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UDL: Practicing What We Preach

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UDL: PRACTICING WHAT WE PREACH

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

by

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Dedication

This dissertation is dedicated in loving memory to my father, retired Major General Merdith Wyndham Bolling Temple. In the army, my father earned the nicknames of Bonecrusher and the Tazmanian Devil, due to his tenacious nature and boundless energy; I knew him as "Dad," for his overwhelming love and devotion. Over the course of my life, he would take me to many museums, battlefields, creeks, construction sites, mess halls, memorials, historical markers, and, jump zones. My father loved to share his knowledge with me, from describing the importance of the battles in Gettysburg and Normandy, to relating the small stories of family history over ham biscuits at the Nottoway after visiting our relatives in rural Virginia.

My father loved to learn, and always had stacks of books nearby to read through, all of which he would ravenously devour. He would then share that knowledge, through many dinner conversations or daily calls over the phone. His strong voice would become gentle as he asked "What did you learn today?," as he listened intently. Within a day or two, he would then find news articles related to my interests and excitedly sent them via small letters sent to my home. It was one of the ways how he showed love, by expanding his knowledge about what was important in my life and sharing what was important in his. It is from him I learned to be tenacious through difficulties, to celebrate successes, and to find my joie de vivre. Even when he became ill, he always told me to "focus on my education," or "work on your dissertation." He valued learning very much, but the only thing he valued more was his family. It is thanks to him that I am where I am today, and from his example that I hope to be the very best educator and learner with my students, my colleagues, and my own family.

Dad: Thank you for all the clippings, emails, texts and calls. I love you and miss you every day.

Essayons.

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Abstract

UDL: PRACTICING WHAT WE PREACH

By Peter Edmund Lewis Temple, Ph.D.

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Virginia Commonwealth University, 2022

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The purpose of this study was to explore the use of UDL in a special education program's

coursework and analyze how it affects college students outcomes beyond their classrooms. Past

research has suggested that UDL has been increasingly used in college-level coursework design,

and courses designed with UDL have higher reports of college student achievement. Based on

the principles of UDL and andragogy, this study identified four central research questions.

Specifically, a small qual/large quant mixed-method research design was used to investigate

instructor utilization of the UDL principles, teacher candidate corroboration of UDL elements in

their coursework, and an exploration of current student use of the skills learned in various

courses from a special education program in the 2020-2021 academic year. Additionally, it was

tested to determine of the EnACT UDL syllabus rubric could be used to predict instructor use of

UDL. A Ruskal-Wallis H test was used to determine if there were significant different between

instructor and teacher candidate responses, as well as differences between the instructor

responses and EnACT UDL syllabus tool items. Results indicated that the EnACT UDL syllabus

tool was not useful to predict instructor use of UDL in their coursework design. Further, results of specific differences between instructor and teacher candidates reports of UDL elements are presented and discussed. Limitations and implications for instructor implementation of UDL research, practice, and policy are discussed.

Chapter 1

Introduction

"Always remember that UDL isn't a simple,
consistent checklist or recipe you can follow.
It's a whole new way of thinking!"

Patti Kelly Ralabate, 2016

Neuroscientist David Rock (2010) stated that change is often a difficult, laborious

process. He attributes this to uncertainty, which can have a neurological effect similar to when

the brain registers an error. Perhaps this is why when new movements are introduced to the field

of education, there is a certain amount of concern or apprehension to adopt not only a new

framework, but an entirely new way of thinking (Jonasson, 2016). Recent education reforms

(such as Virginia is for Learners Future-Ready Learning (2019) have urged teachers to foster

collaboration and deeper reflection among students to develop cognitive processes like those

identified in educational legislation (such as critical thinking, creative thinking, and collaborative

skills) (Every Student Succeeds Act [ESSA], 2016; Virginia Department of Education

[VADOE], 2019A; VADOE 2019B). It is more crucial than ever for evidence-based educational

techniques to be modeled in college coursework. Professional development can no longer just be

about exposing teachers to a concept in a one-time workshop (Darling-Hammond et al., 2009), or

delivering basic knowledge about a teaching methodology (Yoon et al, 2007). Teacher educators

at the university level should practice the intentional display of teaching behaviors, teaching

techniques, and learning scaffolds to promote undergraduate and graduate students' professional

growth and development (Hunde & Tacconi, 2014; Lunenberg et al., 2007; Lunenberg et al.,

2014; Mohamed et al., 2017). The state of education is an era of accountability that requires

teacher education that leads to increases in student learning not only in Kindergarten through 12th

grade classrooms, but in colleges and universities as well. Historically, research has shown that student achievement is strongly, positively correlated with the quality of the teachers' instructional techniques (Darling-Hammond, et. al, 2009; Rockoff, 2004; Sanders & Rivers, 1996; Sanders et al., 1997). With the emphasis from legislation and backed by research, colleges and universities must continue to deliver high-quality educators who use modern, updated evidence-based practices throughout their tenure.

Andragogy and Adult Learning Theory

It is necessary to develop high-quality educators at the very beginning of their careers, in their college or university preparation programs (Kozleski et al., 2000). The question then becomes how do we teach teachers? While there is no single theory that can be applied to all adults, of note is Knowles' (1980) concept of andragogy: andragogy is defined as the science of teaching adults, contrasted with pedagogy (the science of teaching children). According to Knowles (1980), there is a set of assumptions regarding adult learners; adults move from dependency to increasing self-directedness as they mature and can direct their own learning; adults are ready to learn when they assume new social or life roles; and adults are motivated to learn by internal, rather than external factors. The way these assumptions translate into practice suggests that adult educators need to set cooperative learning environments that identify the learner's specific needs and interests, developing objectives based on the learner's interests and skill levels, and have the flexibility to make adjustments, as needed, while assessing needs for further learning (Knowles, 1980). This was developed into the Four Principles of Andragogy, which suggests that adult-centered instruction:

1) be highly relevant to assignments,

2) be problem-based to encourage critical thinking and reflective learning,

3) acknowledge prior work and life experience, and

4) be self-paced (Ota et al., 2006).

In addition to the principles put forth by Knowles, adult learners have established life experiences that determines their learning. The adult learner is also more likely to desire a sense of cooperation between student and teacher roles as they proceed through their education (Zmeyov, 1998).

Because adults need to know the "why" they are learning something, effective teachers explain their reasons for teaching specific skills. Sometimes, effective instruction focuses on tasks that adults can take initiative and act upon rather than on memorization of content. In this model, adults are problem-solvers and learn best when the subject is immediately relevant, effective instruction involves the learner in solving real-life problems (USDOE, 2011). It is important to understand the interests and abilities of the adult student, because learners are more or less receptive to differing styles of instruction, such as audial, visual, or kinesthetic learning styles (Rutgers, 2019). In essence, to teach an adult, one must differentiate the instruction provided. Differentiated instruction in education is not a recent concept, although applying it to adult learning is a more recent development (Boelens et al., 2018).

Differentiated Instruction in K-12 Education

The history of differentiated instruction dates to the late 1800s. With classrooms becoming more structured, divided by grade levels and less like a single-room cabin, teachers were beginning to find that the assumption that all children could learn the same materials at the same pace proved to be false (Stronge, 2018). By 1912, with the introduction of achievement tests, there was a growing body of evidence that showed the differences in children's abilities were much greater than realized. At its core, teachers who use differentiated instruction vary and

adapt their approaches to fit the diversity of students in the classroom, because students can excel in school when their culture, language and experiences are valued (Tomlinson, 2000; Klinger, Artiles, & Barletta, 20064). This was based on neuroscience, specifically on Vygotsky's (1997) learning theory and the three learning networks of the brain (the recognition, strategic, and affective networks). Each of these networks correlates to a different way that students learn information; while all students have these networks, not all students are receptive to every kind of learning experience (Vygotsky, 1997). The relationship between students and teachers is a collaborative experience, where the teacher designs the lesson with appropriate scaffolding to ensure students are receiving instruction at a level just above their current developmental level (Tomlinson, 2000). In 2017, Tomlinson explicitly detailed what differentiated instruction is and is not. Of particular note is how she defined differentiated instruction as "taking multiple approaches to content, process, and product," which is to say that teachers are to offer multiple ways to learn new educational content and multiple means of demonstrating their learning (Tomlinson, 2017). Additionally, Tomlinson (2017) states that differentiated instruction is student-centered, and that sometimes a task that is easy for some learners is frustrating and complex to others. In helping students develop agency by taking initiative in their education, they become more self-directed (Tomlinson, 2017).

Universal Design for Learning

With the understanding that andragogy recognizes there are specific strategies to teach adults, and differentiated instruction helps to develop agency in learners, it is important that college courses are designed with diverse adult learners in mind. The framework that best addresses and incorporates the principles of andragogy and differentiated instruction is Universal Design for Learning (UDL). Universal Design for Learning (UDL) is a set of principles for

curriculum develop that gives all students equal opportunities to learn (Center for Applied Special Technology [CAST], 2021). Similar to Tomlinson's definition of differentiated instruction, UDL is based on neuroscience, specifically Vygotsky's three main neural networks that are involved in the learning process: (a) recognition networks (fact gathering and categorize what we see, hear, and read); (b) strategic networks (organizing and expressing our ideas); and (c) affective networks (connecting the learning experience to an emotional background, determining engagement and motivation) (Rose & Meyer, 2002; Vygotsky, 1997). To address student needs, three principles were created, each one developed based on the way its respective neural network stores and interprets learned information: (a) provide multiple means of representation (recognition networks), (b) provide multiple means of action and expression (strategic networks), and (c) provide multiple means of engagement (affective networks) (Rose & Meyer, 2002). These principles are further broken down into specific guidelines which help offer strategies that promote learning in each neural network (CAST, 2021).

These concepts behind DI and andragogy have a certain amount of overlap and interplay with the principles of UDL. Hall, Vue, Strangman, and Meyer (2003) noted the importance that differentiated instruction plays in UDL implementation. Regarding the recognition network, teachers can evaluate student knowledge about a construct before designing instruction, and therefore better support students' knowledge base (i.e., scaffolding instruction). For the strategic networks, the concept of varying teaching methodology in DI can help students understand the multiple applications of a lesson. Finally, DI and UDL converge in recognizing the importance of engaging learners in instructional tasks. UDL calls for motivating and sustaining learner engagement through flexible instruction, an objective that DI supports. Engagement is a vital component of effective classroom management, organization, and instruction (Hall et al., 2003).

These UDL-focused researchers recognized the importance of DI in the classroom. These commonalities and shared goals were recognized by the founders of UDL as key tools to teach diverse classrooms. UDL has seen growing advocacy since the year 2000 for utilizing the framework in college coursework, because it is widely accepted as a framework for meeting the learning needs of diverse populations of students in traditional K-12 settings (Collier et al., 2020; Craig et al., 2019; Gargiulo & Kilgo, 2018; Grigal et al., 2015; Gronseth & Dalton, 2019; Hutson & Downs, 2015; Jimenez et al., 2007; Jones et al., 2016; Mcguire et al., 2006; Meo, 2008; Powell & Powell, 2015; Smith et al., 2014; Unal et al, 2020).

UDL is about providing options. In the words of David Gordon, senior director of communications at CAST:

> Options are essential to learning, because no single way of presenting information, no single way of responding to information, and no single way of engaging students will work across the diversity of students that populate our classrooms. Alternatives reduce barriers to learning for students with disabilities while enhancing learning opportunities for everyone (The Access Project, 2011).

The UDL framework values diversity through proactive design of an inclusive curriculum, thereby eliminating or reducing barriers to academic success (Ralabate, 2011). Initially proposed as a means for including students with disabilities in the general-education classroom, it is now better understood as a general-education initiative that improves outcomes for all learners. This initiative has seen a growth of support in the past two decades, with UDL appearing prominently in U.S. education policy.

Policies Supporting UDL

In 2004, the National Instructional Materials Accessibility Standard (NIMAS, 2004) was endorsed by the US Department of Education (USDOE) as the preferred approach for publishers to provide accessible curricular materials to students in grades K-12 (Karger, 2004; Pisha & Stahl, 2005). NIMAS guided the production and electronic distribution of instructional materials and was adapted directly from the UDL guidelines developed by CAST (CAST, 2021; Office of Special Education Programs, 2021). IDEA 2004 moved policy towards the use of UDL through the NIMAS and Response to Intervention (RTI) provisions. As a national standard, NIMAS provided the first explicit mention of Universal Design for Learning in US legislation, requiring publishers and school districts to provide digitized versions of texts.

In 2010, the US Department of Education released a National Education Technology Plan that refers to the use of UDL throughout the document, ensuring that technology be used to optimize the diversity of learners (Yugui & Yanyan, 2010). In an effort to model UDL, an excerpt of the National Educational Technology Plan incorporated the same guidelines provided by the principles of UDL as developed by CAST. Maryland HB 59/SB 467 marked the first state-level bill that established a UDL Task Force to explore the incorporation of UDL principles into their K-12 education systems (DeCoste et al,. 2015).

The Higher Education Opportunity Act (HEOA, 2008) incorporated the three principles of UDL (representation, expression, and engagement) and emphasized reducing barriers with appropriate supports and challenges built into post-secondary instruction. The inclusion of UDL in the HEOA signaled a federal recognition of the potential for UDL to improve practice in college classrooms and provide opportunities for university students to succeed. Most recently, with the passage of the Every Student Succeeds Act (ESSA, 2016), UDL was described using the definition from the HEOA, and there were specific references to UDL throughout the statute.

The definition of UDL does not differ between the two documents, but the learning

environments do: HEOA emphasized post-secondary instruction, and the ESSA emphasizes K-

12 classroom instruction. Most notably, according to section 1005 of the ESSA, entitled STATE

PLANS, states must demonstrate that they have implemented high-quality academic assessments

developed using UDL for both standard and alternate assessments. Section 2221(b)(1) of the

ESSA states that comprehensive literacy instruction must incorporate the principles of UDL.

Finally, section 4104 of the ESSA details that states may use funds to support "local education

agencies in providing programs that increase access to personalized, rigorous learning

experiences supported by technology … consistent with the principles of universal design for

learning, to support the learning needs of all students, including children with disabilities and

English learners … (ESSA, 2016)." This is absolutely essential, because it affirms UDL's

importance in US education law. All 50 states and US territories have to comply with this law,

thus requiring that UDL is incorporated into every K-12 classroom. Additionally, the law makes

a distinct connection between UDL and technology, continuing the pattern established by Rose

and Meyer (2002).

Special Education, the CEC, and UDL

While CAST is making efforts to increase accessible learning to all students, the field of

special education is facing serious shortages and unfilled teaching positions (Dewey et al., 2017).

In 2000, 98% of school districts across the U.S. reported a shortage of qualified special education

teachers (Bergert & Burnette, 2001; Boyer & Gillespie, 2000). In the twenty years since, this is

still a critical issue. In June 2017, the U.S. Department of Education and Office of Postsecondary

Education (2017) announced that 46 states were drastically short on currently employed special

educators. We are seeing more teachers leaving the field then entering it every year, causing a significant need for qualified special educators throughout the country (Robinson et al., 2019).

There is a critical need for greater numbers of qualified special educators to enter the field. But what defines a "highly qualified" special education teacher? There is a national organization that defines the professional standards for highly qualified special educators in the U.S. The Council for Exceptional Children (CEC) is the largest professional organization dedicated to improving the educational success of individuals with disabilities, and one of the responsibilities of the CEC is to develop the professional standards by which colleges and universities train people to successfully become special education teachers (CEC, 2021). The CEC advocates for appropriate governmental policies (including IDEA), sets professional standards, provides continual professional development, advocates for newly and historically underserved individuals with exceptionalities, and helps professionals obtain resources necessary for effective teaching practice (CEC, 2021). The preparation of special education teachers is broken down into four key areas: pedagogy, liberal arts, core academic subject matter content, and induction and mentoring.

Of interest is the pedagogic content area. Special education teachers learn the characteristics of students with and without disabilities and understand how to develop culturally aware learning environments for students to interact in and with the educational process. They should also be prepared to teach or coteach general curriculum content to students with disabilities and design accommodations for students to individualize meaningful and challenging learning experiences (CEC, 2021). This means that the CEC recognizes that in order to serve a diverse and growing population of learners, then the learning content must be designed in such a way to be as accessible as possible, based on their students' learning needs.

Designing and delivering flexible lessons for diverse learners is a core part of undergraduate and graduate special educator programs. This is the connection between the CEC guidelines and the UDL principles. The UDL framework guides educational practice and 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. When teachers design courses with the UDL framework, they become proactive in: reducing barriers in instruction; providing appropriate accommodations; and supporting, challenging, and maintaining high achievement expectations for all learners in the classroom (CAST, 2021).

Rationale

While CAST has been making efforts to provide accessible education and tools for students with disabilities, most of their current efforts focus on programs and technology that assist students and established teachers in K-12 environments. With the ESSA firmly mandating that K-12 classrooms must demonstrate their use of UDL-developed curriculum, it is clear that colleges and universities need to provide future special educators with the skills and knowledge to successfully design inclusive curriculum. Teachers need to not only receive instruction on UDL in the college classroom but implement it successfully in their K-12 classrooms. The expectation is that these special education teachers will design coursework for a diverse student body in mind. Hypothetically, if colleges are both teaching the core concepts of and modelling UDL in their coursework, then future educators will be more likely to transfer the knowledge and skills gained from their college experiences when developing their own lessons (Hunde & Tacconi, 2014; Lunenberg et al., 2007; Lunenberg et al., 2014; Mohamed et al., 2017; Scott et al., 2017). This should result in the development of expert learners, starting from the elementary level and continuing through to graduate levels of education. There are currently few studies

determining the effect or outcomes of graduate education developed using the UDL framework

(Craig et al, 2019; Lee & Griffin, 2021; Owiny et al, 2019; Scott et al., 2019; Scott et al., 2017).

Statement of Purpose

The goal of this study is to explore the use of UDL in college coursework design and how

it affects teacher candidate (defined as graduate and undergraduate students participating in an

education degree) outcomes within and beyond the college classroom. Specifically, this study

will research teacher candidates who have completed classes that have been designed using the

UDL principles. The purpose is to find out if enrolling in college courses that present and model

using UDL is producing teachers who are better prepared to utilize the same UDL principles in

their own K-12 classrooms. Furthermore, this study is one of the first to explore in what ways

teacher candidates are using the lessons and objectives from UDL-designed coursework in their

own professional environment

Research Questions

This research is guided by mixed-method research questions investigating the use of

UDL in college coursework design and how it affects teacher candidate outcomes. Specific

questions include:

1. To what extent can the EnACT UDL syllabustool be used to corroborate instructor

claims that their course is designed implementing the UDL framework?

2. To what extent did teacher candidates who attended courses employing UDL strategies

in the special education program identify that they were instructed using UDL components

in the coursework?

a. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Representation in the coursework?

b. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Action & Expressions in the coursework?

c. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Engagement in the coursework?

3. When provided with courses that employ UDL strategies, to what extent do teacher candidates perceive they achieved the course objectives?

4. How do teacher candidates currently apply the knowledge and skills learned in these courses in their current pre-professional and professional environments?

Definitions of Key Terms

For clarity, the following is a list of definitions and explanations of terms commonly used throughout this study. Table 1 contains a list of acronyms used in the literature, policy documents, and by national organizations.

Multiple Means of Action and Expression. UDL suggests allowing students more than one way to interact with the material and offer multiple possibilities to show what has been learned. For example, based on their interests, students might get to choose between taking a pencil-and-paper test, giving an oral presentation, or developing an audio/video project, (CAST, 2021).

Multiple Means of Engagement. Students differ markedly in the ways in which they can be engaged or motivated to learn. Some students are highly engaged by spontaneity, others may require more structure to maintain engagement in the learning process. Allowing students to make choices and giving them assignments that feel relevant to their lives are some examples of how teachers can sustain students' interest (CAST, 2021).

Multiple Means of Representation. UDL recommends offering information in more than one format. For example, textbooks are primarily visual, but by providing electronic text, audio, video, and hands-on learning, grants more students can access the material in ways that are best suited to their learning styles (CAST, 2021).

Universal Design. The design of buildings, products, or environments to make them accessible to all people, regardless of age or ability. This also includes electronic systems, any electronics-based products, or systems so that they may be used by any person (CEUD, 2018).

Universal Design for Instruction/Teaching. The design of instructional products and environments to be usable by all students, to the greatest extent possible, without the need for adaptation or specialized design. It can be applied to the overall design of instruction as well as to specific instructional materials, facilities, and strategies (Burgstahler & Russo-Gleicher, 2015).

Universal Design for Learning. The goal of UDL is to use a variety of teaching methods to remove barriers to learning and give all students equal opportunities to succeed. Based on neuroscience regarding how people learn, it is composed of three principles: Multiple Means of Representation (MMR), Multiple Means of Action and Expression (MMAE), and Multiple Means of Engagement (MME) (CAST, 2021).

Universal Design for Transition. Builds upon the principals of UDL to assure that instructional practices are designed to meet the needs of diverse learners through the use of multiple means of engagement, expression, and representation. Specifically regards instructional planning, delivery, and assessment that bridges the gap between teaching academic and functional/transition goals (Thoma et al., 2009).

Teacher candidates. People who have been admitted to either an undergraduate or graduate teacher education program, completing coursework prior to student teaching and earning licensure. These are the subjects of this study. (Mukerji, 2014).

Table 1.

Commonly used acronyms.

Acronym	Meaning
BLS	Bureau of Labor Statistics
CAPS	Content-Acquisition Podcasts
CAST	Center for Applied Special Technology
CBM	Curriculum Based Measures
CEC	Council for Exceptional Children
ESSA	Every Student Succeeds Act (2016)
HEOA	Higher Education Opportunity Act (2008)
IDEA (2004)	Individuals with Disabilities Education Improvement Act (2004)
MMAE	Multiple Means of Action and Expression
MME	Multiple Means of Engagement
MMR	Multiple Means of Representation
NCES	National Center for Education Statistics
NCUDL	National Center on Universal Design for Learning
UD	Universal Design
UDI	Universal Design for Instruction/teaching
UDL	Universal Design for Learning
UDT	Universal Design for Transition
USDOE	United States Department of Education

Chapter 2

Review of the Literature

Chapter 1 outlined the history of UDL, the legislative mandates, and best practices that should be used by teachers. This chapter explores the historical foundations for UDL, a literature review of the extent to which researchers have studied UDL in college coursework, and a discussion of the limitations and implications of the current research.

History of UDL

UDL traces its origin to the Universal Design (UD) movement of the 1990's. The term "universal design" was developed by architect and designer Ron Mace at the Center for Universal Design at North Carolina State University (Burgstahler, 2008; Mace, 1985; CAST, 2021). Mace and his colleagues defined UD as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Mace, 1985). Mace wrote and designed the first accessible building code that became law in North Carolina and was later utilized nationwide as a model for accessible building codes. His development of UD was instrumental to such legislation as the Fair Housing Act of 1973 and later the Americans with Disabilities Act (ADA), (Tucker,1992; Burgstahler, 2008). The passage of the ADA facilitated widespread public awareness of the civil rights of people with disabilities. Some of the key points addressed in the ADA included access to public services, programs, transportation, and telecommunications. Physical barriers that impeded public access were to be removed where ever they existed (Tucker, 1992). Following passage of the ADA in 1990, UD became popular with the architects and designers who made public buildings and city streets accessible for the first time in US history.

Three critical insights that emerged from the work of that period have come to define Universal Design, and eventually influenced the emergence of UDL. First, most retrofitting and adaptation could have been avoided if designers had planned for accessibility from the beginning. Mace suggested a design ideal that proactively builds in features to accommodate the range of human diversity (McGuire et al., 2006). Second, physical modifications to the environment (e.g., curb cuts, entry ramps, universal-height drinking fountains) are beneficial to many people, not just those with disabilities. Finally, disabilities have less to do with individual deficits and more to do with environmental barriers that obstruct people's ability to function effectively and participate fully in society (Burgstahler, 2008: McGuire et al., 2006; Soder, 1989; Richardson, 1997).

Transition from UD to UDL

Ensuring physical access to classrooms and other learning facilities was an important first step toward accessibility in education. Elementary school teachers and university professors alike adopted UD "as a conceptual and philosophical foundation on which to build a model of teaching and learning that is inclusive, equitable, and guides the creation of accessible course materials" (Schelly et al., 2011, p. 18). Schools began to embrace the philosophy of inclusion by physically including students with disabilities in the classroom (Osgood, 2005; Stainback & Stainback, 1984). However, this did not ensure equal access to the general curriculum or opportunities for students with disabilities to benefit from what the school curriculum offered. Concurrent to the increasing use of UD in 1984, five clinicians (Linda Mensing, Grace Meo, Anne Meyer, David Rose, and Skip Stahl) from Salem, Massachusetts conceived the Center for Applied Special Technology (CAST, 2021). From its inception until 1998, CAST largely worked towards one goal: developing computer technology to enhance learning for students with

learning disabilities. CAST then established a learning lab offering evaluations matching student needs with computer solutions and computer-based tutorials using applications and instructional software. Their goal was to take assistive technology and study its use by students with and without disabilities (CAST, 2021). From its earliest years, CAST has had a focus on the relationship between technology and curriculum development.

