subjects, as defined by the Department of Health and Human Services or the Food and Drug Administration. This project does not meet the federal definition of research on human subjects because the unit of analysis is on the institution and not on human subjects. As such, approval by the Ferris IRB is not required for the proposed project.

This determination applies only to the activities described in the submission; it does not apply should changes be made. If changes are made and there are questions about whether these activities are research involving human subjects, submit a new request to the IRB for determination. This letter only applies to Ferris IRB Review; it is your responsibility to ensure all necessary institutional permissions are obtained and policies are met prior to beginning the project, such as documentation of institutional or department support. Note that quality improvement project findings may be published, but any findings presented or published should be clearly identified as part of a quality improvement initiative and not as research.

Your project will remain on file with the Ferris IRB for purposes of tracking research efforts at Ferris. Should you have any questions regarding the determination of this letter, please contact the IRB.

Regards,



Ferris State University Institutional Review Board
Office of Research and Sponsored Programs