The First Instances of UDL

In 1998, CAST introduced what became the principles of UDL to the Council for Exceptional Children (CEC) in the first book specifically focusing on UDL, "Learning to Read in the Computer Age" (CAST, 2021; Meyer & Rose, 1998). CAST applied the concept of UD to a framework for curriculum reform in education. Based on Sociocultural Theory of Learning by psychologist Lev Vygotsky (1996), CAST identified three brain networks that coincide with Vygotsky's prerequisites for learning: the affective network (how one engages with the learning task), the recognition network (cognizance of the information to be learned), and the strategic network (the application of strategies to process information) (CAST, 2021; Meyer & Rose, 1998). While every brain shares these structural networks, how each individual learns can differ greatly. The affective network addresses the "why" of learning. This area of the brain stimulates interest and motivation for learning (Rose & Meyer, 2002). Not everyone reacts to challenging or time-demanding tasks in the same way. To support the affective network, it is necessary to provide a balance of challenge and support, build engaging tasks, and teach strategies to build intrinsic motivation (Rose & Meyer, 2002). The recognition networks are the "what" of learning, helping gather facts and categorize what we see, hear and read (Rose & Meyer, 2002). Not everyone processes text and information in the same way or at the same speed, so to support the recognition network it is necessary to provide information and content using a variety of media

(Rose & Meyer, 2002). Finally, the strategic network is the "how" of learning (Rose & Meyer, 2002). This area of the brain helps us plan and perform tasks. Since not everyone approaches tasks or expresses their ideas in the same way, it is necessary to provide tools and strategies for planning and options and choice for expression (Rose & Meyer, 2002).

What UDL shares with UD is the removal of obstacles faced by students with disabilities that also has an impact on the greater learning body. For example, uncaptioned videos, or files that are incompatible with text-to-speech software create barriers for students with disabilities as well as students with different learning styles by limiting the modalities by which they are presenting learning information (CAST, 2021). From 1998 to 2002, the researchers at CAST refined principles and guidelines of UDL, included in "Teaching Every Student in the Digital Age: Universal Design for Learning," the first complete guide that explained UDL and offered practical classroom examples (CAST, 2021). It is notable that not only was a physical print version of the UDL guidelines made available, but a fully accessible online version with separate interactive features was released as well. In 2008, CAST issued the UDL Guidelines 1.0, published a list of guidelines along with the principles, amended them in 2011 as the UDL Guidelines 2.0, updated them with new language based on user feedback, and again in 2018 as version 2.2 (CAST, 2021). These principles and guidelines will be detailed below.

UDL Principles in the Present

Researchers at CAST realized that some of the basic elements of UD (namely its flexibility, inclusiveness, foresight in anticipating people's needs) could be applied in the field of education (Rose & Meyer, 2002). Just as UD is applied to architecture and product development, applying the UDL framework to curriculum design facilitates access to education for all of the students in a classroom, regardless of ability. UDL is based on three assumptions:

1. **Learning and Ability:** Learning is the dynamic interaction of the individual with the environment and/or context. Learning can't happen without the environment or context (Rose & Meyer, 2002).

2. **Learner Variability:** Learners in any learning environment represent a range of variability. There will always be students with a wide variety of interests, skills, experience, background knowledge; and preferred methods of accessing, processing and producing information (Rose & Meyer, 2002).

3. **Expert Learners (Goal)** - The goal of instruction is to develop expert learners who are purposeful, motivated learners; resourceful, knowledgeable learners; and/or strategic, goal-directed learners (Rose & Meyer, 2002).

Based on these assumptions, the researchers at CAST developed the principles and guidelines of UDL. From its initial inception in 1998 to its most modern revision in 2018, the principles of UDL have remained the same: to provide Multiple Means of Representation (MMR), Multiple Means of Action & Expression (MMAE), and Multiple Means of Engagement (MME) (CAST, 2021). These connect directly to Vygotsky's learning theory and the three learning networks of the brain (the recognition, strategic, and affective networks, respectively) (Vygotsky, 1998; CAST, 2021). The UDL guidelines 1.0 were based on the clinical model, focusing more on how to resolve issues with the learner and not the curriculum. Also, since the guidelines were developed around the year 2000, technology was less of a factor, with the goals more focused on providing access to a predominately text-based curriculum (Rose & Meyer, 2002). The UDL guidelines version 2.0 were restructured by CAST researchers who recognized that the learning goals, assessments, teaching methods and materials, rather than the learner, were the problem. Additionally, new advancements in neuroscience and improvements in technology (such as the

development of high-speed internet access become widespread in America) were leveraged in its

development (Rose & Meyer, 2002). In 2018, CAST unveiled its newest version of the UDL

guidelines, version 2.2 (see Table 2). In this version, emphasis was placed on the principle of

MME, restructuring it to place it above the other principles. Having described the background

that led to the development of the current UDL guidelines, the principles and guidelines

presented in Table 2 will be discussed in greater detail.

Table 2.

Universal Design for Learning Principles, Guidelines(v2.2), and Examples

I. Provide Multiple Means of Engagement	1. Provide Options for Recruiting Interest •Options that increase individual choice, autonomy & reduce distractions •Options that enhance relevance, value, & authenticity	2. Provide Options for Sustaining Effort & Persistence •Options that vary levels of challenge & support •Options that foster collaboration & communication	3. Provide Options for Self-Regulation •Options to guide personal goal-setting & expectations •Options that develop self-assessment & reflections
	Example: Utilizing case studies that reflect the situations students will encounter while developing complex problem-solving skills	*Example*: Developing a collaborative project with peers that have clear goals, roles, and responsibilities	*Example*: Including activities by which students get feedback and have access to alternative scaffolds that support understanding progress
II. Provide Multiple Means of Representation	4. Provide Options for Perception •Options that customize the display of information •Options that provide alternatives for auditory and visual information	5. Provide Options for Language & Symbols •Options that define the vocabulary and symbols •Options that illustrate key concepts non-linguistically	6. Provide Options for Comprehension Options that highlight critical features, ideas, and relationships Options that support memory and transfer
	Example: Offering written transcripts of all video presentations	*Example*: Use of Voki, vlogs, or audio recordings to narrate & explain graphical concepts	*Example*: Use of mind maps to guide information processing through an interactive visual tool
III. Provide Multiple Means of Action & Expression	7. Provide Options for Physical Action •Options for accessing tools & assistive technologies •Options in the means of navigation •Options in the mode of physical responses	8. Provide Options for Expressive Skills & Fluency •Options in media for communication •Options in tools for composition & problem solving •Options in the scaffolds for practice & performance	9. Provide Options for Executive Functions •Options that guide goal-setting •Options that support planning & strategy development •Options that enhance capacity for monitoring progress
	Example: Using a variety of evaluation methods (quizzes, case studies, presentations, etc.) instead of just tests & final exams	*Example*: Providing students the opportunity to choose what kind of presentation (Powerpoint, Voki, oral report, etc.) to demonstrate mastery	*Example*: Use of discussion boards to allow students who need more time to reflect on a topic and participate

Adapted from CAST, 2018.

The first principle of UDL is to provide Multiple Means of Engagement (MME), the "why" of learning. The affective network relates to the neural mechanisms of emotion (Barrett & Satpute, 2013; Ochsner et al., 2012). This principle posits that making the curriculum resonate with students on an emotional level will then increase students' engagement with the material. There are three guidelines to support this principle: provide options for recruiting interest, provide options for sustaining effort and persistence, and provide options for self-regulation. To recruit interest in a lesson, teachers should optimize individual choice and autonomy, as well as relevance, value, and authenticity, while at the same time minimizing threats to the educational experience, such as distractions. To sustain effort and persistence, it is important to heighten the salience of goals and objectives, while varying the demands and resources to optimize the challenge in any given task. Here, fostering collaboration and community is key, while also increasing mastery-oriented feedback. Mastery oriented feedback is the type of feedback that guides learners toward mastery rather than a fixed notion of performance or compliance and emphasizes the role of effort and practice rather than intelligence or ability. To provide options for self-regulation, one should promote expectations and beliefs that optimize motivation, as well as facilitating personal coping skills, self-assessment, and reflection (CAST, 2021).

The second principle, Multiple Means of Representation (MMR), generated three guidelines providing: options for perception, options for language and symbols, and options for comprehension. The recognition network allows people to sense and assign nominal and factual meaning to patterns and enable people to identify and understand information, ideas, and concepts. When providing options for perception, teachers are expected to offer ways of customizing the display of information, as well as offering alternatives for auditory and visual information. By only presenting information in one format, there is a risk of alienating learners

who have an audial or visual disability, as well as learners who process information better in alternate formats. When providing options for language and symbols, it is critical that teachers clarify the vocabulary and symbols used, as well as syntax and structure. This helps promote understanding across all languages, especially when illustrating concepts through multiple media. Barriers exist when some learners lack the background knowledge that is critical to assimilating or using new information, so it is important to supply background information when providing options for comprehension. Highlight patterns, critical features, big ideas, and relationships, as well as guide information processing and visualization. Finally, lessons should maximize transfer and generalization to new contexts (CAST, 2021).

The strategic network is how the brain plans, executes, and monitors our actions, or "how" we learn (Frost & McCalla, 2013). Therefore, it is equally important that teachers provide Multiple Means of Action and Expression (MMAE). This includes providing options for physical action, like varying the methods for response and navigation, as well as optimizing access to tools and assistive technologies. When providing options for expression and communication, it is important to use multiple media for communication, as well as multiple tools for construction and composition. Learners must develop a variety of fluencies (e.g., visual, audio, reading skills). This means that they often need multiple scaffolds to assist them as they practice and develop independence. Finally, teachers should provide options for executive functions. The involves guiding appropriate goal-setting, support planning and strategy development, facilitating managing information and resources, and enhancing the capacity for monitoring progress. Ideally, students should be taught how best to set long-term goals, plan effective strategies for reaching those goals, monitor their progress, and modify strategies as

needed. In short, the principle of MMAE allows learners to take advantage of their learning environment (CAST, 2021).

It is important to note that these UDL guidelines are not meant to be followed strictly in every educational scenario, but as a set of concrete suggestions that can be applied to instructional design to reduce barriers and maximize learning opportunities for a variety of students. This harkens back to its origins in UD; the idea is to reduce barriers, and allow greater accessibility to learning and education.

The Current State of UDL

In order to maintain up-to-date information and develop cutting-edge technology, CAST conducts research across K–12, college/university, and workforce environments regarding not only the implementation of the UDL framework, but questions related to equity, access, and learning outcomes (CAST, 2021a). CAST currently has 23 different studies under development through 2021. Their research can be best divided into two parts: the development and implementation of programs developed with and promoting the use of UDL in the classroom, and technology/tools that developed using the UDL framework.

UDL Programs in Development

The Universal Design for Learning Credentialing & Certification Initiative, called Learning Designed, is led by Blackorby and Basham (CAST, 2021a). Learning Designed is a program made to stimulate, support, and sustain best practices in UDL education program design. Currently in Phase 2, Learning Designed is both an online learning platform for professional development and a tool for credentialing and certification that provides personalized experiences for educators. Much like how students in a K-12 classroom need access to customized resources and coaching, Learning Designed recognizes that educators can also

benefit from a program developed from the UDL framework (CAST, 2021a). In conjunction with Learning Designed, the California Coalition for Inclusive Literacy (CCIL) supports the design and delivery of Universally Designed professional learning in literacy development, equipping teachers with tools and strategies to provide students with disabilities with access to grade-level content standards in inclusive classroom environments (CAST, 2021a). CCIL's universal supports ensure teachers across California can acquire essential UDL-based knowledge to provide access to grade-level literacy activities within the general education setting. These include access to the Learning Designed website, monthly seminars, and an annual UDL-based conference in California featuring a literacy strand designed for CCIL teachers (CAST, 2021a).

The Center on Inclusive Technology & Education Systems (CITIES) project is partnering with school districts from across the country to answer one core question: what works when bringing together education, information, and assistive technology for students with disabilities (CAST, 2021a)? CITIES leadership guides a collaborative team of diverse stakeholders in the development of community-wide visions for technology use. The development of a community-wide vision requires the leadership team working with participants that represent the demographics of all students in a partnering community. These individuals play a critical role in developing, communicating and measuring both the vision for, and implementation of technologies for students with disabilities. Framework and knowledge development is being conducted in K-12 school districts across 17 states in the U.S. By 2023, CITES will create and disseminate a framework of evidence-based practices to help instructional technology and assistive technology programs at local education agencies work together to enhance the use of technology to support all students' success (CAST, 2021a).

TIES stands for Increasing (T)ime, (I)nstructional Effectiveness, (E)ngagement, and State and District (S)upport for Inclusive Practices (TIES) (CAST, 2021a). CAST, in collaboration with the TIES Center, is using the UDL guidelines and user experience design practices to support general and special educators to design inclusive lessons and coursework that include students with the most significant cognitive disabilities (CAST, 2021a). To address barriers to equitable coursework for all students, CAST and the TIES Center are designing a 5-15-45 protocol to support collaboration between educators in planning blocks of 5, 15, or 45 minutes. In collaboration with feedback from educators, the protocol will include processes, materials, and resources contained in an accessible online database. CAST has already made the 5-15-45 protocol available to the public on their website, and future publications will support processes and models that increase student engagement and improve learning outcomes for students with significant cognitive disabilities (CAST, 2021a).

The New Hampshire Universal Design for Learning (NH UDL) Innovation Network is a multi-year job-embedded/school-site based professional learning program for New Hampshire educators (CAST, 2021a). NH UDL is designed to help support teachers to utilize and create coursework with the UDL framework. Over 500 teachers from over 70 K-12 schools across New Hampshire have participated in this initiative, engaging with teams to learn what UDL is and how to apply it in their learning environments. Through collaborative school-based instructional rounds, online learning, statewide workshop days, and team-supported reflective practice, teachers transform their classrooms to be more engaging and accessible. Having just completed year three of five, early reports show considerable growth in both professional development and utilization of UDL in the classroom. On a five-point Likert scale ranging from not at all confident (1) to extremely confident (5), 43% of respondents reported feeling not at all confident

in applying UDL to their practice prior to the implementation of the NH UDL initiative. As of year three, that number has dropped to 1%. In fact, while only 11% of respondents felt quite confident they could apply UDL to their practice three years ago, that number has since ballooned to 49% of all participants (CAST, 2021a). This is a significant example of how instructional opportunities regarding UDL can effect on teachers' ability to implement the UDL guidelines in their own classrooms.

In addition to the central NH UDL project, the The Virtual UDL Video Club is a brief, one-year project that works in conjunction with Learning Designed. Each month, teams of teachers from three schools in New Hampshire's remote North Country come together virtually to share and explore video footage from their own classrooms (face-to-face, virtual, or hybrid). Using Learning Designed, teachers collaborate to identify barriers to learning and design inclusive opportunities in which all learners can thrive (CAST, 2021a).

The Individualized Education Plan (IEP) Improvement Project is a partnership between CAST and the Massachusetts Department of Education (MASS DOE) to improve outcomes for all students with disabilities by providing guidance, technical assistance, and tools on equitable processes to school and district professionals, families, and students so that all students with disabilities have meaningful access to the educational curriculum (CAST, 2021a). CAST brings together experts in special education, inclusion, and instructional effectiveness; improvement science; family engagement; and culturally responsive practices to assist schools in looking at special education practices and systems. They engage with these practices through a UDL lens, paying particular attention to equity and student and family engagement (CAST, 2021a). The project is currently in year two of four.

In addition to these programs focusing on K-12 classrooms, CAST is currently involved in three projects revolving career and technical development (CTE). In the first project, CAST has partnered with the National Science Foundation's Advanced Technological Education (ATE) program to develop AccessATE, wherein grantees will receive hands-on assistance in creating accessible and UDL-designed curricula to address the wide variety of learners who access technical career courses (CAST, 2021a). The goal of AccessATE is to raise awareness of accessibility issues and requirements, increase understanding of what it means to make activities accessible, and provide guidance toward accessibility solutions and support pathways. The follow-up case studies will highlight before and after examples of courses, grantee interviews, and usage scenarios, as well as accompanying resources and materials. This project is nearing completion, and will end in 2022 (CAST, 2021a). The second project, "CTE Professional Development: A Universal Design for Learning Collaboration for and with Educators," will be completed in May of 2021 (CAST, 2021a). In partnership with CTE educators at the Seacoast School of Technology in New Hampshire, CAST is co-designing professional development that specifically supports hands-on teaching in remote or hybrid learning environments. With the COVID-19 pandemic currently making in-class learning difficult, CTE teachers and administrators want to continue to provide high-quality experiences in hybrid or remote learning environments for people with and without disabilities (CAST, 2021a). Finally, "Increasing Access, Skills, and Talent for Outdoor Recreation in the North Country" is a project designed to create a system of programming to prepare students for the opportunities that exist in the outdoor recreation industry in New Hampshire (CAST, 2021a). A competency-based Outdoor Recreation pathway will be developed within the existing CTE curricula in the region. Additionally, extended learning opportunity content will be developed with the Outdoor Recreation

competencies to create work-based learning opportunities for students with and without disabilities that don't have access to CTE programs. This project will put into place a strategy that ultimately will enable students in the North Country to be able to enroll and complete an entire Outdoor Recreation CTE program, and will finish in April 2021 (CAST, 2021a).

UDL Tools in Development

There are also a number of tools currently being researched by CAST. Two of the projects currently being developed revolve around the efficacy of a new tool designed with the UDL framework. The Science Notebook in a Universal Design for Learning Environment (SNUDLE) is a digital, interactive notebook to support the active science learning of elementary school students (CAST, 2021a). A study looking at educational outcomes for the SNUDLE app shows that teachers who used the program showed increased preparedness, confidence, and competence in teaching science lessons. Additionally, for students who initially struggled in science, the more SNUDLE pages they completed, the better they performed on science post-test scores (CAST, 2021a).

CAST has partnered with Arizona State University to develop the Writer's Workbench (CAST, 2021a). This tool is used to evaluate the impact of a professional learning ecosystem to support 7th and 8th-grade teachers in providing more effective writing instruction to students with high-incidence disabilities. The goal of the project is to support significant and meaningful improvements in teachers' writing knowledge and self-efficacy around writing instruction. This project combines the use of Writer's Key (an online writing environment built on the principles of Universal Design for Learning and aligned with state and national writing standards) with new online professional learning modules that apply effective research into practice and support teachers to improve their writing instruction. CAST will be conducting a research study during

the 2020-2021 and 2021-2022 academic years to study the impact of Writer's Key for teachers

and on student outcomes (CAST, 2021a).

The Innovations in Science Map, Assessment, and Report Technologies (I-SMART)

project is a UDL-based science assessment solution for elementary, middle, and high school

students with and without disabilities not meeting grade-level standards (CAST, 2021a). The

purpose of I-SMART is threefold: to understand how to leverage UDL to develop digital

opportunities for students across subject areas; to utilize intuitive dashboards that allow students

and teachers to evaluate student performance and behaviors on these tasks; and to support

effective formative assessment practices including individualized instructional decision-making.

I-SMART has two design purposes: summative (to support annual state accountability) and

formative (to support effective classroom-based instructional planning). To this end, CAST has

two research goals for the completion of this project. First is the development of prototype, next

generation science standards-aligned ecology tests that deeply apply UDL principles, and second

is the design of a prototype teacher dashboard to support instructional planning and

communication between students, parents/guardians, and other educators. CAST has currently

released the dashboard design process on their website (CAST, 2021a).

Corgi is a Google-based online digital organizer application, used to guide students

through assessing what they know about a concept and how it compares and contrasts to others,

prompt discussion, and activate deeper knowledge of concepts in a collaborative environment

(CAST, 2021a). Previous peer-reviewed research has shown Corgi is effective as students have

shown significant gains in learning science and US history using the tool, and students with

disabilities were also found to make substantial improvements (CAST, 2021a). The Corgi project

currently has two separate studies currently in development. The first, "Accelerating Higher

Order Thinking and STEM Content Learning Among Students with Learning Disabilities" looks to distribute the Corgi app and continue to actively field test and develop the tool (CAST, 2021a). The second, "Corgi 2020: Scaling Models for the Classrooms of Tomorrow," is a collaborative effort with middle school teachers to co-design resources (case scenarios, sample lesson plans and activities, videos, etc.) to support the implementation of Corgi in the classroom. These resources will then be housed in an online professional learning platform designed to facilitate networking and sharing among educators (CAST, 2021a).

In addition to Corgi, CAST has developed a new tool called the Science, Technology, Engineering and Mathematics-folio (STEMfolio) (CAST, 2021a). STEMfolio is a career exploration and engagement tool, programmed to help build learners' foundational STEM knowledge and skills, while also supporting learners in connecting their interests, readiness, skills, and aptitudes toward relevant scientific career pathways. The STEMfolio tool scaffolds and supports for access and assistance embedded in both the case and e-portfolio areas based on the framework of Universal Design for Learning, and provides rubrics that teachers can use to evaluate students' understanding of various science careers in STEM (CAST, 2021a). A second study built from the STEMfolio project involves Industrial Maintenance Technician (IMT) training, dubbed IMTfolio (CAST, 2021a). The IMTfolio pilot is designed to address the challenge of assessing readiness for an IMT apprenticeship pathway and to help potential apprentices have their own personalized portfolio that documents prior learning in IMT competencies, based on the design of the STEMfolio project (CAST, 2021a).

CAST is also currently in development of two electronic-based online centers: the Center on Inclusive Software for Learning (CISL) (CAST, 2021a), and the National Center on Accessible Educational Materials for Learning (AEM Center); (CAST, 2021a). CISL is designed

to explore and create tools to ensure that K-12 students with disabilities receive engaging, high-quality accessible digital learning materials. The CISL team will help partners to determine the features and supports to address barriers to learning from digital resources, develop an open-source software suite to provide personalized learning experiences for students through digital content, and create industry guidelines to encourage the widespread use of the CISL software (CAST, 2021a). The AEM Center is a technical assistance service, designed to help people with disabilities reach educational outcomes and advance in employment. Working with states and school districts, the AEM Center provides universal technical assistance to everyone on their website, including webinars and conference presentations. AEM Center also provides targeted technical assistance to address problems of practice in early childhood programs, higher education, and workforce development, while also providing families with supports. As a part of this project, the AEM pilot is an interactive web-based tool that guides K–12 districts in becoming more inclusive learning spaces for students with disabilities by helping build background knowledge about AEM, conducting self-assessments, and monitoring continuous progress (CAST, 2021a).

Conceptual Framework

Based on the concept of andragogy presented by Vygotsky (1980), the development of direct instruction (DI) as discussed by Tomlinson (2017), and the principles of UDL (CAST, 2021), effective teaching of adults via UDL-designed courses may result in expert learners. The cycle begins with adult learners who learn how to use UDL from their post-secondary course curriculum, which is both directly taught and modeled in traditional, hybrid, and online learning environments. These adult learners then become educators themselves, who implement the UDL-

developed objectives and goals learned from their graduate experience to develop newer,

accessible K-12 curriculum. Figure 1 illustrates this conceptual framework.
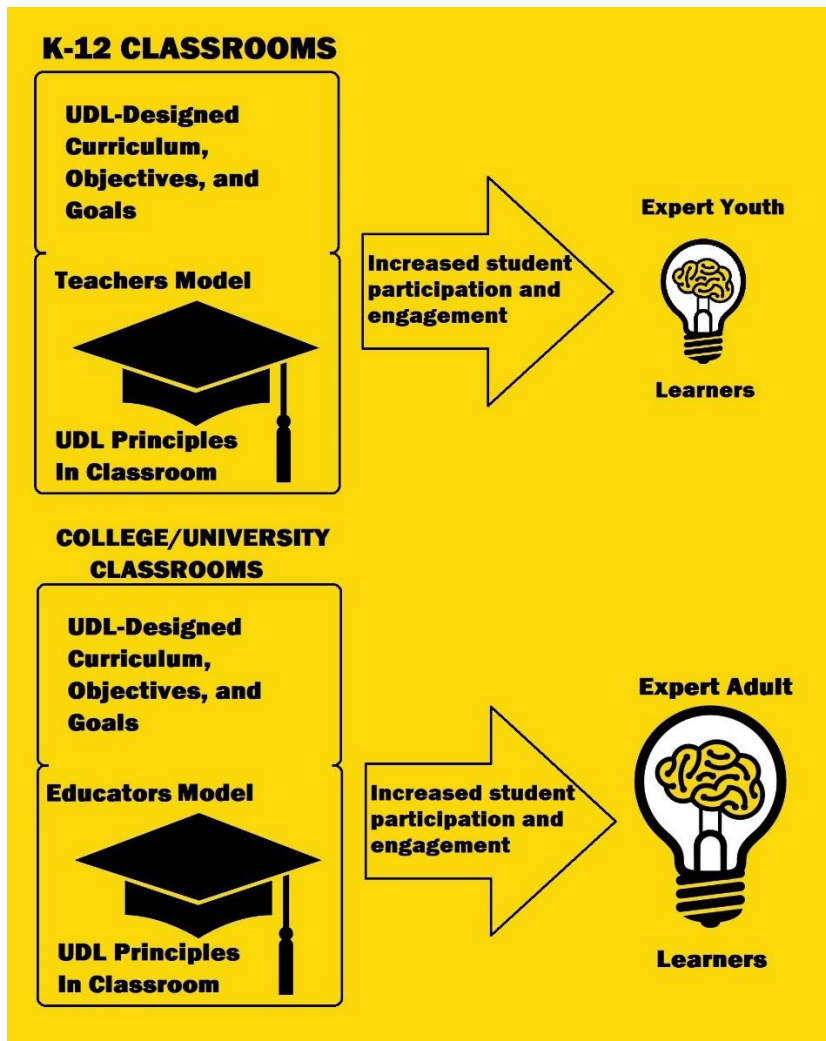
Figure 1. Proposed conceptual framework developed with ALT, DI, and UDL (CAST, 2021;

Tomlinson, 2017; Vygotsky, 1980).

Literature Search

UDL was developed with the K-12 environment as its central focus, but since its inception, researchers have postulated that its use as an educational framework could expand into higher education (Rose & Meyer, 2002). Given its call to prominence in K-12 classrooms and US education law, teaching and providing examples of the UDL has become a content component in post-secondary education programs (CAST, 2021; Dallas et al., 2014; Kraglund-Gauthier et al., 2014; Pace & Schwartz, 2008; Ryan, 2014; Stahl & Hall, 2006). Understanding the nature of how UDL has been applied to college coursework will provide information as the basis for new research.

Study Identification Procedures

Five databases were searched for academic literature on education: EBSCOhost, Web of Science, PsycINFO, Jstor, and Google Scholar. EBSCOhost was selected because users can parse through multiple databases within a single search, including ERIC, Academic Search Complete, and Education Research Complete. The researcher used a two-step search process with a search term flowchart (Figure 2). In Stage One, only "Universal Design for Learning" or "UDL" was paired with either "college" or "university." In Stage Two, the search was refined further, pairing the terms from stage one with each of the following terms: "coursework design," "online coursework," "online coursework design," "teacher preparation," and "special education teacher preparation." These terms have been used as keywords in articles previously identified for UDL literature reviews. These pairings repeat for each keyword combination and are searched in every database.

Search Term Flowchart
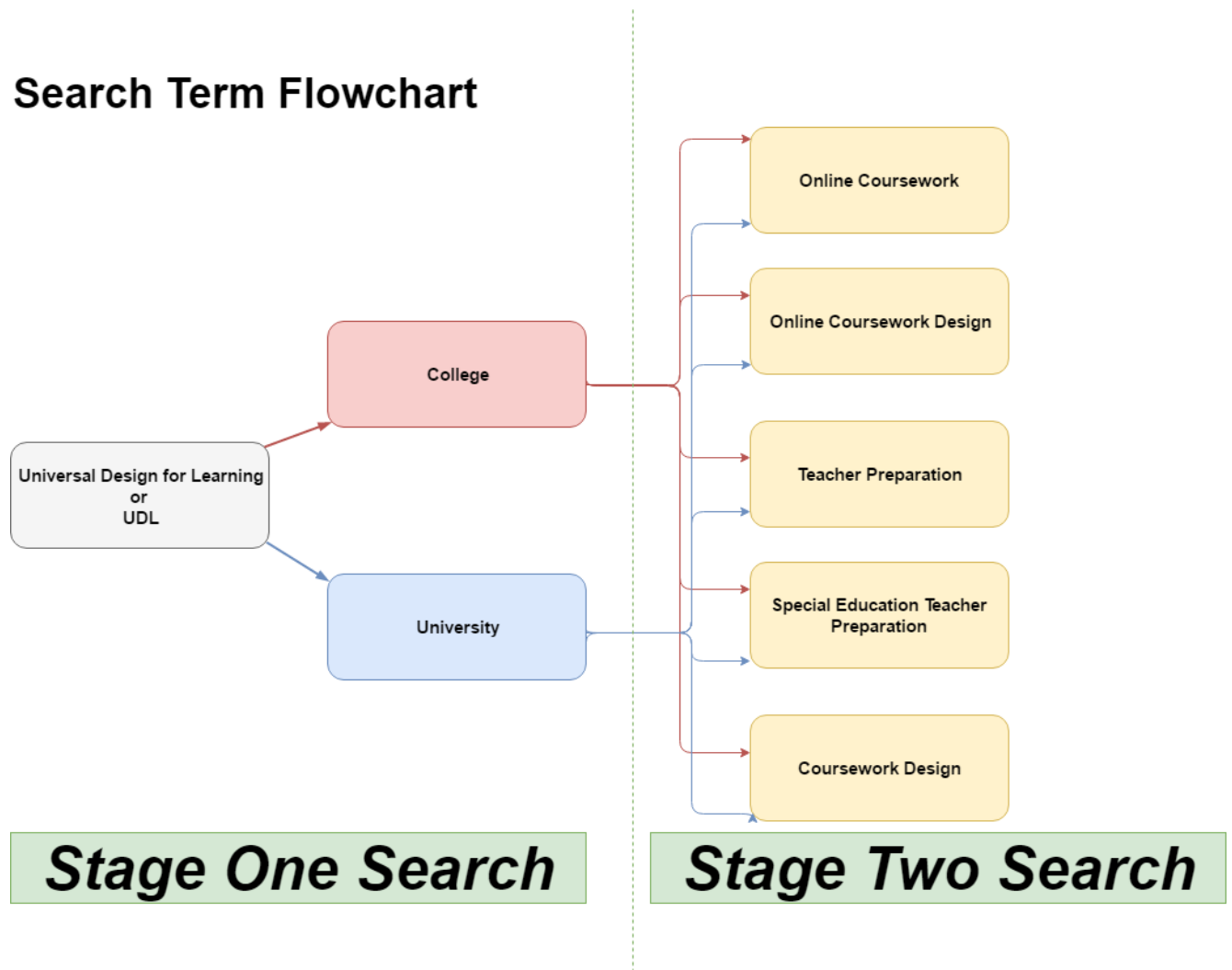
Figure 2. Search term flowchart.

For each database, the terms were filtered through both abstract and keyword search when applicable. If the search terms appeared in the abstract or the keywords of an article, they were included. If the search term pairings yielded no results, then only "universal design for learning" was searched within the database. Additionally, Google Scholar is an aggregate of all articles, books, and dissertations that feature certain keywords. To condense the article search from thousands of items, the researcher used the search code "allintitle: (keyword); keyword" example: "allintitle: universal design for learning; college"). When duplicate articles appeared within or across the databases, only their first appearance counted towards the total. Citations

were downloaded into a Google spreadsheet and assessed for their relevance against predetermined inclusion and exclusion criteria by screening titles and abstracts. Full-text manuscripts were obtained for all studies selected for review. The database searches yielded a total of 267 articles, of which all were screened. Following review, 229 articles were excluded either as duplicates or failing to meet the inclusion criteria. The researcher conducted a hand search, reading through the remaining articles to find references from earlier research, which resulted in eight new articles related to UD and differentiated instruction undergoing the inclusion/exclusion process.

Inclusion and Exclusion Criteria

Eligible studies were published in English in peer-reviewed journals between January 2002 and March 2021. This range was selected because the seminal guide "Teaching Every Student in the Digital Age: Universal Design for Learning" was published in 2002 (Rose & Meyer, 2002). Only empirical studies were included, meaning they were based on either a focus on experimentation (quantitative), systematic observation (qualitative), or mixed-measurement, rather than theoretical formulation. A wealth of information from observed and measured phenomena regarding UDL and its application in the classroom can be culled from reviewing empirical studies. With descriptive analysis regarding how UDL is being utilized and how researchers are measuring classroom phenomena, empirical research takes the steps beyond theoretical foundation and observes real-world application of UDL in various classroom environments. This allowed for not only quantitative and mixed-method studies to be considered, but qualitative data as well. Studies that had a joint emphasis on UDL and Universal Design (UD) were excluded, because when UDL was in its early stages of research, authors would occasionally confuse it with UD, making the topic of research difficult to correctly identify as

UDL. UD primarily concerns making a product or environment accessible to people with disabilities. UD does not utilize the principles and guidelines developed by CAST for UDL and was excluded for these reasons. However, studies including Universal Design for Instruction (UDI) or Universal Design for Transition (UDT) were included if they also incorporated the principles of UDL in their core research design.

Articles were categorized a priori in two ways: by type of research (qualitative, quantitative, and mixed-method) and by the time period in which the article was published. Articles were divided into two time periods: 2002-2010 and 2011-2017. Before 2011, articles were published utilizing older UDL 1.0 guidelines. CAST revised the set of guidelines and all articles published after 2011 are based on these revisions (CAST, 2021). While similar, UDL version 1.0 had less diverse terminology (focused heavily on Language Arts) and failed to acknowledge learner variability. Version 2.0 includes increased clarity on guideline checkpoints and more language from math, science, art, and social studies (CAST, 2021).

Results of Literature Search

The initial search identified 267 articles. An initial screening of the abstracts resulted in duplicates being removed, yielding 229 articles and 20 additional studies added from referenced articles. Articles were further culled based on identification of key terms (UDL, Universal Design for Learning, college, and university). After a review of the full-text articles ($n = 37$), 21 articles were excluded (Figure 3). The remaining 18 studies that met the inclusion criteria, three were published before the guideline update in 2011 and 13 were published afterwards.
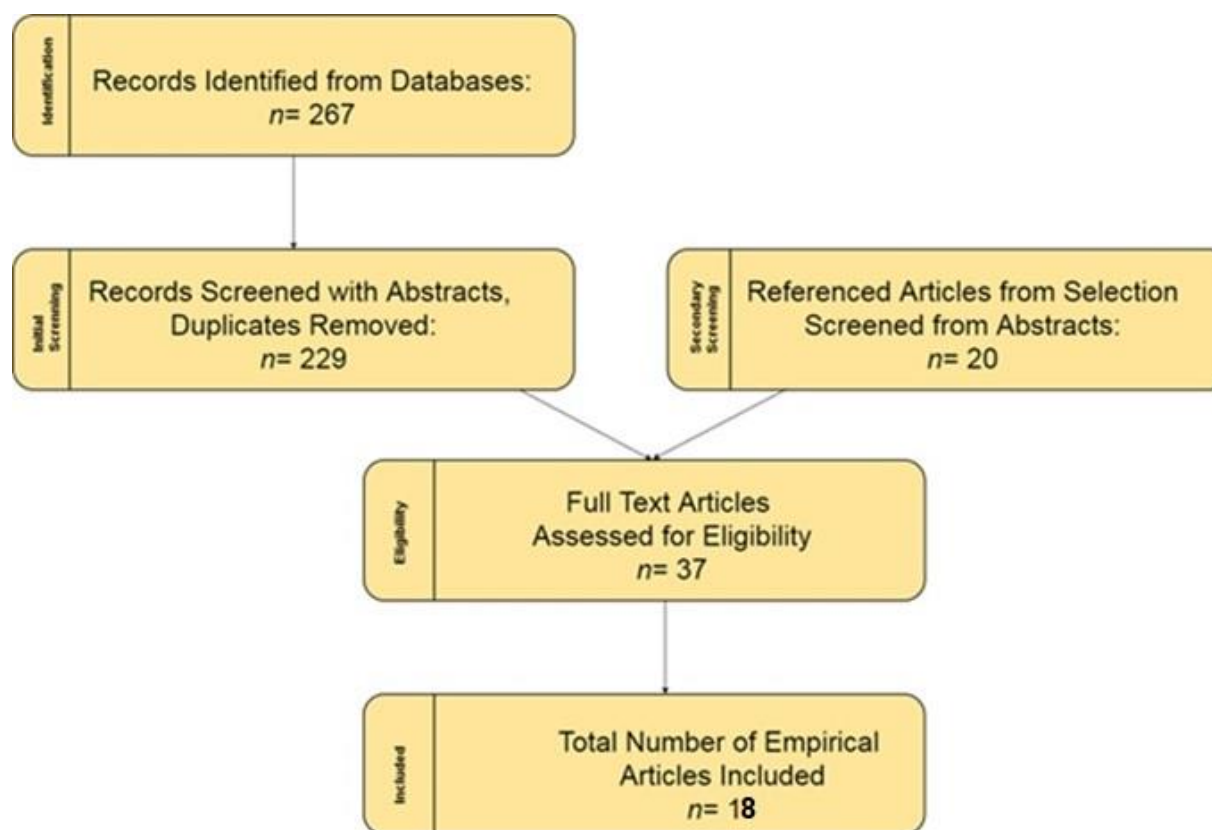
Figure 3. Flow chart diagram of research selection process.

Of the 18 studies selected, most used quantitative methods ($n = 7$), five used mixed methods, and four used qualitative methods. There was a total of 1,586 participants across the studies, comprising graduate/undergraduate students ($n = 1,282$), instructors/faculty ($n = 275$), and departments/programs (represented by staff) ($n = 49$). As discussed below, many studies did not collect descriptive demographic information. To best describe the results of the review, the articles are listed and summarized in chronological order, with highlights synthesizing the implementation of UDL, teacher perspectives, and college student perspectives. These summaries are critical to detail, as there have been so few empirical studies regarding UDL in college coursework.

UDL in University Coursework Study Summaries

Spooner, Baker, Harris, Ahlgrim-Delzell, and Browder (2007) studied graduate and undergraduate students (pre-service teachers) enrolled in four teacher preparation education classes (two general and two special education courses). Of the 72 participants, 21 (29%) were working toward a bachelor's degree; and 51 (71%) were working toward a master's degree; 41 (57%) were college students enrolled in a special education degree program; and 31 (43%) were college students enrolled in a general education degree program. Participants in each of the four classes were randomly assigned to either the treatment or control group. The intervention consisted of a one-hour lecture on UDL conducted by one of the co-investigators of the study. The control group received the UDL lesson after completion of the posttest.

Once the training was completed, participants were asked to create lesson plans. Participants' lesson plans were scored after the pretest and posttest using a scoring rubric specifically designed for the study. The scoring rubric consisted of a 3-point Likert scale (from 0-2) and evaluated the participants' lesson plans using the three components of UDL. There was a maximum number of 6 points awarded on the rubric, with a potential of up to 2 points per UDL component. Points were distributed based on three criteria: 0 points (no clear description of each component); 1 point (one or two modifications were discussed); and 2 points (three or more modifications were discussed). The authors found statistically significant within-subject main effects for the total pretest and posttest with respect to representation, expression, and engagement components. Both the special education and general education pre-service teachers in the experimental group showed an increase in mean scores from pretest to posttest. Also, judging by their scoring rubric, pre-service teachers in the experimental group showed growth between the pretest ($M = 0.98$) and posttest ($M = 3.34$) compared to the control group's pretest ($M = 0.77$) and posttest ($M = 0.77$) scores ($F(1, 68) = 52.027$, $p < .001$, $\eta2 = .433$). The results

suggested that even a small amount of UDL-based teacher preparation can influence teachers to create lesson plans that are more inclusive for students with and without disabilities. The results showed how UDL influences the development of lesson plans, which in turn affects how the classes are taught. By applying the principles of UDL to lesson plans, teachers in this study designed curriculum with content that is appropriate to students with disabilities and gifted learners, as well as taking into consideration students' abilities and interests. (Spooner et al, 2007).

Harper and DeWaters (2008) examined the websites that universities utilized in delivering coursework. The purpose of this study was to determine the extent to which a university website adhered to both the World Wide Web Consortium (W3C, 2018) guidelines (developed in part using CAST's UDL guidelines for accessibility) and Section 508 of the Rehabilitation Act (29 U.S.C. 794d) standards. This act requires that websites are accessible to people with disabilities (1998). Utilizing a program called Watchfire® Bobby (1998), they performed over 90 accessibility checks, reading the HTML from the websites of eight universities and reporting on accessibility.

Of the eight universities, only one institution satisfied all W3C and 508 standards. Four of the universities presented websites that were neither compliant with W3C nor 508. The other three universities had one or two accessibility violations apiece. In all, the authors found that roughly 87% of the universities had course websites with accessibility violations. The authors noted these websites failed college students by limiting access to learning materials and lessons for online coursework. According to the researchers, college students attending these institutions were denied multiple means of engagement with materials; instructors used limited means of representation; and sites lacking accessibility severely restricted college students' means of

participating in coursework. By failing accessibility checks, these universities potentially denied their college students opportunities to engage with their coursework. The researchers surveyed the universities' web designers, who reported that they understood and wanted to follow web accessibility mandates. However, web designers reported several issues (primarily budget constraints and inadequate time to develop the sites) which were barriers to providing an accessible and high-quality website. The authors concluded that further research and a better understanding of the patterns of compliance are required to increase web accessibility (Harper & DeWaters, 2008).

Smith (2012) also studied the effect of college student engagement from a course designed with UDL principles. More specifically, the study focused on college students' perceptions of faculty use of UDL in their courses, college students' engagement related to the infusion of the principles, and the relationship between college student engagement and the use of UDL approaches. Data were collected across four semesters (N=80 college students). The study had three research aims to determine: a) college student perceptions of faculty use of UDL in their courses; b) college student engagement related to the infusion of these practices; and c) the relationship between the use of UDL approaches and college student engagement.

Items represented the three guiding principles of UDL across the three brain areas: the recognition, strategic, and affective networks. The thirteen interest and engagement survey items were adapted from the Utrecht Work Engagement Scale for Students (Schaufeli et al., 2002). Absorption (characterized as being fully concentrated and happily engrossed in one's work) and dedication (characterized as being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge) items from the Utrecht scale were adopted for use in the survey for this research (Schaufeli et al., 2002). The survey assessed how

often students engaged with instructor strategies that used the principles of UDL (described as network areas), such as providing multiple types of lecture materials, highlighting critical features by way of notes or graphic organizers, and providing multiple media formats. Participants responded to items regarding absorption and dedication following a Likert-type numerical rating scale with scores of: 0 (never), 1 (sometimes), 2 (often; a few times a month), and 3 (very often; once a week). These items included questions that identified instructor strategies classified into three groups: provide multiple examples; highlight critical features; and provide multiple media and formats. The Cronbach's alpha reliability coefficient for the total college student UDL scale was .81 and .92 for the total interest and engagement scale, with reliability levels of .70 or greater considered above average reliability (Smith, 2012).

When college students were asked to identify whether instructors included UDL-based strategies, data analysis showed scores ranging from 1.51-2.65, with a mean of 2.19 (indicating use of the technique slightly more than often) were reported across all of the UDL network areas. When surveyed on how engaged the participants perceived themselves to be in the class, college students once again rated the course very highly, with the majority of responses ranging from 2.02-2.58, with a mean of 2.83. The results of the Pearson product-moment correlation showed that there was a moderate positive, statistically significant relationship between total college student UDL perception and total interest and engagement ($r = .402$, $p < .01$.) In other words, when college students perceived that the instructor was using more UDL strategies and technologies in their classes, they were likely to also report a higher level of their own interest and engagement.

The survey also included open-ended questions asking college students to indicate which UDL-based strategies were of the most benefit to their educational experience. College students

responded that multiple representations, including in-class lectures, handouts that summarized a topic, hands-on activities, multiple examples, and rubrics were of most benefit to them. Instructors developed activities and encouraged college students to participate in opportunities that allowed the class to express and represent their work by way of digital supports and writing tools (e.g., spell checkers, word processing software and digital/online portfolios). According to the survey, strategies and approaches that were described by college students as engaging included the opportunity to create digital portfolios (blogs), options to select their assignment topics, and receive frequent feedback on their work (Smith, 2012). Maintaining a learner's interest is integral to the learning process because if college students are not engaged, they will not begin to interpret or retain the information (Bransford et al., 2000; Bransford et al. 2006; Rose & Meyer, 2002).

This study is essential to UDL research because it suggests a relationship between UDL strategies and college student engagement. By applying UDL principles to college coursework, college students reported higher levels of engagement, which increases learning behaviors (Smith, 2012). Strategies and technologies that are integral to the UDL framework, particularly those aligned with the affective neural network, can encourage college student interest and engagement in a classroom setting (Smith, 2012). Once again, these results support the relationship of UDL strategies and technologies on college students' interest and engagement in college classrooms. Additionally, Smith asserted that because college students often use digital media and mobile tools, utilization of Web 2.0 technologies within the classroom may enhance and support future college students' learning (2012). This is an important statement, as it was the first of these empirical articles to recognize the educational potential from merging UDL-designed coursework and Web 2.0 technologies in college curriculum.

With a convenience sample of 120 students over the course of two years, Collins (2013) conducted a qualitative study focused on the principle of multiple means of representation, specifically investigating the use of captions on videos and its effect on the Native American and Alaskan Native students in his courses (*n*=12). In previous semesters, students from these backgrounds had filed complaints stating that when videos were not captioned in English, it made for difficulties in studying and resulted in lower exam scores. One of the emergent themes particularly related to UDL was engagement as measured by the students' responses. This affected all students, not only the Native American and Native Alaskan students.

Prior to the first exam, instructors did not use captions during the presentation of video materials. Student discussions and notes on video information were very general and not descriptive. During the presentation of lectures and video materials prior to the second exam, in which the instructors consistently included captions on all videos, discussions were very detailed. Students recalled specific names, dates, and places from the videos with greater frequency during both large and small group discussions. When using multiple means to represent the material (video, as well as video with captions), instructors observed that students had increased engagement and positive academic results (Collins, 2013). Collins credited a "…minor implementation of a UDL technique into a curriculum…" as a viable practice that enabled his students to become higher achievers on exams. Based on his experience, Collins stated that "…with a flexible curriculum that takes (the students') needs into consideration, within an educational environment that … addresses a barrier to learning merely by implementing a resource… makes academic success a possibility for all (p.84)." In his conclusion, Collins echoed Rose and Meyer (2002), emphasizing that a professor in higher education can reduce the

barriers students face in their learning processes by applying the principles of UDL to coursework design (Collins, 2013).

LaRocco and Wilken (2013), using an action-research approach, attempted to determine 46 faculty members' stages of concern and the levels of use of UDL principles and guidelines in meeting the needs of the increasingly diverse college student population at the University of Hartford. The researchers utilized a modified version of the Concerns Based Adoption Model (CBAM) (Hall & Hord, 2010), an evidence-based model focused on describing, measuring, and explaining the experiences of those attempting to implement an innovation (in this particular study, UDL). The stages of concern ranged from '1' (Informational- has an awareness and interest in learning more about UDL) to '6' (Refocusing- thinking about broader benefits of UDL), with '0' signifying non-use (Table 3).

Table 3.

CBAM: Stages of Concern (Hall & Hord, 2010)

Categories	Stage of Concern	Stage Description
	6. Refocusing	The individual is thinking about broader benefits of the innovation, including the possibility of introducing major changes or replacement of the innovations.
Impact	5. Collaboration	The individual focuses on coordinating and collaborating with colleagues to improve the use of the innovation.
	4. Consequence	The individual focuses attention on the students affected by the innovation within his or her immediate sphere of influence.
Task	3. Management	The individual has shifted focus to the various processes and tasks required by the innovation. The focus is on efficiency, managing, and scheduling.
	2. Personal	The individual is uncertain about his or her ability to meet the requirements of the innovation, as well as his or her role in the innovation.
Self	1. Informational	The individual has a general awareness of the innovation and has an interest learning more. The interest is focused on substantive aspects of the innovation, not on his or her role in the innovation.
Unrelated	0. Unconcerned	The individual shows little or no concern about the innovation.

The levels of use were scaled from '1' (Orientation- recently acquired information about UDL) to '6' (Renewal- holistically re-evaluates the innovation to determine if major modifications would improve college student learning and outcomes), and '0' signified non-use (Table 4).

Table 4.

CBAM: Levels of Use (Hall & Hord, 2010)

Categories	Level of Use	Level Description
	6. Renewal	Individual holistically re-evaluates the innovation to determine if major modifications would improve student learning and outcomes. Individual is considering alternative innovations as part of the process.
	5. Integration	Individual is collaborating with colleagues to improve student learning and outcomes
	4b. Refinement	Individual varies the use of the innovation to improve student learning and outcomes.
Users	4a. Routine	Individual has been using the innovation for some time and the application of the innovation is consistent, with little or no changes. Little reflection is given to improving the application of the innovation or improving student outcomes.
	3. Mechanical	Individual is using the innovation with a focus on short-term, day-to-day use of the innovation. There is little time for reflection, activities are often disjointed and superficial, and changes in use benefit the individual, rather than the students.
	2. Preparation	Individual is preparing to use the innovation for the first time.
	1. Orientation	Individual has recently acquired or is trying to acquire information about the innovation. The individual may also be acquiring information about the personal demands of the innovation.
Nonusers	0. Nonuse	Individual has little or no knowledge of the innovation, and the individual is not doing anything toward becoming knowledgeable or involved.

Of the 46 respondents, 61% ($n = 28$) were males, 39% ($n = 18$) were females, 89% ($n = 41$) were full-time, and 11% ($n = 5$) were part-time. Analysis showed that not a single respondent was above level 3 of 6 (implementation of UDL) in either pre-application levels of concern or current levels of use). For all UDL guidelines, 46% ($n = 21$) of respondents indicated they were at the informational stage of concern (stage 1 of 6). Similarly, 46% ($n = 21$) of respondents reported being in an orientation state (level of use 1 of 6) for all UDL guidelines. Only 4.3% were unconcerned ($n = 2$) and 2.2% ($n =1$) were at nonuse of UDL guidelines.

Gawronski (2014) examined faculty and college student attitudes toward and actions associated with inclusive instructional practices based on UDL principles at a community college campus. The community college offered professional development sessions designed to make learning environments more inclusive to college students' diverse learning needs. The study utilized a quantitative, cross-sectional online survey research design addressing two topics of particular interest regarding inclusion instruction based on UDL principles. First, faculty members reported their own attitudes toward and their own actions associated with inclusion instruction. Second, they examined differences in faculty and college students' attitudes and actions associated with inclusive instruction. Two online surveys were administered: Inclusive Teaching Strategies Inventory (ITSI) and Inclusive Teaching Strategies Inventory-Students (ITSI-S). Faculty ($n=179$) and college student ($n=449$) surveys were used in the data analysis. The data for each question were analyzed using a Multivariate Analysis of Variance (MANOVA). The results showed a statistically significant difference in overall action scale scores based on faculty age and ethnicity. Each independent variable (age, gender, ethnicity, position type, academic discipline, academic rank for college students, and amount of teaching experience for faculty) were compared in order to examine these differences. Gawronski's

reasoning for analyzing demographic information was to better illustrate the diversity of the community college campus. Participants who reported as 35-44 years old and of European descent had slightly higher overall action scale scores than faculty members of color in the same age range (F (6, 322) = 2.15, p = .047, Wilks' λ = .924, multivariate $\eta2$ = .04.). Gawronski stated that this difference demonstrates "… (the) need for strategies that address the demographic changes in higher education continues to correspondingly grow. Thus, the promise of UDL strategies becomes of paramount importance" (p. 50-51).

Gawronski (2014) suggested that more UDL-based training for pre-service teachers and current college-level educators would lead to more inclusive learning environments. The researcher recommended using both ITSI and ITSI-S to help facilitate training and sharing results with administrators or individuals responsible for faculty development could make improvements in implementing UDL in coursework. In addition, using these instruments to examine community college faculty and college students could be useful to other researchers interested in examining the overall feel for the campus climate, attitudes and actions toward inclusive instruction at their own institutions. Postsecondary stakeholders, such as Deans and Administrators, must make practical decisions when allocating resources for faculty training. Information from the survey instruments may be helpful when targeting training for faculty on UDL and creating specific training materials needed in postsecondary settings.

This study also reported college students' and faculty responses regarding their attitudes and actions towards how well the principles of UDL were applied in their courses based on a subscale (accommodations, accessible course materials, course modifications, inclusive lectures, multiple means of presentations, and inclusive assessments). Responses were divided into a three-point Likert-type scale of 'no', 'maybe', and 'yes'. Although not statistically significant,

the results suggested that both college students and faculty recognized the importance of UDL-based instruction. By designing courses with UDL elements, Gawronski asserted that faculty can engage and enhance college student learning through designing appropriate curriculum content (2014).

In a pilot study, Dinmore and Stokes (2015) introduced the three principles of UDL into their coursework design for a class called "Information Skills." Of the 300 college students who enrolled in the course, 260 participated in an on-campus version while 40 participated completely online. Two course measures were considered in evaluation: college student success, defined as achieving a passing grade in the Australian university system; and college student satisfaction. A passing grade was defined as C or better (55%-100%) with 97% passing, 1.7% achieving a D (50-54%), and 1.3% failing (49% or below) College student evaluations reflected engagement with course topics and learning activities, as well as an overall perception of the merit of the course. Over 97% of respondents were satisfied with course content and felt that teaching staff supported their learning: evaluations from online and regional campuses showed similarly high levels of college student satisfaction. College student comments included positive perceptions of the educational experience, such as "…the layout of the tutorials that (the lecturer) had set up were interesting and very interactive and kept me on my toes and interested in the topic being discussed… (Dinmore & Stokes, 2015)." This is an important study because it not only researched the effects of UDL when applied to coursework design in traditional environments, but also in online learning experiences. College students who did not engage in the course at all earned failing grades (0-50%), suggesting that early engagement with the coursework and learning materials is critical for college student success. After applying UDL principles to their Information Skills course, Dinmore and Stokes found that passing rates of

grades were significantly higher and college students were responding well to new course materials. Dinmore and Stokes concluded that designing both traditional and online courses with the UDL framework reduces barriers to learning and increases college student engagement with the learning materials (2015).

Hitch, Macfarlane, and Nihill (2015) studied approaches to developing inclusionary coursework designed with UDL at Australian universities. They invited the staff of 270 Australian universities to participate and received 42 completed responses (15.6%). Respondents identified two main professional development formats that their universities provided: a) embedded, routine professional development involving existing teaching and learning development opportunities provided on a consistent and continuous basis by the universities (44.19%, n=19); or b) episodic workshops (inconsistent, periodic professional development opportunities) (44.19%, n=19). It is important to note that while equal numbers of respondents identified these two means of professional development, where was inequal representation of these means according to the report. Some participants reported no existing professional development opportunities at all. Participants reported professional development activities that varied in quality, frequency, and continuing staff participation. When asked to describe the subject and content of professional development on inclusive teaching provided at their university, participants reported that the content was not specific to inclusive teaching but rather to general teaching and learning topics such as curriculum development ($n = 5$, 11.9%) and assessment ($n = 5$, 11.9%). Participants identified as both tenured/tenure-track faculty (n=29, 69.0%) and adjunct/non-tenure track faculty (n=21, 50.0%) went through professional development opportunities regarding inclusive education (Hitch et al., 2015). The authors concluded that a minority of Australian universities surveyed refer to inclusive teaching or UDL

in their policies and procedures, and that the majority of professional development for inclusive teaching in universities surveyed consists of one-off workshops focusing on accommodating specific groups of college students. The researchers stated that if institutions of higher education want to be more inclusive in their classrooms, they need to utilize the resources made available for free via the CAST website. Additionally, the authors found that where inclusive teaching professional development was provided, its availability for continuing faculty and staff was not guaranteed. The most common approach is to offer sporadic, opt-in workshops that are unlikely to lead to systemic changes in culture and practice.

While the numbers of respondents are not necessarily representative of the population, Hitch, Macfarlane, and Nihill (2015) suggest that more training be made available to all faculty and staff on how to incorporate the principles of UDL to develop inclusive classrooms. This study was the first of its kind in Australia to identify the current state of inclusive practices in college coursework. Developing coursework to be more inclusive has benefits for both college students with disabilities and their typically-developed peers (Odom & Diamond, 1998). Unfortunately, without the training opportunities to learn how to implement UDL, university faculty are potentially limiting the learning experiences of their college students and failing to address the barriers to learning.

Scott, Temple, and Marshall (2015) analyzed participants' ($N= 37$) perception of each of the three principles of UDL in online graduate-level courses and the quality of preparation for teaching after completing the online courses using UDL using a 20-question Likert-type survey. The survey was scored by averaging the responses to each for the individual survey questions. The scales ranged from 1 to 5, with lower scores indicating that the participant "disagreed" with the survey statement and higher scores indicating an "agreement" with the survey statement.

With respect to college students' perception of multiple means of representation, the average score was 4.7 (*SD* = 0.5); for multiple means of expression, the average score was 4.74 (*SD* = 0.47); and for multiple means of engagement, the average score was 4.3 (*SD* = 0.619). In all three lines of inquiry, college students rated highly that their course aligned with each of the three principles of UDL. College students reported that their overall learning and preparation was improved as a result of being enrolled in the course(s) featuring UDL. Similar to Gawronski (2014), graduate students not only recognized when UDL is being implemented but reported a direct effect on their own learning ability. For this particular study, designing appropriate curriculum content that considered college student abilities, interests, and their environment ensured that learners were capable of making informed educational decisions by creating diverse learning environments (Scott et al., 2015).

Greene (2016) used a convenience sample of four instructors who used UDL and smartpen technology in teaching mathematics at the pilot project's host community college. The purpose of the interviews was to explore both the story and the essence/meaning of the phenomenon of teaching basic math to community college students using UDL. The questions explored the participants' experience relative to their past and present teaching in math, their prior experiences with UDL, and technology use in teaching. Data collection consisted of two hour-long recorded and transcribed individual interviews with each of the four instructors. Analysis revealed that one of the major subthemes was an increase in instructor flexibility and adaptability when implementing projects or programs with UDL and its technology. When plans or technologies did not work as intended, the instructors had to be flexible in the way they taught their lessons. This directly relates to the principles of multiple means of representation and multiple means of engagement. In having multiple means of representation, there was not strict

reliance on any single means of conveyance, allowing them to continue the lesson. Additionally, when the technologies failed, college students could still interact and learn from the lesson using more hands-on and traditional methods, like pen and paper. A commonality among all interviewees was that while their perspectives might not have been purposefully grounded in UDL or various learning theories (due to their own diverse learning backgrounds and interests), according to Greene they instinctively gravitated towards and were willing to try techniques that utilized the main principles of UDL (2016).

The application of principles of multiple means of representation and expression were evident in the data, particularly related to instructor flexibility and adaptability in using smartpen technologies. The participants were immediately responsive to the college students' needs. The use of a smartpen helped this process. One participant discussed how it reinforced what types of learning styles to use with college students of different needs. UDL principles were used to facilitate modification and design of learning environments and the curriculum taught to college students. Greene (2016) noted how UDL approaches have been successful in K-12 classrooms but analyzing its application in community-college-level coursework is still rudimentary.

After interviewing the participants, Greene (2016) received anecdotal evidence that the application of technology and UDL principles affected how instructors were teaching their courses, and as a result reported that more college students received passing grades (based on a percentage increase in scores) in their basic skills math classes. This phenomenological narrative study helps further the knowledge in the field with regards to use of UDL principles in higher education (Greene, 2016). Although this research emphasized a mathematics course at a community college, the principles of UDL can be applied to any classroom. This research supports the advocacy for the application of UDL principles to college coursework design and

highlights a technology that can help college students and instructors engage with the learning materials in different ways.

Using a mixed-method study, Scott, Thoma, Puglia, Temple, and D'Aguilar (2017) surveyed 41 special education program coordinators at accredited US universities to determine: a) what is currently being done to prepare educators to implement a UDL framework; b) the extent to which a UDL framework is being incorporated into preservice courses in higher education; and c) how a UDL framework is being used to improve post-school outcomes for youth with intellectual disabilities (ID). When asked to report the extent to which their program prepares pre-service teachers to be knowledgeable and skilled to apply the UDL principles, all programs reported the extent of preparation in one or more of the UDL principles on a 4-point Likert scale: 0 (none); 1 (very little); 2 (somewhat); 3 (greatly). In total, participants reported the extent of adoption of each UDL principle (see table 5).

Table 5.

Reported Extent of Preparation of the UDL Principles.

UDL Principle	None	Very Little	Somewhat	Greatly
Multiple Means of Representation	0	5 (12.2%)	15 (36.6%)	21 (51.2%)
Multiple Means of Expression	0	5 (12.2%)	17 (41.5%)	19 (46.3%)
Multiple Means of Engagement	0	5 (12.2%)	18 (43.9%)	18 (43.9%)

When asked to identify the common UDL tools and resources utilized in their programs, respondents indicated that 65.9% ($n = 27$) utilized each individual tool/resource provided, such as the Center for Applied Science Technology (CAST) web site, the NCUDL web site, and the Research for Inclusive Settings (IRIS) Center IDEA 2004 and UDL modules. Conversely, 35% ($n = 14$) of respondents reported that they did not utilize any of the previously mentioned resources and did not report using an alternative tool or resource in their program.

Finally, when respondents were asked open-ended questions relating to themes of UDL, the responses varied widely. When asked about activities that incorporate UDL, one respondent wrote "[We use] Case studies in class that involve critique of development of lesson plans, field

experiences that involve observation of lessons, development & implementation of candidate created lessons. Use of modules & activities in class from CAST, IRIS Center & National Center for UDL (Scott et al, p. 32).'' Another wrote: "Unfortunately, we don't incorporate UDL activities. We do not have the infrastructure or knowledge from staff to incorporate this framework" (p. 32). One respondent stated that: "This is critical to prepare students for successful post school outcomes,"; another respondent stated that "…we don't have any resources to teach or make a solid attempt to instruct teachers… (p. 32)." While some participants were cautious about their ability to adopt UDL, the majority were positive in their acceptance and utilization of the framework (Scott et al, 2017).

Evmenova (2018) conducted an exploratory mixed-method study of graduate and post-graduate college students of learning technology and assistive technology programs to discover how various UDL strategies can be incorporated across K-12 coursework to support diverse learners. The study was conducted across three different sections of a three-credit hour graduate course developed to focus on (a) the foundations of UDL, (b) identifying low-to-high technology tools and strategies to facilitate learning, and (c) applying UDL in various learning environments. The author first conducted a quantitative analysis of the UDL principles and guidelines college students observed in class, and UDL principles and guidelines they recommended could have been applied. 100% of responders recognized the principles of UDL being implemented throughout the coursework. The most common guideline that college students recognized being utilized was MMR: activate or supply background knowledge (n=70%); the least recognized was MME: facilitating coping skills and strategies (13%) (Evmenova, 2018).

In addition to these questions, a qualitative analysis was conducted wherein college students discussed the proposed utilization of the UDL principles and guidelines to address variability and barriers to learning (Evmenova, 2018). In addition, several qualitative questions about college students' understanding of UDL were analyzed. The study found themes that emerged from the reflections focused on (a) the value of UDL for all learners; (b) the importance of intentional planning, implementation, reflection, and revising; (c) the significance of choice for college students' autonomy; and (d) the need for more professional development for all teachers. Overall, the participants were positive about UDL as a framework and eager to implement it in their own coursework. Data revealed that it was beneficial for the educators to learn about UDL by experiencing it firsthand, with one college student (a general education teacher) reporting "Implementing UDL in future lessons is something that will become a necessity for me (Evmenova, 2018)." This study further continues the narrative that when educators experience the UDL framework in a course, they are more likely to recognize and implement the UDL principles and guidelines.

Lohmann, Boothe, Hathcote, and Turner (2018) conducted a mixed-method action research study to explore the use of the UDL framework for increasing college student engagement in three online Special Education teacher preparation courses for one university faculty member in 2016. The emphasis for this study was not the entire UDL framework, but the third principle, MME. Phase one began by implementing a variety of strategies to help college students maintain engagement with the course materials and each other, including the instructor calling each college student before the course began, holding weekly online office hours, instructor availability by cell/text message, and weekly Twitter chats and Blackboard Collaborate course sessions (Lohmann, et al., 2018). Phase two involved emailing a mixed-method survey to

31 college students; 20 responded, resulting in a 65% response rate. The results showed that the majority of participants were aware of the UDL strategies offered in the course, but most did not report engaging with the optional learning opportunities provided. For example, 74% of participants were aware of the online office hours, but 21% reported attending these sessions. To make matters more confusing, the instructor herself reported that no college students attended her office hours, leaving the authors to speculate that the participants had confused the online office hours with another collaborative session. All of the engagement strategies followed roughly the same percentages, save for one: the use of calls/text messages to contact the instructor. 95% of participants were aware of this option, and 42% reported engaging the instructor in this method (Lohmann, et al., 2018).

When analyzing the open-ended questions, participants reported interactions with the instructor helped them feel more connected to the course, valued as a college student, and supported in their learning. This indicates that the UDL engagement strategies had a greater impact on college student connection to the instructor rather than connection to their classmates or course materials. In addition, participants reported that the UDL strategies utilized in these courses will have a positive impact on their own future teaching practices (Lohmann, et al., 2018).

An online, graduate-level course was designed to teach college students about the UDL framework at New Mexico State University (Parra et al, 2018). The researchers conducted a qualitative action research project on 17 graduate students to reflect on the course and its implementation of UDL. Three research questions were explored: 1) How was the course designed to model UDL to teach UDL; 2) How will the participants apply UDL in their contexts;

and 3) What were the strengths the UDL Course design, and are there recommendations for improvement (Parra et al, 2018).

The authors found two overall themes from this action research project. First, participants in the UDL Course acknowledged the complexity of UDL, and recognized how difficult it is for teachers to apply UDL, especially if they lacked professional training opportunities. Second, participants appreciated the opportunity to access information and skill development by taking the UDL Course, but recognized that continued professional development and seminars were necessary. The authors noted that "…UDL is a journey, not a destination (p. 84)," indicating that both modeling UDL and having opportunities for learners to practice the application of UDL is a continuous process (Parra et al, 2018).

Craig, Smith, and Frey (2019) conducted a quasi-experimental study examining the effect a weeklong professional development summer institute has on UDL implementation. Surveys were sent to teachers who attended the institute (n=73) and teachers who had not attended (n=70). Teachers were evaluated based on the Teacher Success Rubric observation, a tool designed to measure how efficaciously teachers were implementing UDL in their own coursework. The authors found that teachers who attended the summer institute increased their utilization of UDL significantly more than those who did not participate, concluding that the program models effective implementation of the UDL framework (Craig et al, 2019).

Baucham (2020) conducted a qualitative study of 14 general education instructors (teaching math, English, and science) to determine their use of MMAE in their classrooms. The researcher collected qualitative data through interviews, surveys, and course observations. Three research questions were developed: 1) What are the online faculties' lived experiences with multiple means of expression and the performance impact on college students with documented

learning disabilities; 2) How do online faculty integrate the use of multiple means of expression into their pedagogy to meet the needs of all college students including those with learning disabilities; and 3) Which contributions can UDL impose upon instructional practices used by online faculty to eliminate the barriers to successful implementation of multiple means of expression (p. 75-76). This study, unlike many others, has an overall negative faculty perspective regarding the use of UDL. All of the faculty members indicated that they believe only certain means of expression are best for their subject matter, not multiple means of expression. There was also a clear lack of knowledge regarding UDL, with only one participant being familiar with the concept, but having admitted they do not implement it into their coursework. Additionally, there was a clear lack of understanding from the participants of how to define the principle of MMAE. None of the participants knew about nor included learning styles within the design of their courses. Finally, the participants only listed a single accommodation for college students, providing extra time for assessments. Based on these themes and the responses from the participants, the author concluded that the lack of training regarding the development of accessible coursework can lead to instructors potentially creating the barriers to education for college students with diverse learning needs (Baucham, 2020).

Mayes (2020) conducted a quantitative study to identify college student perceptions of how UDL impacts motivation in first-year community college students. Survey data was collected from 109 participants from multiple sections of an English and an education course. The survey items measured content effectiveness, overall interactivity, motivation to learn, subject interest, and predicted grades. After data collection and analysis, Mayes retained the null hypothesis for all of their research questions, with three exceptions. First, the study found there was a statistically significant difference in interactivity between the English students and the

education students who completed a UDL module ($t(57) = 2.86$, $p = .006$). The researcher

determined that interactivity of the English students was significantly higher than the Education

students who had completed a UDL designed module. In addition, Mayes compared the

difference in motivation to learn between rural and non-rural college students, and found college

students who identified being from rural environments having statistically greater motivation

compared to their non-rural counterparts ($t(45) = 2.15$, $p = .037$). Mayes also compared the

motivation levels of participants who identified as being less than 24 years old and over the age

of 24. She found that college students who were over the age of 24 were statistically more

motivated than their younger peers ($t(45) = -8.27$, $p < .001$). Ultimately, the researcher concluded

that more research needed to be done discussing UDL and motivation in college-level

coursework (Mayes, 2020). In their discussion, Mayes also made a point to add that instructors,

like them, had seen "…great results and changes in their classes and overall teaching by utilizing

UDL in their course design (p. 88)."

Lee and Griffin (2021) conducted the most recent research, a mixed-method study

evaluating the effectiveness of three online UDL modules on college student implementation of

the principles in their own lesson plans. Participants (n=8) enrolled in three online modules, and

were given a survey to explore changes in their knowledge of UDL. Much like other studies

previously discussed, the authors found that the modules had a positive effect on the participants'

ability to implement UDL and participants responded positively to instruction, with scores

improving significantly from module to module. The major contribution of this study was the

immediate effect it had; while previous studies used case studies to design scenarios, the

participants in this study were also actively participating in practicum placements, and thus were

using real-life examples to implement their lesson plans. In doing so, this allowed college

students to directly apply the principles of UDL to authentic, real-world classroom settings (Lee & Griffin, 2001).

Faculty Perspectives

From these summaries, two distinct patterns emerge in the directionality of the research: faculty perceptions and application of UDL, and college student perspectives regarding the use of UDL in their coursework.

The earliest empirical study to discuss faculty perceptions attempted to determine participant's states of concern and level of use of UDL (LaRocco & Wilken, 2013). This study is important because it showed there are still programs that, despite knowledge and intention to use UDL, have not yet fully implemented UDL in their coursework design. For each of the UDL principles, the survey respondents largely indicated they were at a stage of concern that centered on themselves. With over half of respondents at the earliest levels of understanding or implementation of UDL, this study suggests that the participants in this sample represent a first step towards taking action. Despite being at a level of concern regarding the use of UDL principles, study participants were generally not applying the principles of UDL in their classes. This means any of the potential benefits that the application of UDL would have provided for college students might not have been realized in the participants' classrooms. The researchers recommended that faculty learning experiences be founded in effective professional development. A serious limitation of this study is that while the authors stated that they transferred data from an Excel file into SPSS for further analysis, they failed to note what kinds of analyses were run to interpret the data (LaRocco & Wilken, 2013).Although the study was published 11 years after the development of the modern iteration of UDL, it indicated that there had been a lack of full adoption of UDL, as the majority of respondents had indicated they were

in the primary phases of either information-gathering or early implementation of UDL in their coursework (Larocco & Wilken, 2013).

One year later, Gawronski (2014) found that faculty had similarly low levels of implementation, compared to the more favorable attitudes faculty reported towards inclusive instruction based on UDL. Gawronski noted that this was especially puzzling, since "…there is no specific explanation why these results differed from previous studies (Lombardi et al., 2013; Lombardi et al., 2011; Lombardi & Murray, 2011)…" (p.86). Greene's (2016) study supports this discrepancy between faculty attitudes towards UDL-developed coursework and its actual implementation. These studies all indicate that there was both a desire and a need to train faculty and college students on how to properly implement the principles of UDL into their college coursework (Larocco & Wilken, 2013; Gawronski, 2014; Greene, 2016). Scott, Thoma, Puglia, Temple, and D'Aguilar (2017) expressed some promise when it comes to training college students; most faculty members indicated that their programs did prepare college students to utilize each of the principles of UDL in their own classroom. Faculty members across these various studies indicated that UDL is an important part of the curriculum and should be a part of the framework of the courses. A lack of support or resources from their institutions have created difficulties in achieving full adoption of UDL in college coursework (Larocco & Wilken, 2013; Gawronski, 2014; Greene, 2016; Scott, et al., 2017). These studies indicated that there is a desire for more UDL training for college faculty. With greater amounts of training, the more likely it will be to see the UDL principles incorporated into the coursework design, thus providing college students an active, working model of a UDL classroom.

The only dissent from faculty came from Baucham's study (2020), wherein the faculty showed no desire to learn about, nor drive to implement UDL into their general-education

classrooms. This could be attributed to the lack of education or training in implementing the principles of UDL into their coursework (Baucham, 2020).While there is a trend towards the adoption of the UDL principles based on faculty reports, it is evident that consistent training and access to physical and online resources would be beneficial to help faculty remain on track to fleshing out the UDL framework in their courses (Larocco & Wilken, 2013; Gawronski, 2014; Greene, 2016; Scott, et al., 2017).

Student Perspectives

Perhaps even more important than how faculty perceive the use of UDL in college coursework, is its effect on college students. The earliest study from 2007 was the only example of a true experimental design, with results that were notably telling; when college students received UDL-based teacher preparation training, they were more likely to create lesson plans that were more inclusive (allowing college students with various educational needs to access the learning content) (Spooner et al, 2007). With UDL's increasing prominence in US education law, this seems like a necessary development. Seven years later, Smith (2012) had college students not only indicate that they identified UDL strategies in their courses often/more frequently, but rated courses developed with the UDL framework highly. Gawronski (2014) supported this notion when college students recognized how well their courses incorporated the UDL principles. Scott, Temple, and Marshall (2015) also reported high levels of college student satisfaction with UDL-developed coursework.

While having college students indicate their preference towards UDL-designed courses is important, Collins (2013) discussed the application of the UDL principles on college student outcomes. Collins attributed the inclusion of UDL-designed course elements to increasing college student scores over two years. Dinmore and Stokes (2015) also found that college

students who were enrolled in UDL-designed courses were more engaged with the coursework and performed well (with 97% of college students achieving passing grades).

In conclusion, while some studies have discussed college student satisfaction with the coursework, and others have discussed college students' academic success, none have discussed how UDL affects college student outcomes in terms of how they apply the skills and strategies learned in UDL-designed coursework to their professional lives. Additionally, college students indicate positively that the UDL principles are featured in their coursework, yet this contrasts with the other studies that seem to indicate some apprehension on faculty's part to implement UDL.

Chapter 3

Methodology

This chapter describes the research methodology and procedures that were used to conduct this study. This mixed-method study examined the relationship between the level of UDL implementation in Masters-level special education degree coursework and teacher candidate outcomes, as measured by perceived achievement of course goal objectives. Specific research questions were explored in two distinct phases.

Specific research questions include:

1. To what extent can the EnACT UDL syllabus tool be used to corroborate instructor claims that their course is designed implementing the UDL framework?

2. To what extent did teacher candidates who attended courses employing UDL strategies in the Fall of 2020 and Spring and Summer of 2021 in a graduate special education program identify that they were instructed using UDL components in the coursework?

a. To what extent did teacher candidates who completed courses in the Fall of 2020 and Spring and Summer of 2021 in a graduate special education program identify Multiple Means of Representation in the coursework?

b. To what extent did teacher candidates who completed courses in the Fall of 2020 and Spring and Summer of 2021 in a graduate special education program identify Multiple Means of Action & Expressions in the coursework?

c. To what extent did teacher candidates who completed courses in the Fall of 2020 and Spring and Summer of 2021 in a graduate special education program identify Multiple Means of Engagement in the coursework?

3. To what extent do teacher candidates perceive they achieved the course objectives in courses that employ UDL?

4. How do teacher candidates apply the knowledge and skills learned in these courses in their current pre-professional and professional environments?

Phase I involved the gathering and analysis of syllabi from courses offered during the Fall, Spring and Summer semesters of an undergraduate and Master of Education Special Education program. In Phase II, teacher candidates who participated in these courses were surveyed to determine to what extent they identified UDL components used in the coursework through quantitative, Likert-type questions, as well as a longform, open qualitative follow-up question in the survey to explore how participants utilized the lessons learned from coursework in their current work or practicum environments.

Research Design

This study used an embedded mixed-method design, also known as a large quantitative, small qualitative design (see Figure 4). Creswell and Creswell (2018) defined mixed-method research by not only the combined methods of quantitative and qualitative research, but also by how they are integrated; the two research methods are complementary and provided a richer understanding of the research problem.
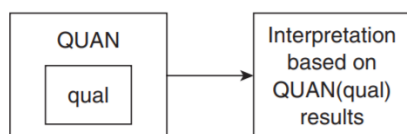
Figure 4. Embedded mixed-method design (Creswell & Creswell, 2018).

Table 6 breaks down the research questions and the statistical analyses used.

Table 6

Research questions and statistical analyses.

Research Question	Statistical Analysis
1. To what extent can the EnACT UDL syllabus tool be used to corroborate instructor claims that their course is designed implementing the UDL framework?	Cohen's κ & Kruskal–Wallis *H*
2. To what extent did teacher candidates who attended courses employing UDL strategies in the graduate special education program identify that they were instructed using UDL components in the coursework?	Descriptive Analysis & Kruskal-Wallis *H*
3. When provided with courses that employ UDL strategies, to what extent do teacher candidates perceive they achieved the course objectives?	Descriptive Analysis
4. How do teacher candidates currently apply the knowledge and skills learned in these courses in their current pre-professional and professional environments?	Cohen's κ

Items 1-33 on the survey instrument were quantitative in nature, asking questions

regarding the teacher candidates' perception of educational techniques that implemented

strategic network, affective network, and recognition network scaffolding within the courses in

which they participated. The final question[1] was open ended and therefore analyzed using

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[1] "How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly."

qualitative analyses; as such, the quantitative data was necessary to frame, analyze, and interpret the qualitative data (Creswell & Creswell, 2018; Clark & Ivankova, 2016). The mixed-method design was well suited for this study because the quantitative data set was not sufficient to answer one of the key questions (learning how teacher candidates apply their learning to pre/professional environments), thus requiring the inclusion of qualitative data. The qualitative data was supplemental to the overall study, but without it, there would be little understanding about how the results from the quantitative data were applied in a realistic scenario. Because this study determined if UDL-designed college coursework had an effect on teacher candidate implementation within their own pre/professional environments, the embedded mixed-method design was the best scaffold for conducting this research (Creswell & Creswell, 2018).

Participants

The participants were current and former teacher candidates who completed courses in the undergraduate and Masters of Special Education program from the Fall of 2020 to the Summer of 2021. Participants were recruited via their VCU email accounts. The VCU School of Education Office of Assessment provided a contact list for the teacher candidates upon request, allowing access to teacher candidate university emails. An initial email alerting potential participants to the study was sent via the Special Education listserv, letting teacher candidates know about the intent of the study and requesting their participation. To incentivize participation, all participants were entered to win an Amazon gift card. Participant's emails were randomly selected to win one of five $5 Amazon gift cards, one $25 Amazon gift card, or one $100 Amazon gift card. A survey was sent the following week to the same email addresses, and reminders sent once every two weeks for two months. A final reminder email was sent one week before the closure of the survey.

Teacher candidates enrolled in the Masters of Special Education program finish with a M.Ed. in one of three concentrations: general education, early childhood, and severe disabilities. This research aims to study only the general education concentration: early childhood and severe disabilities have separate course requirements for their concentrations. The estimated enrollment for the general education program for the Fall of 2020 was roughly 60 teacher candidates. After running a power analysis, to achieve a 95% confidence level, the sample would need to have at least 45 participants.

Data Collection

Upon approval from the Institutional Review Board (IRB), the survey was administered electronically using Google Forms, a secure, password protected electronic data collection system.[2] For security purposes, the teacher candidates logged in to the surveys using their VCU EIDs and passwords (thus ensuring that only those invited were participants in the survey). No identifying data (such as names, identification, birthdates, or VCU student identification numbers) were collected on the survey forms, and all data was deidentified (removing the VCU email addresses and replacing them with randomly generated identification numbers). If subjects wished to participate in the raffle, they provided an email address that was be kept in a secured, password-protected Google Sheets file that only the primary investigator was able to access. The survey was emailed to current and former teacher candidates using the contact information provided by the VCU School of Education Office of Assessment. It was made available only to those teacher candidates by using their VCU email addresses. This format allowed participants to complete the survey at their convenience in an environment where they felt most comfortable, while giving the researcher immediate results upon completion. Reminders were sent to all sent

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[2] It is important to note that the primary investigator had prior experience obtaining IRB approval in studies that use Google Forms as the primary survey tool.

to all participants, regardless of completion; those who completed the survey were thanked in all reminder surveys. This study wase conducted in two phases: syllabus analysis and participant data collection.

Phase I: Syllabus Evaluation Procedures and Analysis

Data was collected from two sources: the faculty and adjunct faculty who taught from the Fall of 2020 to the Summer of 2021 Special Education courses, and the online course sites from which the classes were taught. A brief survey adapted from the Innovation Configuration matrices for Universal Design for Learning (Israel et al., 2014) by Scott, Thoma, Puglia, Temple and d'Aguilar (2017) was used to determine instructor recognition of UDL principles and rate their own level of implementation of each item from 0 to 3 (0 = no implementation of UDL principles, 3 = full implementation of UDL principles). Instructors in the program self-evaluated their implementation of the UDL principles. Upon collection of this data, the primary investigator also requested the most recent version of the instructors' syllabi for their courses. The primary investigator contacted the instructors to verify that the syllabi were the most recent, up-to-date versions from the 2020-2021 semesters, increasing validity and reliability. By focusing on the whole academic year, investigators were able to survey a unique combination of participants during Phase II who were currently enrolled in coursework in pre-professional environments (workplaces that are not the primary role of teaching in a special education classroom or co-teaching in a general education classroom), and participants who had graduated and were in a professional workplace. In 2020-2021, the Special Education program offered 31 sections across 18 courses.

Collecting the syllabi served two purposes. It allowed the researcher to collect the course goals/objectives for every class and copy them verbatim from the syllabi to indicate the

utilization of UDL within the course. The researcher used the EnACT UDL Syllabus Rubric

(2012) to indicate the level of UDL implementation within a course (see Figure 5).

Universal Design for Learning: A Rubric for Evaluating Your Course Syllabus
A well-designed syllabus offers more than the instructor's contact information and a course outline. It also provides information about course goals and objectives, grading procedures, support services, and course policies regarding class participation, missed examinations, late assignments, and academic integrity. ~Howard University

Elements	Traditional Syllabus	Enhanced Syllabus	Exemplary Syllabus	Tips/Tools
Instructor Information	Syllabus provides a single way to way to contact instructor for student questions or concerns.	Syllabus offers varied ways to contact instructor for student questions or concerns.	Syllabus offers varied ways to contact instructor for student questions or concerns and provides brief overview of instructor.	
Textbooks	Syllabus lists required and recommended textbooks.	Syllabus lists required and recommended textbooks with information about where they can be purchased. Short statement provided as to why the textbook was selected.	Syllabus lists required and recommended textbooks with information about where they can be purchased. Electronic equivalent provided or texts ordered early to ensure timely conversion in an alternative format. Short statement provided as to why the textbook was selected.	
Course Assignments (*explanation*)	Syllabus identifies all learning objectives, course requirements/ assignments, and appropriate due dates.	Syllabus identifies and explains all learning objectives, course requirements/ assignments, and appropriate due dates.	Syllabus clearly explains and links all learning objectives, course requirements/assignments, and appropriate due dates.	
Course Assignments (*examples*)	Syllabus provides information on how to complete major course projects, activities or papers.	Syllabus provides detailed guidance on how to complete major course projects, activities or papers.	Syllabus provides detailed guidance on how to complete major course projects, activities or papers and offers links to examples and illustrations as appropriate.	
Course Assignments (*submission*)	Syllabus requires students to submit course assignments in a single or specific way.	Syllabus allows for specific students to submit course assignments in alternative formats with prior instructor approval.	Syllabus provides multiple ways for all students to submit course assignments.	
Course Assignments (*grading*)	Syllabus stipulates grading criteria for all course requirements.	Syllabus stipulates grading criteria for all course requirements and offers detail on items requiring further clarification.	Syllabus stipulates grading criteria for all course requirements and offers detail on items requiring further clarification and links to instructor grading rubrics.	
Course Calendar	Syllabus has no or minimal information in calendar form.	Syllabus utilizes a course calendar to specify due dates for course activities.	Syllabus and Learning Management System (LMS) utilize a course calendar to specify and periodically reinforce due dates, highlighting key course events and activities.	
Student Resources	Syllabus contains no information about student-oriented campus resources.	Syllabus contains general information about student-oriented campus resources.	Syllabus contains general information about student-oriented campus resources and highlights specific additional resources that may be unique to this course.	
Format (*length*)	Syllabus provides basic information in a few pages.	Syllabus contains all course information, guidance, and examples, but may be cumbersome for some to navigate.	Syllabus is carefully crafted to provide sufficient information and guidance yet clearly links to additional resources and examples avoiding a text heavy document.	
Format (*accessible*)	Syllabus is offered in hardcopy form on the first day of class.	Syllabus is made available in hardcopy and electronically upon student request.	Syllabus is made available to students as an accessible electronic document and hardcopy form.	
Format (*visible*)	Syllabus is offered in hardcopy form on the first day of class.	Syllabus is offered in multiple ways so students can access information as needed throughout the course.	Syllabus is offered and posted in multiple ways so students can access information easily and repeatedly. Key items are periodically reviewed.	

Figure 5. EnACT UDL syllabus rubric (EnACT, 2011).

The rubric is broken down into six components: instructor information, textbooks, course assignments, course calendar, student resources, and format. Course assignments are sub-divided into explanation, examples, submission, and grading; and format is divided into length, accessibility, and visibility (EnACT, 2012). Each section is graded by a simple 3-point Likert-type scale; 1-traditional syllabus (containing no traces of UDL implementation), 2-enhanced syllabus (containing some elements of UDL implementation), and 3-exemplary syllabus (containing clear development using the UDL framework)[3] (EnACT, 2012). Of the 11 elements, this study only rated the syllabi on 9 items. This was because the rubric was designed with physical syllabi in mind, and the items relating to accessibility and visibility were only applicable if there were alternatives to physical versions. Because the courses were entirely online due to the global COVID-19 pandemic, the syllabi were all electronic, negating the need for these two elements.

Upon collection of the syllabi, the primary investigator rated five of the syllabi using the rubric. The primary investigator also copied the course goals/objectives for future use. The primary investigator recruited a colleague from the Special Education program to act as a second rater. Once the five syllabi were rated by the primary investigator, they were rated by the second rater. Using Cohen's κ (McHugh, 2012), if the inter-rater reliability for each item on the rubric is above 80%, then the ratings were accepted. If the inter-rater reliability for each item is below 80%, the raters discussed how they rated each element, and determined the common criteria upon which the material was rated. Both raters developed a procedure to resolve any large differences in rating across syllabi, and isolated particular elements that were the most different

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[3] Derived from the EnACT tool (EnACT, 2012).

to reach a common definition, then rated another set of five randomly selected syllabi. This process was repeated until inter-rater reliability of 80% or higher was achieved. Upon completion of the inter-rater reliability check, the researcher completed rating the remaining syllabi and collecting course goals/objectives. A non-parametric test (the Kruskal–Wallis *H*) was used to compare instructor responses regarding self-report of UDL knowledge to the syllabi analysis. This allowed the investigator to determine if the syllabi tool could be used to corroborate instructor claims that their coursework implements the principles of UDL. The data gathered in this phase was then developed into both quantitative and qualitative items for the survey in phase II.

Phase II- A: Teacher Candidate Surveys

The second phase began with the development of a teacher candidate survey. Much of the survey was a revised version of Smith's student surveys on learning and instruction (2008; 2012), edited to ensure that the language applied to the program as a whole, and not the mixed-methods/hybrid courses that Smith designed her survey to study (Smith, 2008; 2012). Smith had developed and refined the survey to specifically address UDL, and the survey is representative of the three guiding principles of UDL across the three learning neural networks of the brain (Smith, 2012). The survey was updated to include the 2011 update to the UDL guidelines, and included a Likert-type numerical rating scale, allowing participants to select from: 0-never, 1-sometimes, 2-often (a few times a month), and 3-very often (once a week) (Smith, 2012). The survey was designed to determine if certain strategies related to the principles of UDL were utilized in a classroom. Because Smith (2012) designed the survey primarily for traditional and hybridized coursework, the questions for this study were slightly altered in wording to reflect the completely online nature of the targeted classes. For example, the survey item "facilitated a

hands-on activity" was changed to "facilitated an interactive activity," because the online nature of the course made it impossible to be traditionally hands-on. Additionally, because these questions targeted a single class in particular, they were revised to assess both the undergraduate and Master's programs as a whole. For example, an item read "In general, in classes across the Master's program, how often did the faculty offer videos in their weekly lectures?" It was unreasonable to ask teacher candidates to answer the 34 questions for every course they completed per semester. That would have made the average survey 90-120 items long and participants less likely to complete. Altering the questions slightly to reflect on the programs as a whole was a more reasonable request of the participants.

The first portion included basic demographic information, including race, gender, and the participants' program of study. Additionally, while gender and race were not examined in the current study, it is important to collect these data for future studies (for example, meta-studies that may use these factors in their own analyses). These demographic items were followed by the 34 revised questions from Smith's studies (2008; 2012). Upon completing the 34 questions, participants were presented with a drop-down menu with a selection of courses from the Special Education program. From there, they selected a course they completed from either the Fall, Spring, or Summer semesters of 2020-2021. This question routed the participants to a new page that included a copy of that course's goals/objectives, copied verbatim from the syllabi collected earlier. This refreshed the participant on the goals, which lead to the next two questions. Participants identified their level of achievement of course goals, using a 4-point Likert-type scale ranging from minimal achievement (1) to complete achievement (4). Finally, an open-ended, qualitative question was added to explore how teacher candidates are currently using the knowledge and skills gained from the coursework in their current pre-professional and

professional environments. Participants then had the option to select another course from the drop-down menu. This process was repeated until each participant indicated they had completed all classes in which they were enrolled. The final survey ranged from 36-42 questions, dependent upon how many classes the participants indicated they completed.

Phase II- B: Design and Procedures

The survey itself was designed and administered using Google Forms, an online, cloud-based application used to create and transmit online surveys (Alphabet Inc, 2013). This tool is open, available, and most important, secure. The survey link was sent via email to the former teacher candidates in multiple waves. An initial wave, informing teacher candidates of the purpose of the survey, was sent and the survey became active for participants to complete. Two weeks later, the participants were sent a reminder email. Reminder emails were then sent every two weeks from March 2022 until July 2022. In total, eight reminder emails were sent. A final reminder email was also sent one week before closing the survey. One week after this final reminder was sent, the survey was closed, and participants no longer were allowed to submit answers. A power analysis was conducted, and because the total population was already low (60), the expected the number of participants to meet a 95% power would be 55. Even with the expectation of a 66% response rate, the total number of expected participants was only 40. Since there was no way for a population this low to reasonably meet the requirements for parametric analysis, a non-parametric analysis was the better design element for this research study. Nonparametric tests rely on the median as a measure of a data set's central tendency, rather than the mean (Hodge, 2019). Additionally, the Kruskal–Wallis H test is a non-parametric method for testing whether samples originate from the same distribution, similar to a parametric one-way analysis of variance (ANOVA) (Laerd, 2018). While researchers can only work with the data

received, it was noted that the Kruskal-Wallis *H* test works with fewer than 30 participants, but if more than 30 responds, the standard ANOVA was used instead.

Data Analysis

Once collected, the quantitative data was analyzed using SPSS. The data was transformed into a format that could by SPSS, which required an extra step. Google Forms automatically collected data, and the sheets were saved as an excel file. This file was then entered into SPSS for analysis. In terms of analysis, the mean scores were calculated per element, or in this case, per principle of UDL. The study took a non-parametric approach to data analysis. This was due to the small population and sample sizes; the low population size required nearly a 1:1 response rate, and it was not reasonable to assume this study met the requirements for parametric analysis (an estimated 55/60 total responses). Nonparametric tests rely on the median as a measure of a data set's central tendency, rather than the mean. When used appropriately, nonparametric statistical methods can result in research findings of greater statistical validity than parametric studies that are invalidated by rejecting the core assumptions (Hodge, 2019).

The first research question (can the EnACT UDL syllabi tool be used to predict whether or not a course is designed utilizing the UDL framework?) compared the results of the syllabi rubric to items 4 on the survey via the Kruskal-Wallis H test. In doing so, the researcher was able to determine if there was a relationship between higher-scoring rubrics and teacher candidate recognition of UDL components in those courses. To address research question 2 (To what extent did teacher candidates who attended courses employing UDL strategies in the Fall of 2020 and Spring and Summer of 2021 in a graduate special education program identify that they were instructed using UDL components in the coursework?), a frequency table showing the responses was created. In addition, each principle of UDL was broken down (MMR, MMAE, MME) and a

bar graph designed for each one to illustrate the levels to which teacher candidates recognize

UDL elements in their classes. To address research question 3 (to what extent do teacher

candidates perceive they achieved the course objectives in courses that employ UDL?), a simple

comparison of means the Kruskal-Wallis H determined if there was a relationship between the

UDL principle scores (items 4-33) and the class goal/objective achievement scores (item 34).

The final research (and only qualitative) question was to be analyzed using the ATLAS.ti

program. To achieve saturation, a minimum of 15 paragraph-length responses would need to

have been collected from the survey. This number was determined to be sufficient based on the

qualitative research of Guest, Bunce, and Johnson (2006). Participants' responses would have

been transferred to the program one by one and coded by frequency in their statements. The

more often teacher candidates mentioned similar experiences or use similar phrases when

discussing how they used the lessons learned from the course taken (item 35), the greater the

likelihood that their responses became coded. There would also have been some exploratory

coding during this process, as there have been no prior studies investigating the relationship

between UDL-designed coursework and pre/professional results. This would have involved

inductive coding, developing codes as they become apparent during analysis. The second rater

from phase I was also to be recruited to analyze the data from the qualitative question in phase II.

They were given the codes created by the primary investigator from an initial review of five

examples from the data, given definitions of the codes, and asked to code the same five examples

as the primary investigator. Again, using Cohen's κ (McHugh, 2012), if the inter-rater reliability

for each item on the examples was above 81%, then the ratings were accepted. If the inter-rater

reliability for each item was below 80%, the raters discussed how they rated each element, and

determined a common criteria upon which to rate the material. This would have ensured that there are no misunderstandings about what the participants were conveying in the final question.

COVID-19 IMPLICATIONS

As with the rest of the nation, the effect of the SARS CoV-2 made a notable impact on education at the university. Per social distancing orders made by state and federal regulations, the university required that courses were to be online and conducted via Blackboard, Canvas, and using tools like Zoom to teleconference with teacher candidates. It is not currently known how much of a profound effect the pandemic has had on teacher candidates' psychological well-being or its effect on their experience in education (Gloster et. al, 2020). Some speculate that there will be a profound effect on learners' career and educational progress (Ferrel & Ryan, 2020), while some initial studies have found implementation of online learning systems and techniques to have educational benefits for teacher candidates, such as increased learning efficiency and user satisfaction (Gonzalez et al, 2020; Shazad et al, 2021). For the university program being studied, courses in the Fall started earlier in the school year and ended earlier compared to previous years. As such, there was a considerably longer winter break between Fall 2020 and Spring 2021 courses. Before the pandemic, the majority of courses were already online or hybridized. It is possible for online/distanced lessons and longer breaks to have an effect on teacher candidates, and this was taken into consideration when analyzing the data.

Limitations

The largest risk factor regarding the study was its online nature. As it is an online survey, one of the greatest concerns is that of low response rates (Saleh & Bista, 2017; Wright, 2005). Online surveys tend to have lower response rates compared to traditional surveying methods (Wright, 2007). After a study in 2017, Saleh and Bista developed a list of eleven strategies to

help improve online survey response rates. Of these eleven, eight were implemented in the design of the survey:

…2. Target a population that is more likely to hold interest in the research.

3. Consider offering an incentive for completing the survey.

4. Make every effort to craft a survey that is short and concise.

5. Inform the population in the invitation letter of the approximate time it will take to complete the survey.

6. Whenever possible, reduce the number or eliminate open-ended survey items.

7. Assure the participants of the anonymity and confidentiality of their responses.

8. Explain how the collected data will be handled, who will have access to them, and how the data will be stored and/or disposed of after the study is completed….

…11. Be aware of the time constraints related to time-of-year for the target population.

These specific strategies were implemented to ensure higher levels of response rates from teacher candidates. Teacher candidates are traditionally highly motivated in their own learning, and the survey has been designed to target them specifically. Financial incentives were included, and a cover letter was written to explain how much time the survey would take, its purpose, how the data would be collected and handled, and ensuring the teacher candidates' privacy and security.

Ethical Considerations

The survey was designed to be low-risk to the participants. No identifying data (such as names or email addresses) were collected. Anonymity was important, and this study emphasized that answers in the survey will in no way affect participants' current standing in their education programs if they have not yet graduated. Smith (2012) developed the survey to take no longer

than 20 minutes to complete, and the proposed survey is expected to take 30 minutes for this revision. Data was collected via the Google Forms app, which is a secure, cloud-based system (Alphabet Inc, 2013). Additionally, VCU Technology Services partnered with Google in 2014 to become its official email and cloud-based storage provider, and with that partnership came provisions for securing data (Alphabet Inc, 2013; VCU Technology Services, 2013). There were no health or monetary risks in participating in the survey.

Conclusion

Chapter three explained the methodology selected for this study, the research questions, and description of participants. This chapter also included both sets of instrumentation that were used to collect data. Data analysis was described based on each research question. Chapter four will present the results of this study.

Chapter 4: RESULTS

The purpose of this study was to explore the use of UDL in college coursework design and how it affects teacher candidate outcomes within and beyond the college classroom. Chapter 4 summarizes the results from the analyses conducted based on the methods outlined in chapter 3. To do so, four mixed-method research questions were devised to investigate the use of UDL in college coursework design and how it affects teacher candidate outcomes. The questions were:

1. To what extent can the EnACT UDL syllabus tool be used to corroborate instructor claims that their course is designed implementing the UDL framework?

2. To what extent did teacher candidates who attended courses employing UDL strategies in the graduate special education program identify that they were instructed using UDL components in the coursework?

   a. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Representation in the coursework?

   b. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Action & Expressions in the coursework?

   c. To what extent did teacher candidates who completed courses in the 2020-2021 academic year in the graduate special education program identify Multiple Means of Engagement in the coursework?

3. When provided with courses that employ UDL strategies, to what extent do teacher candidates perceive they achieved the course objectives?

    4. How do teacher candidates currently apply the knowledge and skills learned in these

       courses in their current pre-professional and professional environments?

To explore these questions, the results section has been divided into quantitative and qualitative

results.

Quantitative Results

Description of Study Participants

Data was collected between March 1, 2022 and July 31, 2022. For the instructor survey,

11 participants were instructors (4 adjunct faculty and 7 full-time faculty with VCU). Twenty-

three teacher candidate participants responded to the survey. Two participants were excluded, as

they did not participate in any School of Education coursework during the Fall 2020-Summer

2021 academic year. Of the remaining 21 participants: 3 were undergraduate students, and 18

were graduate students. Two teacher candidate participants identified as male, 18 as female, and

1 preferred not to say. Of the teacher candidates, 9 identified as Caucasian, 6 identified as

African-American or Black, 4 identified as Asian, and 2 identified as Hispanic. The estimated

enrollment for the special education program for the Fall of 2020 was roughly 60 teacher

candidates, yielding a 35% response rate.

Results: Research Question 1

The Kruskal-Wallis H test was used to determine if there were statistically significant

differences between items on the EnACT UDL syllabus rubric and instructor use of UDL. This

test was chosen as a parametric replacement for the *T*-test due to the smaller sample size not

meeting the assumptions for normal distribution. This was tested by comparing the items on the

EnACT UDL syllabus rubric with instructor knowledge of UDL. This item was chosen for two

reasons: first, the syllabus rubric and the question regarding instructor knowledge of UDL were both 4-point Likert-type items, meaning a comparison of answers would be more accurate than trying to compare a 4-point item to a 5-point item. Second, based on previous studies, the more knowledgeable an instructor is regarding UDL the principles, the more likely they are to employ UDL elements in their coursework design (Gawronski, 2014; Hall & Hord, 2010). Results are shown in table 7, indicating that there were statistically different results on 8 of 9 items from the syllabus and instructor knowledge of UDL.

Table 7

UDL Syllabus Rubric/Instructor Knowledge Kruskal-Wallis H test results

UDL Syllabus Rubric Item	Syllabi M	Instructor M	p
Instructor Information	26.80	48.17	*<.0001
Variable Texts	25.41	53.83	*<.0001
Course Assignments Explanation	26.59	49.00	*<.0001
Course Assignments Examples	26.27	50.33	*<.0001
Course Assignments Submission	26.96	47.50	*<.0001
Course Assignments Grading	28.02	43.17	*0.003
Course Calendar	26.27	50.33	*<.0001
Student Resources	26.51	49.33	*<.0001
Length	30.31	33.83	0.476

Note: M = mean, *$p < 0.1$; see p. 76 for item descriptions

The results of this analysis indicate that only the length of the syllabi presented was not significantly different than the instructor's self-perceptions of UDL knowledge ($p = 0.476$). Every other item from the syllabus rubric had a statistically significant difference ($p < .05$) in

means compared to instructor knowledge of UDL, which indicates that the EnACT UDL rubric tool does not reflect the instructor's knowledge or use of UDL in their coursework design.

Results: Research Question 2

The second research question investigated the extent to which teacher candidates who attended courses designed with UDL can recognize the UDL components in the coursework. This was broken down into the three principles of UDL, determining to what extent teacher candidates who completed courses in the 2020-2021 academic year could identify Multiple Means of Representation (MMR), Multiple Means of Action and Expression (MMAE) and Multiple Means of Engagement (MME) in their coursework. Figure 6 shows the frequency of teacher candidate responses for components related to the principle of MMR.
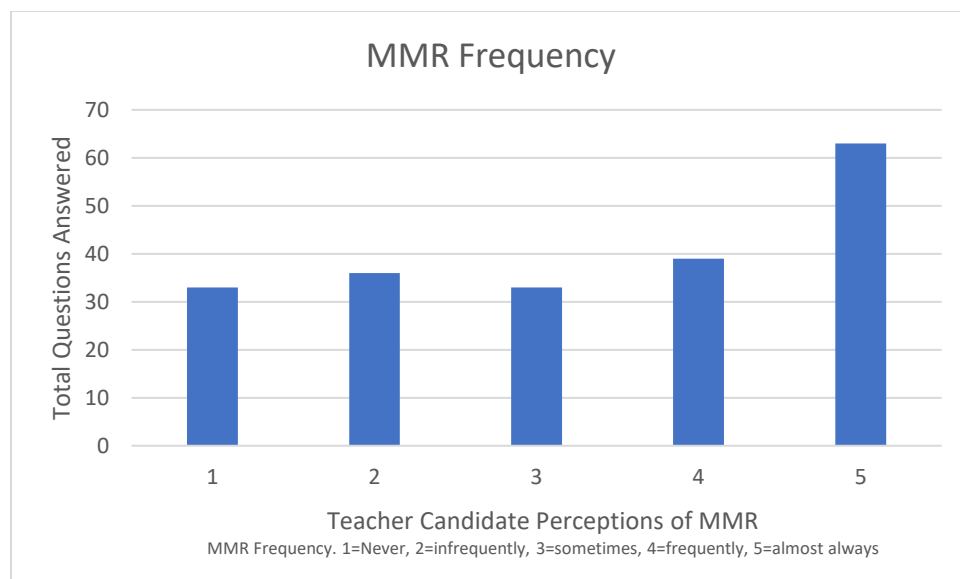
Figure 6. *MMR frequency*.

As the chart shows, the collective participants' responses regarding MMR totaled 204 (*N*). The majority of responses from teacher candidates indicated they frequently (*n*=39) or almost always (*n*=63) were provided MMR in their coursework.

The next figure shows the frequency of teacher candidate responses regarding MMAE.
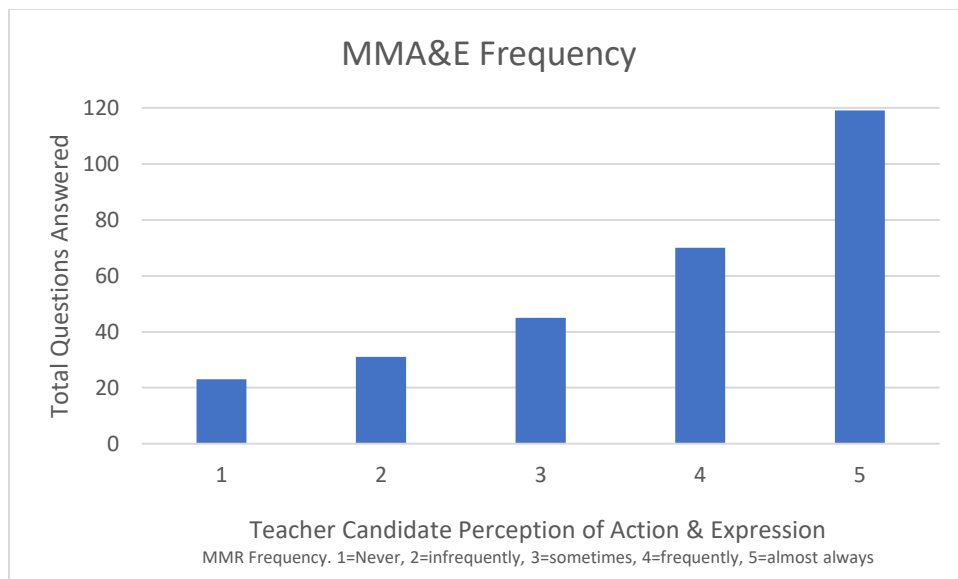
MMA&E Frequency

Figure 7. *MMAE frequency.*

Once again, the collective participants' responses to questions (*N*=288) regarding MMAE were largely positive. teacher candidates noted some frequent components of MMAE (*n*=70), but mostly reported almost always (*n*=119) seeing components of MMAE in their coursework.

While responses for MMR and MMAE indicated these components were largely represented in the coursework, responses regarding MME were mixed. Figure 8 illustrates this.
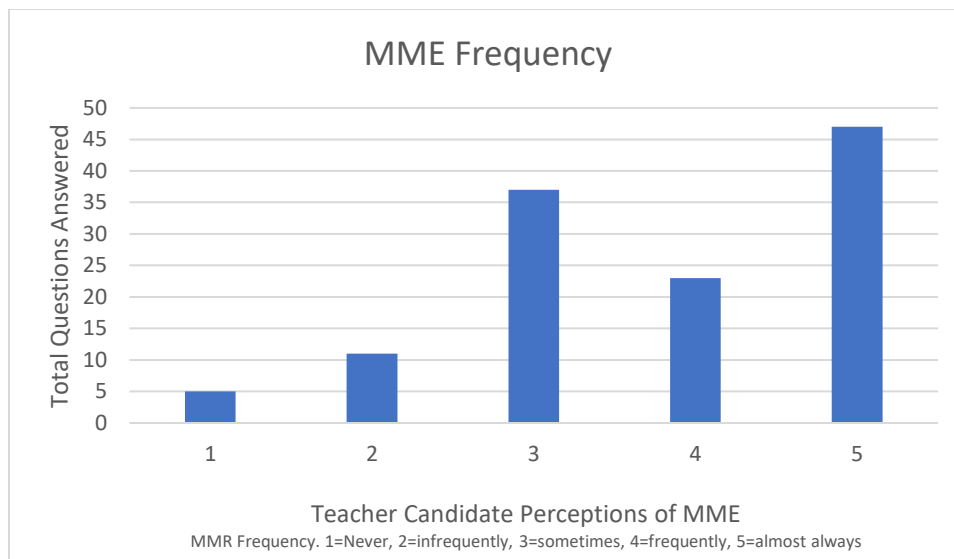
Figure 8. *MME frequency.*

Of the collective teacher candidate responses regarding MME (*N*=118), there were 37 responses that ranked MME in their coursework as a feature "sometimes," while there were ten more responses in the "almost always" category (*n*=47). This is a notable difference compared to the other UDL principle components surveyed.

In addition to reporting the frequency of teacher candidate responses, a Kruskal-Wallis *H* test was conducted to determine if there was a statistically significant difference between instructors' responses regarding including UDL elements and teacher candidates' responses regarding recognition of UDL components in their coursework. Tables 8-10 show this relationship for all three UDL principles.

Table 8.

Instructor-Teacher Candidate UDL Component Report-MMAE

UDL Questions	Instructor (N=12)	TC (N=21)	Kruskal-Wallis H		
	M	M	SD	DF	p-value
MMAE Models/Examples of Assignments	15.63	17.79	25.64	1	0.52
MMAE Assignment Rubric/Template	17.75	16.57	19.07	1	0.64
MMAE Interactive Activity	12.42	19.62	25.38	1	*0.03
MMAE Material Read Alongside Guided Questions	13.00	19.29	25.40	1	*0.06
MMAE Teacher Availability for Feedback on Assignments/Tasks	22.21	14.02	23.00	1	*0.007
MMAE Provided Feedback	23.29	13.40	23.91	1	*0.002
MMAE Create Video/Audio Assignments	15.29	17.80	25.80	1	0.42
MMAE Spellchecker	13.54	18.98	24.16	1	*0.09
MMAE Word Processor	18.79	15.13	23.21	1	0.24
MMAE Graphic Organizer	14.13	17.93	24.98	1	0.25
MMAE Web-based/Digital Product for Assignment	14.13	17.93	25.06	1	0.26
MMAE Use of Hyperlinks	11.58	19.45	24.99	1	*0.02
MMAE Student Digital Portfolio	12.79	18.73	24.90	1	*0.07

MMAE Speech to Text App to Create	18.63	15.23	24.60	1	0.30

Note: *M* = Mean; *SD* = Standard Deviation; *DF* = Degrees of Freedom; *p* = 0.1

Results indicate an equal amount of survey items between instructors and teacher candidates that were statistically different and not statistically different. Items that were not statistically different show that instructors and teacher candidates generally agreed on seeing a particular UDL component in their coursework, and the degree to which they observed its use. This is the case for items pertaining to using examples for assignments, using grading rubrics or templates, creating audio/video-based media for assignments, using a word processor, using a graphic organizer, using web-based or digital products for assignments, and using speech to text apps to create assignments.

Differences between the two sets of responses can be categorized between higher instructor responses/lower teacher candidate responses, and lower instructor responses/higher teacher candidate responses. Of the first category, instructors reporting having higher scores relating to availability for feedback (*M* = 22.21) and providing feedback (*M* = 23.29) than teacher candidates' reports of the same values (*M* = 14.02 and *M* = 13.40, respectively). Of the second category, teacher candidates rated items regarding interactive activities (*M* = 19.62), having materials to read with guided questions (*M* = 19.29), the use of spellchecker (*M* = 18.98), the use of hyperlinks (*M* = 19.45), and the incorporation of the teacher candidates' digital portfolios (*M* = 18.73) higher than instructors in the same categories. This suggests that there is a difference in how much value instructors place in these components regarding MMAE compared to their teacher candidates who completed the courses.

Table 9

Instructor-Teacher Candidate UDL Component Report-MMR

UDL Questions	Instructor (N=12)	TC (N=21)	Kruskal-Wallis H		
	M	M	SD	DF	p-value
MMR Online Lectures	13.54	18.28	24.51	1	0.15
MMR Recorded Lectures	14.71	18.31	25.86	1	0.29
MMR Audio Recordings	14.75	17.55	25.06	1	0.40
MMR Video Recordings	13.25	18.45	24.59	1	0.11
MMR Provided Lecture Notes	12.96	19.31	26.03	1	*0.06
MMR Provided Colour-Coded Notes	13.33	18.40	24.31	1	0.12
MMR Promoted Use of Graphic Organizer	12.58	18.85	24.90	1	*0.06
MMR Provided Handouts	15.04	18.12	25.94	1	0.37
MMR Provided Access to Digital Course Materials	17.33	16.81	17.91	1	0.82
MMR Promoted Text-to-Speech App to Listen to Course Materials	19.13	14.93	24.57	1	0.20

Note: *M* = Mean; *SD* = Standard Deviation; *DF* = Degrees of Freedom; *p* = 0.1

Results regarding MMR indicated there were fewer differences between the groups than for MMAE, with only two of ten survey items significantly different. It is notable that in these two statistically significant differences between instructors and teacher candidates regarding MMR components in their coursework, teacher candidates reported higher scores than

instructors. Teacher candidates scored being provided with lecture notes (M = 19.31) and

instructor promotion of the use of graphic organizers (M = 18.85) higher than their instructors (M

= 12.96; M = 12.38, respectively).

Table 10

Instructor-Teacher Candidate UDL Component Report-MME

	Instructor (N=12)	TC (N=21)	Kruskal-Wallis *H*		
UDL Questions	*M*	*M*	*SD*	*DF*	*p*-value
MME Provided Links Outside of Course	16.50	17.29	24.38	1	0.81
MME Allowed to Select Own Topic	17.92	15.65	23.79	1	0.47
MME Allowed to Select Materials	15.70	16.98	24.74	1	0.70
MME Choice: Work Alone/Groups	17.50	15.90	24.79	1	0.63
MME Delivered Feedback on Assignments	20.25	15.14	22.34	1	*0.08

Note: M = Mean; SD = Standard Deviation; DF = Degrees of Freedom; p = 0.1

The dataset regarding components of MME showed the least statistically significant

differences between instructor and teacher candidate scores. Only one item, "MME Instructor

Delivered Feedback on Assignments," showed a significant difference between the scores

reported. Teacher candidates reported fewer instances of feedback on assignments (M = 15.14)

compared to their instructors (M = 20.25).

Results: Research Question 3

The third set of analyses investigated the extent to which teacher candidates perceived they achieved course objectives that employ UDL. The course objectives were pulled directly from the syllabi in research question 1, and teacher candidates were asked to report on a 4-point Likert-type scale to what extent they completed the course objectives: 1 = not at all; 2 = minimal achievement; 3 = partial achievement; 4 = complete achievement. The following figure represents the levels of achievement which 20 teacher candidates (*N*) reported. One teacher candidate chose not to answer this question.
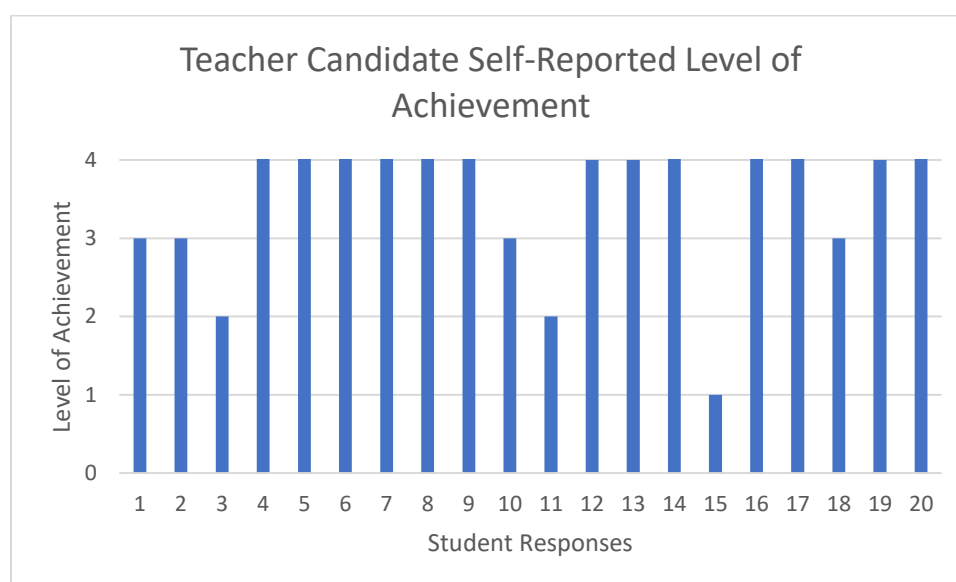
Figure 9. Teacher candidate self-reported levels of achievement.

As can be seen from the chart, the majority of respondents felt they completely achieved the goals of the courses as outlined in the syllabi (*n* = 13). Only 4 teacher candidates reported partial achievement of the course goals, two reported minimal achievement, and only one respondent felt they did not achieve the course goals as written in the syllabi.

Qualitative Results

Results: Research Question 4

The final research question from this study asked how teacher candidates and graduate teacher candidates apply the knowledge and skills learned in their current professional and pre-professional (defined as continuing education or employment in another non-teaching position) environments. Subjects were tasked to summarize how they were using the material they learned from the courses surveyed outside of the classroom. Specifically, they were asked "To the best of your recollection, how are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly." This was an open response question attached to the survey at the end of reporting the achievement of the course goals. Eleven of the 21 teacher candidates responded to the question. While over half of the participants responded, their answers were, for the most part, not detailed enough for a full analysis of themes. Attached below is table 11, which contains the direct quotes lifted from the survey responses.

Table 11

Qualitative Teacher Candidate Responses: Direct Quotes

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4. I have not yet used my lessons learned in these courses.

5. I am just storing info on my computer. I do not currently teach.

6. This course has prepared to best educate on every type of student that may enter my classroom.

7. as(SP) a preservice teacher I am learning multiple ways of implementing formative and summative assessment

12. I am currently a lifeguard and have not been able to use the lessons I have learned very much.

14. I am learning what to look for so I can help my students succeed. I also learn what steps I need to go through if I believe my student has a disability.

15. I actively recall information from class,(SP) and relate it back to my daily life.

16. I'm using the lessons learned at my job where I work with children.

17. Im(SP) using the lessons I learned from this course at my job where I work with young children.

18. I used the information from this class as foundation for the SEDP course I took this semester, Spring 2022. This course touched base on learning disabilities, emotional and behavioral disorder, TBI, and much more. This

fundamental class helped me have a better understanding of disabilities and I took what I learned and applied to my current job. I have a few students who have disabilities like ADHD and ODD. So taking the class helped me understand where the student was coming from and the best approaches to take to ensure they got received the best education and help from me.

21. Using course information to plan for dissertation.

As is evidenced by their responses, the lack of description regarding how they use the lessons learned in their current positions makes it impossible to determine any specific themes. For the most part, teacher candidates answered positively that they were using the lessons learned in their classrooms, but do not specify how they are doing so or to what degree. The lack of qualitative responses made data integration impossible for this study. There are several reasons that could explain why teacher candidates did not elaborate further on their responses, which will be addressed in chapter 5.

This chapter described the results of the study using Kruskal-Wallis H and frequency analysis to determine a relationship between UDL-designed college-level coursework and teacher candidate outcomes upon course completion. Findings indicated several significant differences between instructor- and teacher candidate-based items, as well as nonsignificant differences between instructor and teacher candidate report. The findings in this study provide insights to the current levels to which instructors incorporate UDL elements in their coursework, and how teacher candidates perceive those components upon completion of their coursework. Chapter 5 discusses how these findings contribute to the research literature, as well as limitations of this study and implications for future research and educational practice.

Chapter 5: Discussion

The goal of this study was to explore the use of UDL in college coursework design and how it relates to undergraduate and graduate student outcomes within and beyond the college classroom. Chapter 4 summarized the results analyses aligned with the four research questions designed to explore the purpose of this study. The first research question examined if the EnACT UDL syllabus rubric could be used to predict instructor knowledge of the UDL framework. The second research question considered to what extent teacher candidates who attended courses in the special education program identify that they were instructed with UDL components in their coursework. These analyses were then broken down further by each of the principles of UDL (MMAE, MMR, MME). This survey was based on the work initially developed by Smith (2012) and used in other surveys (Scott, Temple, & Marshall, 2015; Scott et al, 2017). Additionally, teacher candidate responses were compared to instructor responses regarding the use and recognition of UDL elements in their coursework. To investigate these comparisons, non-parametric tests were conducted using the Kruskal-Wallis H test. Research question three considered to what extent teacher candidates achieved the course goals (outlined from the syllabi in research question one) in courses designed with the UDL framework. The final research question was to explore how teacher candidates are utilizing the knowledge from the completed courses in their current pre-professional and professional environments. Due to the lack of responses, a full qualitative analysis could not be completed. In the following sections I will discuss the major findings from this study and the potential for future research.

Major Contributions

The current study offers key contributions to the research literature by providing insights regarding what elements of UDL-designed coursework teacher candidates and instructors place

value on across an entire special education program, including undergraduate and graduate students. This study was built on previous research that examined instructor use of UDL in their coursework design (Dinmore & Stokes, 2015; Gawronski, 2014; Scott et al., 2017). Additionally, the current study also examined teacher candidate perceptions of UDL elements in courses they participated in (Scott et al., 2015; Smith, 2012), as well as teacher candidate achievement based on course completion (Collins, 2013; Dinmore & Stokes, 2015). It is noteworthy that the current study is one of few that not only explored current instructor practices, but teacher candidate perceptions of UDL and their perceived level of achievement of course goals based on the learning goals outlined from the syllabi of the instructors themselves. Below I will detail the findings from this study.

The EnACT UDL Syllabus Rubric

The first research question of the study asked "Could the EnACT UDL syllabus rubric tool be used to predict instructor use of UDL in their coursework design?" This study found that there were statistically significant differences between the scores from the tool and the survey item "to what extent are you knowledgeable in the three principles of UDL?," save for length of the syllabus. Based on the scores, there is a relationship between how long the instructors wrote their syllabi (in terms of page number and content) and higher self-reported levels of knowledge with UDL. With the addition of the data from the second research question, it is apparent that the instructors surveyed were very knowledgeable with UDL, and actively used elements from each of the three principles. Based on the results of this study, this tool would not necessarily be useful to indicate instructor use of UDL based on instructor knowledge of the UDL principles. This does not mean the tool itself is without value, as it was designed to help ensure that faculty make their syllabi as accessible as possible to teacher candidates (EnACT, 2012). Based on the

data, scores from the syllabi rubric were much lower than instructor level of knowledge of UDL would indicate. This suggests that while instructor knowledge of UDL may be notable, the syllabi they develop are not as accessible as they could be. It is also possible that the tool could be used to investigate specific UDL elements in coursework design rather than instructor knowledge, but this will be discussed in the implications for research section below.

Teacher Candidate Perceptions of UDL and Achievement

The current study also explored teacher candidate perceptions of UDL across a special education program, surveying undergraduate ($n =3$) and graduate teacher candidates ($n =18$). Because of this, the data is significantly skewed towards graduate teacher candidates, who participate in specific courses that spend a semester teaching UDL and its principles. The survey itself did not ask if teacher candidates were familiar with the principles of UDL, but rather to identify elements of UDL design they experienced within the 2020-2021 academic year. While the small response sample is by no means generalizable across the total estimated population of teacher candidates enrolled in special education courses from the 2020-2021 school year, it is not without merit. Subjects recognized the majority of UDL elements in use in their special education coursework they took during the school year, with the responses to questions being mostly positive (subjects perceiving UDL elements frequently and almost always). In terms of MMAE, 66% of teacher candidate responses were positive; for MMR, 50%; and MME, 57%. Teacher candidates are recognizing a minimum of half the elements in their classes, and the data suggests that instructors surveyed ($n =12$) are, across the special education program, infusing UDL in their coursework design.

This does not mean that teacher candidates and instructors were in total agreement regarding the implementation of UDL elements. When comparing the instructors' and teacher

candidates' scores item by item for MMAE, MMR, and MME, there were some significant differences in their responses. In some cases, instructors rated elements higher than teacher candidates, particularly with items related to feedback in both MMAE and MME. This suggests that teacher candidates do not agree with instructors regarding the value placed in instructor feedback. Because there was such a difference in the scores between instructors and teacher candidates, this suggests that subjects disagree with instructors regarding how often meaningful feedback was provided during the 2020-2021 school year. This could be an area for improvement for instructors to take into consideration in future iterations of their classes. Additionally, teacher candidates ranked multiple items across MMAE and MMR higher than instructors, particularly related to organization, electronic resources, and interactivity of classroom materials. The data indicates that these areas had more of an impact on teacher candidates during the 2020-2021 school year, a year which was heavily affected by the COVID-19 pandemic.

This study not only asked for participants to identify elements of UDL they experienced in the courses they took, but also pulled directly from said courses' syllabi to genuinely answer the question "How well do you think you achieved the learning goals in this course?" Of the 20 responses, 13 indicated that they achieved "full completion" of the course goals (65%). Because the survey was designed to pull the course goals for each of the 49 syllabi rated, this study differs from others in the field by providing direct context for the courses' learning goals and objectives, instead of having teacher candidates report grade-levels for achievement or having them recall the information without the course goals in front of them. This survey provided more accurate responses regarding teacher candidate self-reported course achievement because the course goals were laid out and pulled directly from the syllabi, a unique feature of this study.

Even though the qualitative responses were limited, there is some value to be found. While there was not enough data to conduct a full qualitative analysis, and thus, no clear themes were found, seven of the respondents indicated that previous teacher candidates were using the information from the course goals in their current occupations. They did not describe to what extent or provide details regarding how they use the information in their jobs. Three respondents indicated that they do not use the information from the course at all. One respondent indicated that they use the information for their dissertation. While this is by no means substantive, this information does seem to indicate that the course goals were largely resonating with teacher candidates in their current professional and preprofessional positions. This has the potential for future studies, which is further discussed in the Implications for Research section.

Limitations

This study did have several notable limitations, the most prominent of which was the small sample size for both instructors ($N = 12$) and teacher candidates ($N = 21$). This research, while limited in size, sought to capture the complexities attached to both instructor and teacher candidate perceptions of the utilization of the UDL framework in college coursework. There are a few reasons for the small sample. First, instructor responses were smaller than the total number of syllabi graded ($N = 49$). This could be due to several factors. The primary source of contact for the instructors was by way of their email addresses listed on the syllabi. If the email addresses were incorrect, it is possible the surveys did not reach the instructors. If the courses were taught by adjunct faculty and their contracts were not continued into this past year, then their emails would be inactive, making contact impossible. The same could be said for faculty members who moved to other universities or retired since the end of the last academic year. While emails were sent directly to the provided addresses and the survey circulated via a

department listserv, there was no guarantee that they were the most up to date means of communication with the instructors. In addition, there was no clear distinction made as to whether the instructors had full autonomy for their coursework design, or if they were designed under the supervision of a program director or committee. Having this information would help to determine if the efforts of instructors to include UDL are a personal decision or one being mandated by departmental authorities.

Participant responses were similarly low; to be representative of the total population, an estimated 50 out of 60 individual teacher candidates would need to participate to achieve a 90% confidence level. While not unheard of, given the scope of this particular study (looking at a single school at a large urban university), it would have been difficult to achieve this goal. The primary means of communication between the researcher and the subjects was also through email. The researcher sent out recruitment fliers with links to the survey via email, as well as department listservs and university e-newsletters multiple times between the months of March 2022 and July 2022. A relatively low response rate was anticipated, due to the busy lifestyles of active teacher candidates participating in undergraduate and graduate-level coursework. The data itself was skewed towards graduate students (n = 18), when the population of undergraduate students outweighs them in the special education program. Because of this skewing of the data, it may not necessarily reflective of the special education program. A number of teacher candidates who participated in courses from 2020-2021 may also have graduated from the program or dropped out, making contacting them via listservs or university-circulated e-newsletters impossible. Additionally, the survey was only available in an online format, which means potential subjects who prefer traditional, pen-and-paper survey methods may not have felt comfortable taking the survey. If the survey was also provided in another format, it may have led

to greater responses. A large factor that affected the choice of survey, however, was the effect of COVID-19 on higher learning, requiring an online survey format.

Perhaps the greatest limitation of this study was in the design of the qualitative survey item. As noted in chapter 4, the responses to the single qualitative item were so minimal that a proper qualitative analysis could not be completed. The question asked teacher candidates "To the best of your recollection, how are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly." The instructions may not have been entirely clear when asking this question; the expectation was for the teacher candidates to not only identify how they were using the lessons in their current environments, but to describe with some detail the ways in which they were using the UDL elements in their coursework. The question itself could have been rephrased to clarify the intent, or more follow-up questions could have been added to gain more insights. There is also the possibility that the answers were cursory due to survey fatigue. While the survey was not timed and designed in such a way that respondents could stop and come back to complete their surveys online, this was the final question out of 38 total responses per course. After participating in a long string of quantitative research questions, participants may possibly have become "burned out" and ready to submit the survey, resulting in a brief answer to the question. While this research question may not have been answered in this study, it does reveal a rich opportunity for a future qualitative study, to be discussed in the Implications for Research section below.

COVID-19

Perhaps the largest factor that affected the survey was the worldwide COVID-19 pandemic. In past years, surveys could be offered in both traditional and online formats to gather as much data as possible. With the pandemic still in effect as of the time of this writing, it may

have caused low responses rates from multiple fronts. First, the study was researching the class of 2020-2021, the first full year of teacher candidates affected by the COVID-19 pandemic. Many people have been affected by the pandemic. The World Health Organization (WHO), at the time of this writing, reported over 95 million confirmed cases of COVID-19 in the USA alone, with over 1 million confirmed deaths (WHO, 2022). These statistics alone mean that people may have experienced trauma from the loss of a loved one or the personal trauma of becoming sick during the pandemic, reducing interactions with other people and with primary activities, like attending classes.

Per university distancing policy, teacher candidates were to remain at home or in dorms in lockdown during the 2020-2021 school year, with classes being taught exclusively online via Zoom. This online-only format fundamentally changed the way many instructors and students interacted with one another over the course of the school year. Articles have since come out describing "webinar fatigue." This is a new phenomenon where the increased use of online and web-based meetings for work, school, and social connectivity have led to physical distress and digital device fatigue, and has been cited as early as April 2021 (Sharma et al., 2021). This digital fatigue may have led to fewer responses from teacher candidates since the current study was administered entirely via a digital survey. As COVID-19 restrictions lift and both faculty and students return to campuses, it will be possible to offer a similar study in the future via multiple modalities, and even reach out to potential subjects via direct contact in classrooms.

Implications for Research

The findings from this study present many potential avenues for future research. First, there is the utilization of the EnACT UDL syllabus rubric as a potential predictor for instructor utilization of UDL in coursework design. While the tool did not determine a relationship

between instructor knowledge of UDL and the rubric items, it could be used to indicate specific UDL elements more directly in coursework design. A pilot study could survey a small sample of instructors regarding their implementation of UDL elements, similar in design to the one implemented in this current study, using a 4-point Likert-type scale for the survey items. Upon completion of the survey, researchers could then grade the instructors' syllabi using the EnACT tool, and then run a non-parametric Kruskal-Wallis H test to determine statistical significance based on the actions instructors took, not just their level of knowledge.

With regards to the second and third research questions, there is a need for replication of this study with a larger sample size. Sample size was a notable limitation for this study as a whole, but replicating this study on a larger scale will more accurately measure both instructor and teacher candidate responses regarding coursework utilization and recognition of the UDL elements. The present study makes it clear that teacher candidates and instructors are perceiving elements of MMAE, MMR, and MME in their college coursework; it is important to determine if the differences in the values held per item between groups is generalizable across larger populations. While this study examined a single department within a university school, there could be more reliable findings if the total population surveyed included either the entirety of a school (for example, a school of education) or multiple departments (special education, business and accounting, or biochemistry). Additionally, this study reviewed courses presented in an online-only format; there could be valuable data collected if this study were replicated with online, traditional, and hybridized (online and in-person) format courses. Not only would this provide substantial information regarding school-wide practices at a university but comparing practices between departments at a university could reveal notable differences in instructor practices and teacher candidate learning preferences. There was also significant value in having

the course goals and objectives for participants to refer to when thinking about the achievement of said goals, as opposed to asking them to recall their academic grade. A letter grade provides little context for what teacher candidates actually learned while participating in a course; analyzing the syllabi for the course goals provides both context for what teacher candidate achievement looks like and refreshes participants on these items before responding to survey items.

Due to the limitations of this study, it is still unclear how teacher candidates are utilizing learning objectives in their current professional and pre-professional environments. While this remained unanswered in the present study, there is a rich potential for a future qualitative research project focusing solely on this research question. Using a traditional interview format either in person or via web-based meeting software, a qualitative research project would be better suited to draw detailed responses from subjects than an open-ended survey item. This would allow researchers to investigate themes relating to both the academic and professional utilization of learning goals from past course work, which is vital information that is still missing from the larger body of UDL research.

Implications for Practice

Based on the data analyzed in this study, there are several recommendations for practice. Prior research has noted the effect an instructor well-versed in the UDL principles has on student outcomes (Craig et al., 2019; Dinmore & Stokes, 2015; Lee & Griffin, 2021; Spencer et al., 2007). In terms of the findings from this study, not only should instructors incorporate the principles of UDL into every aspect of the course but should also ensure the syllabus is accessible as well. The syllabus is often the first thing a student interacts with upon entering a course, whether online or in person; conveying this information in clear, straightforward, and

accessible ways will make the learning experience more meaningful for the diverse learners we serve.

Furthermore, these findings indicate the continued importance to participate in designing coursework as a reflective practice. Some items, particularly related to instructor feedback, were rated much higher than teacher candidates. This suggests that instructors need to reflect on their current practices regarding giving feedback, and ensuring they are using meaningful, descriptive, and timely comments on assignments. Likewise, teacher candidates placed higher values on items regarding electronic resources, like hyperlinks and interactive activities. These are tools that were especially critical during the online-only school year due to COVID-19 restrictions. Additionally, as the years progress, people are becoming more internet-literate; incorporating these elements into coursework design is meaningful to teacher candidates, and instructors should strive to include them in future classes. It might be possible to turn the surveys into a tool to help instructors engage in reflective practices, not just a the end of a class, but at the mid-term. This could allow instructors to gauge learning needs, and course-correct to address UDL elements that the teacher candidates are under-reporting or enhance the elements that teacher candidates are emphasizing based on their responses.

College-level instructors will need opportunities to practice incorporating UDL-elements into their coursework design, especially in areas where teacher candidates indicate needs. This means instructors need not only initial training, but opportunities to practice using the UDL framework outside of their own coursework. Universities should consider providing regular UDL workshops for their adjunct and full-time faculties. This ensures that all members of the various faculties are providing high-quality education using the UDL framework. As this study indicates, designing coursework with UDL pays dividends in the form of teacher candidate achievement of

course goals. If instructors want to ensure teacher candidates are truly learning from their courses, then higher education administration needs to support their employees by providing regular training. Virginia Commonwealth University promotes UDL through faculty development efforts through their Center for Teaching Excellence, and similar organizations across over two dozen universities are making a difference (CAST, 2022).

Implications for Policy

This study reveals several potential implications for policy. Universities, as a whole, should consider adopting the UDL framework as a part of their coursework design. As this study indicated, teacher candidate perceptions of course goal achievement were very high when they participated in courses designed with UDL. High levels of teacher candidate achievement leads to high levels of satisfaction with the program, as well as increased enrollment rates for future teacher candidates. Additionally, colleges that adopt the UDL framework should include survey items regarding UDL elements in their end of course evaluations. This data could prove invaluable to determine trends in teacher candidate learning styles, and help make sure programs are adaptable to meet teacher candidate learning needs.

While the scope of this study was small in nature, it is possible to consider nationwide policy implications as well. While the ESSA (2016) mandates the use of UDL in K-12 education, no such federal law exists for post-secondary education. The only federal law that addresses UDL in post-secondary education is the HEOA (2008), which emphasizes more on providing loan support to college students than implementing the UDL framework. Perhaps future legislation could provide financial incentives for accredited colleges and universities that actively incorporate UDL into their coursework design. This would incentivize colleges and

universities to adopt the UDL framework, while also benefitting college students by providing more accessible coursework and reducing potential barriers to learning on a nationwide scale.

Summary

This study continues to add to the growing body of research in support of providing well-designed coursework utilizing the UDL framework. This research investigated the viability of using the EnACT UDL syllabus rubric tool to determine instructor knowledge of UDL, as well as comparing teacher candidate recognition of UDL elements in their college coursework, and determining completion of course objectives. While this study found there was no relationship between elements in instructor's syllabi and their level of knowledge of UDL, teacher candidates provided a wealth of information regarding their perception of the UDL guidelines in their coursework. Instructors reported utilizing multiple elements of the UDL principles in their coursework. Teacher candidates agreed that some of these elements were present in their coursework but placed greater emphasis in online-based UDL elements than their professors. These findings suggest that instructors need to place greater emphasis in online supports, particularly in a post COVID-19 online learning environment. Additionally, this study found that teacher candidates in these UDL-designed courses reported high levels of course completion based on the learning objectives presented from the instructors' syllabi, adding to the growing body of research that correlates the use of UDL with higher levels of course completion. This study was not able to determine how teacher candidates utilized the learning objectives upon course completion. There is potential for a rich, qualitative study to determine UDL-designed coursework's influence on teacher candidate's professional practices. Future research should place emphasis on determining how college coursework objectives translates to practical classroom experiences. Between continued comparative analyses of instructor design and teacher

candidate perspectives, as well as discovering how learning objectives are translating to future educational experiences, special educators will be able to determine if we are truly practicing what we preach: creating accessible learning opportunities for all learners.

Sources Cited

Barrett, L. F., & Satpute, A. B. (2013). Large-scale brain networks in affective and social neuroscience: towards an integrative functional architecture of the brain. *Current opinion in neurobiology*, *23*(3), 361-372. https://doi.org/10.1016/j.conb.2012.12.012

Baucham, M. S. (2020). *A transcendental phenomenological study of faculty use of Universal Design for Learning that includes multiple means of expression while teaching online general education courses at a technical college* [Doctoral dissertation, Liberty University]. Digital Commons Liberty University. https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=3675&context=doctoral

Bergert, S., & Burnette, J. (2001). Educating Exceptional Children: A Statistical Profile. https://files.eric.ed.gov/fulltext/ED452649.pdf

Boelens, R., Voet, M., & De Wever, B. (2018). The design of blended learning in response to student diversity in higher education: Instructors' views and use of differentiated instruction in blended learning. *Computers & Education*, *120*, 197-212. https://doi.org/10.1016/j.compedu.2018.02.009

Boyer, L., & Gillespie, P. (2000). Keeping the committed: The importance of induction and support programs for new special educators. *Teaching exceptional children*, *33*(1), 10-15. https://doi.org/10.1177/004005990003300102

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn* (Vol. 11). Washington, DC: National academy press. http://www.csun.edu/~SB4310/How%20People%20Learn.pdf

Bransford, J., Stevens, R., Schwartz, D., Meltzoff, A., Pea, R., Roschelle, J., ... & Sabelli, N. (2006). Learning theories and education: Toward a decade of synergy. https://doi.org/10.4324/9780203874790.ch10

Burgstahler, S. (2008). *Equal access: Universal design of instruction*. DO-IT, University of Washington. https://slds.osu.edu/posts/documents/udi-checklist-do-it.pdf

Butler, J. W. (2010, March). In-service teachers and technology integration: digital storytelling reduces teachers' management concerns in the Concerns-Based Adoption Model (CBAM). In *Society for Information Technology & Teacher Education International Conference* (pp. 1210-1217). http://www.learntechlib.org/p/33522/

CAST. (2021) *The UDL guidelines.* https://udlguidelines.cast.org/

CAST. (2021a) *CAST: Current and past projects*. https://www.cast.org/our-work/all-projects

CEC. (2021) *Special education preparation standards.* https://exceptionalchildren.org/special-education-preparation-standards

Collier, J., Thompson, J., & LaPrairie, K. (2020, October). Designing for All: Universal Design for Learning. In *SITE Interactive Conference* (pp. 686-688). https://www.learntechlib.org/p/218223/

Collins, R. K. (2013). Using captions to reduce barriers to Native American student success. *American Indian culture and research journal*, *37*(3), 75-86. https://doi.org/10.17953/aicr.37.3.025wr5k68l15021q

Craig, S. L., Smith, S. J., & Frey, B. B. (2019). Professional development with universal design for learning: supporting teachers as learners to increase the implementation of UDL. *Professional Development in Education*, 1-16. https://doi.org/10.1080/19415257.2019.1685563

Dallas, B. K., Upton, T. D., & Sprong, M. E. (2014). Post-secondary faculty attitudes toward inclusive teaching strategies. *Journal of rehabilitation*, *80*(2), 12. https://www.academia.edu/16240793/Post_secondary_faculty_attitudes_toward_inclusive_teaching_strategies

Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession. *Washington, DC: National Staff Development Council*, *12*. https://static1.squarespace.com/static/56b90cb101dbae64ff707585/t/583c7fe720099e25d0b1bd24/1480359912004/nsdcstudy2009.pdf

DeCoste, D. C., Kaplan, M., & Spinnato, S. (2015). UDL: A Maryland State of Mind. *Implementing Universal Design for Learning*. https://www.learningdesigned.org/sites/default/files/DeCoste_Kaplan_Spinnato_2015.pdf

Dewey, J., Sindelar, P. T., Bettini, E., Boe, E. E., Rosenberg, M. S., & Leko, C. (2017). Explaining the decline in special education teacher employment from 2005 to 2012. *Exceptional Children*, *83*(3), 315-329. https://doi.org/10.1177/0014402916684620

Dinmore, S., & Stokes, J. (2015). Creating inclusive university curriculum: Implementing universal design for learning in an enabling program. *Widening Participation and Lifelong Learning*, *17*(4), 4-19. https://doi.org/10.5456/wpll.17.4.4

Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). https://www.congress.gov/bill/114th-congress/senate-bill/1177

Evmenova, A. (2018). Preparing teachers to use universal design for learning to support diverse learners. *Journal of Online Learning Research*, *4*(2), 147-171. https://www.learntechlib.org/primary/p/181969/article_181969.pdf

Ferrel, M. N., & Ryan, J. J. (2020). The impact of COVID-19 on medical education. *Cureus*, *12*(3). https://doi.org/10.7759/cureus.7492

Frost, S., & McCalla, G. (2013). Exploring through simulation the effects of peer impact on learning. *AIED 2013 Workshops Proceedings, 4,* 21. https://doi.org/10.1007/978-3-319-19773-9_66

Gargiulo, R. M., & Kilgo, J. L. (2018). *An introduction to young children with special needs: Birth through age eight*. SAGE Publications. https://books.google.com/books?hl=en&lr=&id=3niBDwAAQBAJ&oi=fnd&pg=PT20&ots=oUq3nCir0S&sig=JVLwSWir-gWNiaRynMnjrLmy6hs#v=onepage&q&f=false

Gawronski, M. E. (2014). *Universal design for learning: Perceptions of faculty and students at a northeastern community college* [Doctoral dissertation, Colorado State University]. https://search.proquest.com/openview/abec94c361ca96bc53987eba4cf1fda1/1?pq-origsite=gscholar&cbl=18750

Gloster, A. T., Lamnisos, D., Lubenko, J., Presti, G., Squatrito, V., Constantinou, M., ... & Karekla, M. (2020). Impact of COVID-19 pandemic on mental health: An international study. *PloS one*, *15*(12), e0244809. https://doi.org/10.1371/journal.pone.0244809

Gonzalez, T., De La Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PloS one, 15*(10). https://doi.org/10.1371/journal.pone.0239490

Greene, S. (2016). *Community college basic skills math instructors' experiences with universal design for learning* [Doctoral dissertation, Walden University]. https://search.proquest.com/openview/9e6da0bfb15aa725959a00e61e1b4587/1?pq-origsite=gscholar&cbl=18750&casa_token=c5lhm8v-pGQAAAAA:mALB3EQFT1RXx2jicta9nvoJ1dV9Ce9KvekT3IB70oJZrme884g45k4-Zv0Jf1ycHwE_6o0X1Q

Grigal, M., Hart, D., Smith, F. A., Domin, D., Sulewski, J., & Weir, C. (2015). Think College National Coordinating Center: Annual report on the transition and postsecondary programs for students with intellectual disabilities (2013–2014). *Institute for Community Inclusion*. https://thinkcollege.net/sites/default/files/files/resources/CEC%202019%20Higher%20Ed%20for%20Students%20with%20ID.pdf

Gronseth, S. L., & Dalton, E. M. (Eds.). (2019). *Universal access through inclusive instructional design: International perspectives on UDL*. Routledge. https://doi.org/10.4324/9780429435515

Hall, T., Vue, G, Strangman, N., & Meyer, A. (2003). Differentiated instruction and implications for UDL implementation. *Wakefield, MA: National Center on Accessing the General Curriculum*. https://sde.ok.gov/sites/ok.gov.sde/files/DI_UDL.pdf

Hall, T., & Stahl, S. (2006). Using universal design for learning to expand access to higher education. *Towards Inclusive Learning in Higher Education*, 85–96. https://doi.org/10.4324/9780203088623-15

Harper, K. A., & DeWaters, J. (2008). A quest for website accessibility in higher education institutions. *The Internet and Higher Education*, *11*(3-4), 160-164. https://doi.org/10.1016/j.iheduc.2008.06.007

Higher Education Opportunity Act of 2008, Pub. L. No. 110-315, 122 Stat. 3078. https://www.govinfo.gov/content/pkg/PLAW-110publ315/pdf/PLAW-110publ315.pdf

Hitch, D., Macfarlane, S., & Nihill, C. (2015). Inclusive pedagogy in Australian universities: A review of current policies and professional development activities. *International journal of the first year in higher education*, *6*(1), 135-145. https://doi.org/10.5204/intjfyhe.v6i1.254

Hunde, A. B., & Tacconi, G. (2014). Teacher educators' practices from the view of building lifelong learning capabilities in student teachers. *Procedia-Social and Behavioral Sciences*, *136*, 496-500. https://doi.org/10.1016/j.sbspro.2014.05.363

Hutson, B., & Downs, H. (2015). The college STAR faculty learning community: Promoting learning for all students through faculty collaboration. *The Journal of Faculty Development*, *29*(1), 25-32. https://www.researchgate.net/profile/Bryant-Hutson/publication/279942091_The_College_STAR_Faculty_Learning_Community_Promoting_Learning_for_All_Students_through_Faculty_Collaboration/links/559ee2d908ae 97223ddc5686/The-College-STAR-Faculty-Learning-Community-Promoting-Learning-for-All-Students-through-Faculty-Collaboration.pdf

Jimenez, T. C., Graf, V. L., & Rose, E. (2007). Gaining access to general education: The promise of universal design for learning. *Issues in Teacher Education*, *16*(2), 41-54. https://files.eric.ed.gov/fulltext/EJ796250.pdf

Jónasson, J. T. (2016). Educational change, inertia and potential futures. *European Journal of Futures Research*, *4*(1), 1-14. https://doi.org/10.1007/s40309-016-0087-z

Jones, M. M., Harrison, B., Harp, B., & Sheppard-Jones, K. (2016). Teaching college students with intellectual disability: What faculty members say about the experience. *Inclusion*, *4*(2), 89-108. https://doi.org/10.1352/2326-6988-4.2.89

Karger, J. (2004). Access to the general curriculum for students with disabilities: The role of the IEP. *Wakefield, MA: National Center on Accessing the General Curriculum.* https://aem.cast.org/binaries/content/assets/common/publications/aem/ncac-curriculum-access-role-iep-2004.docx

Kiang, M. (2010). *Encyclopedia of cross-cultural school psychology* (Clauss-Ehlers, C. S. (Ed.). Springer Science & Business Media. https://doi.org/10.1007/978-0-387-71799-9

Klinger, J. K., Artiles, A. J., & Mendez Barletta, L. (2006). *English language learners who struggle with reading: Language acquisition or LD?.* Journal of Learning Disabilities, *39*(2), 108-128. https://doi.org/10.1177/00222194060390020101

Knowles, M. S. (1980). From pedagogy to andragogy. *Religious Education*. http://www.colllearning.info/wp-content/uploads/2019/03/The-Modern-Practice-of-Adult-Education.pdf

Kozleski, E., Mainzer, R., & Deshler, D. (2000). Bright futures for exceptional learners. *Teaching Exceptional Children, 32*(6), 56–69. https://doi.org/10.1177/004005990003200608

Kraglund-Gauthier, W. L., Young, D. C., & Kell, E. (2014). Teaching Students with Disabilities in Post-secondary Landscapes. *Transformative Dialogues: Teaching and Learning Journal*, *7*(3). https://td.journals.psu.edu/td/article/download/1189/647

LaRocco, D. J., & Wilken, D. S. (2013). Universal Design for Learning: University faculty stages of concerns and levels of use. *Current Issues in Education*, *16*(1). http://cie.asu.edu/ojs/index.php/cieatasu/article/download/1132/446

Lee, A., & Griffin, C. C. (2021). Exploring online learning modules for teaching universal design for learning (UDL): preservice teachers' lesson plan development and implementation. *Journal of Education for Teaching*, 1-15. https://doi.org/10.1080/02607476.2021.1884494

Lohmann, M. J., Boothe, K. A., Hathcote, A. R., & Turpin, A. (2018). Engaging graduate students in the online learning environment: A universal design for learning (UDL) approach to teacher preparation. *Networks: An Online Journal for Teacher Research*, *20*(2), 2-21. https://doi.org/10.4148/2470-6353.1264

Lombardi, A. R., & Murray, C. (2011). Measuring university faculty attitudes toward disability: Willingness to accommodate and adopt Universal Design principles. *Journal of Vocational Rehabilitation*, *34*(1), 43-56. https://doi.org/10.3233/jvr-2010-0533

Lombardi, A., Murray, C., & Dallas, B. (2013). University faculty attitudes toward disability and inclusive instruction: Comparing two institutions. *Journal of Postsecondary Education and Disability*, *26*(3), 221-232. https://files.eric.ed.gov/fulltext/EJ1026882.pdf

Lombardi, A. R., Murray, C., & Gerdes, H. (2011). College faculty and inclusive instruction: Self-reported attitudes and actions pertaining to Universal Design. *Journal of Diversity in Higher Education*, *4*(4), 250. https://doi.org/10.1037/a0024961

Lunenberg, M., Dengerink, J., & Korthagen, F. (2014). *The professional teacher educator: Roles, behaviour, and professional development of teacher educators*. Springer Science & Business Media. https://doi.org/10.1007/978-94-6209-518-2

Lunenberg, M., Korthagen, F., & Swennen, A. (2007). The teacher educator as a role model. *Teaching and teacher education*, *23*(5), 586-601. https://doi.org/10.1016/j.tate.2006.11.001

Mace, R. (1985). Universal design: Barrier free environments for everyone. *Designers West*, *33*(1), 147-152. https://doi.org/10.1515/9783034609661.9

Mayes, J. L. (2020). *UDL and Motivation: Student Perceptions of the Impact of Universal Design for Learning on Motivation of First-Year Community College Students in Rural East Tennessee* [Doctoral dissertation, East Tennessee State University]. https://search.proquest.com/openview/a6664522e524f9ad8c8fc7d87e842275/1?pq-origsite=gscholar&cbl=44156&casa_token=qA3ZaMrUw_YAAAAA:9GaX0CvEYJARwbRuCDJClzweZP4Pw-G4eHbnHQz9BTBvP2PiYvVa2XaZJdw2f2FWasa2W-cREA

Mcguire, J. M., Scott, S. S., & Shaw, S. F. (2006). Universal design and its applications in educational environments. *Remedial and special education*, *27*(3), 166-175. https://doi.org/10.1177/07419325060270030501

Meo, G. (2008). Curriculum planning for all learners: Applying universal design for learning (UDL) to a high school reading comprehension program. *Preventing School Failure: Alternative Education for Children and Youth*, *52*(2), 21-30. https://doi.org/10.3200/psfl.52.2.21-30

Meyer, A., & Rose, D. H. (1998). *Learning to read in the computer age* (Vol. 3). Brookline Books. https://www.worldcat.org/title/988748002

Mohamed, Z., Valcke, M., & De Wever, B. (2017). Are they ready to teach? Student teachers' readiness for the job with reference to teacher competence frameworks. *Journal of Education for Teaching*, *43*(2), 151-170. https://doi.org/10.1080/02607476.2016.1257509

Mukerji, S. (Ed.). (2013). Handbook of research on transnational higher education. IGI Global. https://doi.org/10.4018/978-1-4666-4458-8

Ochsner, K. N., Silvers, J. A., & Buhle, J. T. (2012). Functional imaging studies of emotion regulation: a synthetic review and evolving model of the cognitive control of emotion. *Annals of the New York Academy of Sciences*, *1251*, 1-24. https://doi.org/10.1111/j.1749-6632.2012.06751.x

Odom, S. L., & Diamond, K. E. (1998). Inclusion of young children with special needs in early childhood education: The research base. *Early Childhood Research Quarterly*, *13*(1), 3-25. https://doi.org/10.1016/s0885-2006(99)80023-4

OSEP. (2021). *Office of special education programs (OSEP) – home page.* https://www2.ed.gov/about/offices/list/osers/osep/index.html

Osgood, R. L. (2005). The history of inclusion in the United States. *The History of Inclusion in United States, 46*(4), 656-658. https://doi.org/10.1111/j.1748-5959.2006.00053.x

Ota, C., DiCarlo, C. F., Burts, D. C., Laird, R., & Gioe, C. (2006). Training and the needs of adult learners. *Journal of Extension, 44(6)*. https://archives.joe.org/joe/2006december/tt5.php

Owiny, R. L., Hollingshead, A., Barrio, B., & Stoneman, K. (2019). Engaging preservice teachers in universal design for learning lesson planning. *Inclusion*, *7*(1), 12-23. https://doi.org/10.1352/2326-6988-7.1.12

Pace, D., & Schwartz, D. (2008). Accessibility in post secondary education: Application of UDL to college curriculum. *Online Submission*, *5*(12), 20-26. https://files.eric.ed.gov/fulltext/ED503884.pdf

Parra, J., Osanloo, A., Raynor, C., Hair, S., Korang, T., Padilla, C., & Chatterjee, S. (2018). Perspectives on a graduate online course that modeled universal design for learning (UDL) to teach UDL. *Asian Journal of Distance Education*, *13*(1), 59-87. https://www.learntechlib.org/p/185261/article_185261.pdf

Pisha, B., & Stahl, S. (2005). The promise of new learning environments for students with disabilities. *Intervention in School and Clinic*, *41*(2), 67-75. https://doi.org/10.1177/10534512050410020601

Powell, R. G., & Powell, D. L. (2015). *Classroom communication and diversity: Enhancing instructional practice*. Routledge. https://doi.org/10.4324/9780203856062

Ralabate, P. K. (2011). Universal design for learning: Meeting the needs of all students. *The ASHA Leader*, *16*(10), 14-17. https://doi.org/10.1044/leader.ftr2.16102011.14

Ralabate, P. (2016). *Your UDL lesson planner: The step-by-step guide for teaching all learners*. Brookes Publishing. https://brookespublishing.com/wp-content/uploads/2021/06/whats-so-smart-about-smart-goals.pdf

Richardson, V. (Ed.). (1997). *Constructivist teacher education: Building new understandings*. Psychology Press. https://doi.org/10.4324/9780203973684

Robinson, O. P., Bridges, S. A., Rollins, L. H., & Schumacker, R. E. (2019). A study of the relation between special education burnout and job satisfaction. *Journal of Research in Special Educational Needs*, *19*(4), 295-303. https://doi.org/10.1111/1471-3802.12448

Rock, D. (2010). Your brain at work: Strategies for overcoming distraction, regaining focus, and working smarter all day long. *Journal of Behavioral Optometry*, *21*(5), 130. https://doi.org/10.1177/2631454118802479

Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American economic review*, *94*(2), 247-252. https://doi.org/10.1257/0002828041302244

Rose, D. H., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. https://eric.ed.gov/?id=ED466086

Ryan, S. M. (2014). An inclusive rural post secondary education program for students with intellectual disabilities. *Rural Special Education Quarterly*, *33*(2), 18-28. https://doi.org/10.1177/875687051403300204

Saleh, A., & Bista, K. (2017). Examining factors impacting online survey response rates in educational research: Perceptions of graduate students. *Online Submission*, *13*(2), 63-74. https://files.eric.ed.gov/fulltext/ED596616.pdf

Sanders, W. L., & Rivers, J. C. (1996). *Cumulative and residual effects of teachers on future student academic achievement.* https://www.beteronderwijsnederland.nl/files/cumulative%20and%20residual%20effects%20of%20teachers.pdf

Sanders, W. L., Wright, S. P., & Horn, S. P. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of personnel evaluation in education*, *11*(1), 57-67. https://doi.org/10.1023/a:1007999204543

Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of cross-cultural psychology*, *33*(5), 464-481. https://doi.org/10.1177/0022022102033005003

Schelly, C. L., Davies, P. L., & Spooner, C. L. (2011). Student perceptions of faculty implementation of Universal Design for Learning. *Journal of postsecondary education and disability*, *24*(1), 17-30. https://doi.org/10.36021/jethe.v2i1.17

Scott, L., Bruno, L., Gokita, T., & Thoma, C. A. (2019). Teacher candidates' abilities to develop universal design for learning and universal design for transition lesson plans. *International Journal of Inclusive Education*, 1-15. https://doi.org/10.1080/13603116.2019.1651910

Scott, L. A., Temple, P., & Marshall, D. (2015). UDL in online college coursework: Insights of infusion and educator preparedness. *Online Learning*, *19*(5), 99-119. https://doi.org/10.24059/olj.v19i5.623

Scott, L. A., Thoma, C. A., Puglia, L., Temple, P., & D'Aguilar, A. (2017). Implementing a UDL framework: A study of current personnel preparation practices. *Intellectual and developmental disabilities*, *55*(1), 25-36. https://doi.org/10.1352/1934-9556-55.1.25

Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, *55*(3), 805-826. https://doi.org/10.1007/s11135-020-01028-z

Smith, F. G. (2012). Analyzing a college course that adheres to the Universal Design for Learning (UDL) framework. *Journal of the Scholarship of Teaching and Learning*, *12*(3), 31-61. https://scholarworks.iu.edu/journals/index.php/josotl/article/download/2151/2058

Smith, T. E., Polloway, E. A., Patton, J. R., Dowdy, C. A., & Doughty, T. T. (2014). *Teaching students with special needs in inclusive settings* (Vol. 6). Upper Saddle River, NJ: Pearson. http://www.pearsoncanada.ca/media/highered-showcase/multi-product-showcase/smith-preface.pdf

Söder, M. (1989). Disability as a social construct: the labelling approach revisited. *European Journal of Special Needs Education*, *4*(2), 117-129. https://doi.org/10.1080/0885625890040204

Spooner, F., Baker, J. N., Harris, A. A., Ahlgrim-Delzell, L., & Browder, D. M. (2007). Effects of training in universal design for learning on lesson plan development. *Remedial and special education*, *28*(2), 108-116. https://doi.org/10.1177/07419325070280020101

Stainback, W., & Stainback, S. (1984). A rationale for the merger of special and regular education. *Exceptional children*, *51*(2), 102-111. https://doi.org/10.1177/001440298405100201

Stronge, J. H. (2018). *Qualities of effective teachers*. ASCD. https://www.hunter.cuny.edu/shp/centers/nycnect/greenteam/docs/qualities_of_effective_teachers.pdf

The Access Project. *Module: Udl: A concise Introduction (page 5 of 7)*. Access to Postsecondary Education through Universal Design for Learning. (2011). http://accessproject.colostate.edu/udl/modules/udl_introduction/mod_udl_concise_intro.php?display=pg_5

Thoma, C. A., Bartholomew, C. C., & Scott, L. A. (2009). *Universal design for transition: A roadmap for planning and instruction*. Brookes Pub. https://doi.org/10.1007/s10803-009-0838-9

Tomlinson, C. A. (2000). Differentiation of Instruction in the Elementary Grades. ERIC Digest. https://files.eric.ed.gov/fulltext/ED443572.pdf

Tomlinson, C. A. (2017). *How to differentiate instruction in academically diverse classrooms*. ASCD. https://books.google.com/books?hl=en&lr=&id=zoh2DgAAQBAJ&oi=fnd&pg=PP4&dq=Tomlinson,+C.+A.+(2017).+How+to+differentiate+instruction+in+academically+diverse+classrooms.+ASCD.&ots=59D_zSgJ3c&sig=lqfN8vwqHbSq6-ywWbn_BcCJ4ok

Tucker, B. P. (1992). The Americans with disabilities act of 1990: an overview. *NML Rev.*, *22*, 13. https://heinonline.org/hol-cgi-bin/get_pdf.cgi?handle=hein.journals/nmlr22&section=9&casa_token=9ODOWyw8EXoAAAAA:3PEb93qQWCPECmoeK6jzwgCK0q_tLFugXWfDYzcdmQcnABzVNfpGwEH5BoUvJTbTur1_fqVr

Unluol Unal, N., Karal, M. A., & Tan, S. (2020). Developing Accessible Lesson Plans with Universal Design for Learning (UDL). *International Journal of Disability, Development and Education*, 1-15. https://doi.org/10.1080/1034912x.2020.1812539

USDOE & Office of Postsecondary Education. (2017). Techer shortage areas nationwide listing 1990-1991 through 2017-2018. https://www2.ed.gov/about/offices/list/ope/pol/bteachershortageareasreport201718.pdf

Vygotsky, L. S. (1997). *The collected works of LS Vygotsky: Problems of the theory and history of psychology* (Vol. 3). Springer Science & Business Media. https://books.google.com/books?hl=en&lr=&id=ZzjZMml-9ZgC&oi=fnd&pg=PA1&dq=Vygotsky,+L.+S.+(1997).+The+collected+works+of+LS+

Vygotsky:+Problems+of+the+theory+and+history+of+psychology+(Vol.+3).+Springer+
Science+%26+Business+Media.&ots=-
CNK3wjYRH&sig=GYAD9eeJ__9hJBzfud53fQZhAww#v=onepage&q=Vygotsky%2C
%20L.%20S.%20(1997).%20The%20collected%20works%20of%20LS%20Vygotsky%3
A%20Problems%20of%20the%20theory%20and%20history%20of%20psychology%20(
Vol.%203).%20Springer%20Science%20%26%20Business%20Media.&f=false

Virginia Department of Education, (2019). *Preparing Every Student For What Comes Next :*
Virginia is for Learners. https://www.virginiaisforlearners.virginia.gov/preparing-every-
student-for-what-comes-next/

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of
online survey research, online questionnaire authoring software packages, and web
survey services. *Journal of computer-mediated communication*, *10*(3).
https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

Yoon, K. S., Duncan, T., Lee, S. W. Y., Scarloss, B., & Shapley, K. L. (2007). Reviewing the
evidence on how teacher professional development affects student achievement.
https://files.eric.ed.gov/fulltext/ED498548.pdf

Zmeyov, S. I. (1998). Andragogy: Origins, developments and trends. *International Review of*
Education/Internationale Zeitschrift fuer Erziehungswissenschaft/Revue Internationale
de l'Education, *44*(1), 103-108.
https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/content/pdf
/10.1023/A:1003107931006.pdf&casa_token=GqS3HmKf3zIAAAAA:cstS9eQ7q-
dbbrXX-
atAgQC1zYzwWJsvFfCHVdiKopj2xTWRdPfCtm75MHAsnLOoQu0262KHwjSzyV3-

SEDP Coursework Instructor Survey

This survey asks questions in regards to Special Education (SEDP) courses that were taught at VCU in the Fall 2020-Summer 2021 academic year. We are asking for information regarding the courses you specifically taught and the application of the principles of UDL.

* Required

1. What was your role in the Fall 2020-Summer 2021 academic year?

   Mark only one oval.

   ◯ Faculty with VCU

   ◯ Adjunct Faculty with VCU

   ◯ Teaching Assistant with VCU

   ◯ Other: _____

2. To what extent are you knowledgeable with the three principles of Universal Design for Learning (UDL)?

   Mark only one oval.

   ◯ Not at all knowledgeable

   ◯ Somewhat knowledgeable

   ◯ Knowledgeable

   ◯ Very knowledgeable

3.   Which course(s) did you teach during the Fall 2020-Summer 2021 academic year   *
      for VCU? Please select all that apply.

Check all that apply.

☐ SEDP 610 Fall 2020

☐ SEDP 600 Language/Communication Intervention for Young Children and Individuals with Severe Disabilities Fall 2020

☐ SEDP 533 Assessment of Individuals with Disabilities Fall 2020

☐ SEDP 700: EXTERNSHIP (2 CR.) Fall 2020

☐ SEDP 700: EXTERNSHIP (6 C.R.) Fall 2020

☐ SEDP 200: Characteristics of Individuals w/Disabilities Fall 2020

☐ SEDP 658 Educating Students with Severe Disabilities Fall 2020

☐ SEDP 561 Characteristics of Students with Severe Disabilities Fall 2020

☐ SEDP 330: Survey of Special Education Fall 2020

☐ SEDP 501: CHARACTERISTICS OF INDIVIDUALS WITH DISABILITY Fall 2020

☐ SEDP 631: Behavior Support of Individuals with Disabilities Fall 2020

☐ SEDP 641 Independent Study Fall 2020

☐ SEDP 651: Special Topics—Research in Action in Early Intervention Fall 2020

☐ SEDP 655 Practicum A for Special Education in an Elementary General Education Environment (1 cr.) Fall 2020

☐ SEDP 655 Practicum B for Special Education in a Secondary General Education Environment Fall 2020

☐ SEDP 705 Spring 2021

☐ SEDP 651 Spring 2021

☐ SEDP 709: Literature Reviews in Special Education and Other Social Sciences Spring 2021

☐ SEDP 533 Assessment of Individuals with Disabilities Spring 2021

☐ SEDP 561 Characteristics of Students with Severe Disabilities Spring 2021

☐ SEDP 600 Language/Communication Intervention for Young Children and Individuals with Severe Disabilities Spring 2021

☐ SEDP 658 Educating Students with Severe Disabilities Spring 2021

☐ SEDP 603: Theories, Assessment and Practices in Literacy Development for Individuals with Exceptionalities Spring 2021

☐ SEDP 330: Survey of Special Education Spring 2021

☐ SEDP 330: Survey of Special Education Spring 2021

☐ SEDP 501 Characteristics of Students with Disabilities Spring 2021

☐ SEDP 533: Assessment of Individuals with Disabilities Spring 2021

☐ SEDP 631: Behavior Support of Individuals with Disabilities Spring 2021

☐ SEDP 533 ASSESSMENT OF INDIVIDUALS WITH DISABILITIES Spring 2021

☐ SEDP 772 Doctoral Teaching Internship Spring 2021

☐ SEDP 533 Assessment of Individuals with Disabilities Spring 2021

☐ SEDP 630: TRENDS IN SPECIAL EDUCATION Spring 2021

☐ SEDP 651: Special Topics—Research in Action in Early Intervention/Early Childhood Special Education Spring 2021

☐ RTR SEDP 651: Issues in Urban Education Spring 2021

☐ SEDP 700: EXTERNSHIP Spring 2021

☐ SEDP 700: EXTERNSHIP (2 CR.) Spring 2021

☐ SEDP 700: EXTERNSHIP (4 CR.) Spring 2021

☐ SEDP 700-001 Externship Spring 2021

☐ "SEDP 651: Special Topics—Seminar for School Counselors as Related Services " Spring 2021

☐ SEDP 610: Teaching Strategies for Students with Severe Disabilities Spring 2021

☐ SEDP 501: Characteristics of Individuals with Disabilities Summer 2021

☐ SEDP 503 Supervision Seminar II Summer 2021

☐ SEDP 505-C02: Theory & Practice of Educating Individuals with Special Needs Summer 2021

☐ SEDP 533 ASSESSMENT OF INDIVIDUALS WITH DISABILITIES Summer 2021

☐ SEDP 601: METHODS I – TEACHING STUDENTS IN SPECIAL EDUCATION AND GENERAL EDUCATION Summer 2021

☐ SEDP 603: Theories, Assessments, and Practices in Literacy Development for Individuals with Exceptionalities Summer 2021

☐ SEDP 401. Assessment in Diverse Settings Summer 2021

☐ SEDP 611: Secondary Education and Transition Planning Summer 2021

☐ SEDP 632: Secondary Programming for Students with Disabilities Summer 2021

☐ Other: _____

| Designing Coursework | The following questions are about coursework that you designed and utilized in the courses you taught in the Fall 2020-Summer 2021 academic year for VCU. |

4.   Providing Flexible Models/Supports

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost Always
How often did you provide an example or model of an assignment?	⬭	⬭	⬭	⬭	⬭
How often did you provide an assignment rubric or template?	⬭	⬭	⬭	⬭	⬭
How often did you engage students with an interactive activity?	⬭	⬭	⬭	⬭	⬭
How often did you provide materials to read alongside guided questions?	⬭	⬭	⬭	⬭	⬭
How often were you available to students for feedback on assignments/tasks?	⬭	⬭	⬭	⬭	⬭
How often did you give constructive feedback to your students?	⬭	⬭	⬭	⬭	⬭

5.   Providing Flexible Opportunities

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost Always
How often did you allow students to create an assignment that included images or video?	○	○	○	○	○
How often did you suggest/allow the use of a spell checker to check written work?	○	○	○	○	○
How often did you promote the use of a word processor or other digital writing tool to create an assignment?	○	○	○	○	○
How often did you promote the use of a graphic organizer to plan an assignment?	○	○	○	○	○
How often did you create a web-based or other digital product for an assignment?	○	○	○	○	○
How often did you suggest/allow the use of internet hyperlinks in an assignment?	○	○	○	○	○
How often did you suggest/allow students to maintain a digital collection or	○	○	○	○	○

portfolio of products created in your courses?

How often did you suggest/allow the use a speech-to-text app to create a written assignment?	◯	◯	◯	◯	◯

6. Providing Multiple Examples

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost Always
How often did you provide an online lecture on course topics?	◯	◯	◯	◯	◯
How often did you provide a recorded lecture on course topics?	◯	◯	◯	◯	◯
How often did you provide any other type of audio recording related to course topics?	◯	◯	◯	◯	◯
How often did you provide a video recording related to the course topics?	◯	◯	◯	◯	◯

7. Highlighted Critical Features/Provided Multiple media

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost Always
How often did you provide lecture notes that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often did you provide notes with color-coding or highlights of key points?	⬭	⬭	⬭	⬭	⬭
How often did you promote the use of a graphic organizer that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often did you provide handouts that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often did you provide access to digital course materials?	⬭	⬭	⬭	⬭	⬭
How often did you promote text-to-speech software to listen to course materials?	⬭	⬭	⬭	⬭	⬭

8. Offering choices

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost Always
How often did you provide links to a resource OUTSIDE of the course website to learn more about a topic in the course?	◯	◯	◯	◯	◯
How often did you allow students to select their own topic when completing an assignment?	◯	◯	◯	◯	◯
How often did you allow students to select their own materials when completing an assignment?	◯	◯	◯	◯	◯
How often did you allow students to work alone on an assignment, versus working with a partner/group?	◯	◯	◯	◯	◯
How often did you deliver feedback on an assignment?	◯	◯	◯	◯	◯

9. Think back to the course goals and objectives from the course(s) you instructed. How well do you think your students as a whole achieved the course goals/objectives?

    Mark only one oval.

    ( ) Not at all

    ( ) Minimal achievement

    ( ) Partial achievement

    ( ) Complete achievement

SEDP Coursework Survey

This survey has been sent to you because it was indicated that you participated in an SEDP course in either the Fall of 2020, Spring of 2021, and/or Summer of 2021. We would like to better understand your experience in these courses. It should take between 20-30 minutes to complete this survey, and you may save it to complete it later. Please answer to the best of your recollection.

* Required

Basic Demographics

1. Please indicate your race

Mark only one oval.

- ⬭ African-American or Black
- ⬭ Hispanic
- ⬭ Caucasian
- ⬭ Asian
- ⬭ Native American/Inuit
- ⬭ Pacific Islander
- ⬭ Other: _____

2. Please indicate your gender

Check all that apply.

- ☐ Female
- ☐ Male
- ☐ Non-binary They/Them
- ☐ Prefer not to say
- ☐ Other: _____

3. Upon completion of this survey, would you like to be entered into a drawing for a $25 Amazon gift card? If yes, please leave a working email address. If no, please leave blank.

_____

4. What program were you enrolled in from the Fall of 2020-Summer 2021? *

    Mark only one oval.

    ⬭ Bachelors in Special Education

    ⬭ Masters in Special Education

    ⬭ Doctorate in Special Education

    ⬭ Other: _____

Strategic Learning Network	The following questions are about classes you took in the program as a whole, and not just a single class. Please be as honest as possible when answering the following questions.

5.   Providing Flexible Models/Supports

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost always
How often were you provided with an example or model of an assignment?	○	○	○	○	○
How often were you provided with an assignment rubric or template?	○	○	○	○	○
How often were you engaged in an interactive activity?	○	○	○	○	○
How often were you provided materials to read text alongside guided questions?	○	○	○	○	○
How often were the instructors available to you for feedback on assignments/tasks?	○	○	○	○	○
How often did you receive constructive feedback from your instructors?	○	○	○	○	○

Strategic Learning Network, Continued	The following questions are about classes you took in the program as a whole, and not just a single class. Please be as honest as possible when answering the following questions.

6.   Providing Flexible Opportunities

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost always
The instructor allowed you to create an assignment that included images or video	◯	◯	◯	◯	◯
The instructor suggested/allowed the use of a spell checker to check written work.	◯	◯	◯	◯	◯
How often did you use a word processor or other digital writing tool to create an assignment?	◯	◯	◯	◯	◯
How often did you use a graphic organizer to plan an assignment?	◯	◯	◯	◯	◯
How often did you create a web-based or other other digital product for an assignment?	◯	◯	◯	◯	◯
The instructor suggested/allowed the use of internet hyperlinks in an assignment.	◯	◯	◯	◯	◯
How often did you maintain a digital collection or portfolio of products	◯	◯	◯	◯	◯

created in your courses?

How often did you use a speech-to-text app to create a written assignment? ◯ ◯ ◯ ◯ ◯

Recognition Learning Network

The following questions are about classes you took in the program as a whole, and not just a single class. Please be as honest as possible when answering the following questions.

7. Providing Multiple Examples

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost always
How often were you provided with an online lecture on course topics?	◯	◯	◯	◯	◯
How often were you provided with a recorded lecture on course topics?	◯	◯	◯	◯	◯
How often were you provided any other type of audio recording related to course topics?	◯	◯	◯	◯	◯
How often did you watch a video recording related to the course topics?	◯	◯	◯	◯	◯

Recognition Learning Networks, continued

8.   Highlighted Critical Features/Provided Multiple media

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost always
How often were you provided with lecture notes that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often were you provided notes with color-coding or highlights of key points?	⬭	⬭	⬭	⬭	⬭
How often did you use a graphic organizer that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often did you use handouts that summarized topics?	⬭	⬭	⬭	⬭	⬭
How often did you access digital course materials?	⬭	⬭	⬭	⬭	⬭
How often did you use text-to-speech software to listen to course materials?	⬭	⬭	⬭	⬭	⬭

Affective Learning Networks

The following questions are about classes you took in the program as a whole, and not just a single class. Please be as honest as possible when answering the following questions.

9. Offering choices

Mark only one oval per row.

	Never	Infrequently	Sometimes	Frequently	Almost always
How often did you visit a website OUTSIDE of the course website to learn more about a topic in the course?	⬭	⬭	⬭	⬭	⬭
How often did you select your own topic when completing an assignment?	⬭	⬭	⬭	⬭	⬭
How often did you select your own materials when completing an assignment?	⬭	⬭	⬭	⬭	⬭
How often did you decide to work alone on an assignment, versus working with a partner?	⬭	⬭	⬭	⬭	⬭
How often did you decide to work with a partner or group, versus working alone?	⬭	⬭	⬭	⬭	⬭
How often did you receive feedback on an assignment?	⬭	⬭	⬭	⬭	⬭

Skip to question 10

Course Participation

10.   Which semester(s) did you participate in?

Mark only one oval.

⬭ Fall 2020   *Skip to question 11*

⬭ Spring 2021   *Skip to question 12*

⬭ Summer 2021   *Skip to question 13*

⬭ I did not participate in any courses from Fall 2020-Summer 2021

⬭ I have finished discussing courses I participated in

Fall 2020

Please select a course you took from the dropdown menu.

11.   Which course(s) did you participate in?

Mark only one oval.

⬭ SEDP 200: Characteristics of Individuals w/Disabilities   *Skip to question 14*

⬭ SEDP 330: Survey of Special Education   *Skip to question 17*

⬭ SEDP 501: CHARACTERISTICS OF INDIVIDUALS WITH DISABILITY
     Skip to question 20

⬭ SEDP 533: Assessment of Individuals with Disabilities   *Skip to question 23*

⬭ SEDP 561: Characteristics of Students with Severe Disabilities
     Skip to question 26

⬭ SEDP 600: Language/Communication Intervention for Young Children and
     Individuals with Severe Disabilities   *Skip to question 29*

⬭ SEDP 610: Teaching Strategies for Students with Severe Disabilities
     Skip to question 32

⬭ SEDP 631: Behavior Support of Individuals with Disabilities   *Skip to question 35*

⬭ SEDP 641: Independent Study   *Skip to question 38*

⬭ SEDP 651: Special Topics—Research in Action in Early Intervention
     Skip to question 41

⬭ SEDP 655: Practicum A for Special Education in an Elementary General Education
     Environment (1 cr.)   *Skip to question 44*

⬭ SEDP 655: Practicum B for Special Education in a Secondary General Education
     Environment   *Skip to question 47*

⬭ SEDP 658: Educating Students with Severe Disabilities   *Skip to question 50*

⬭ SEDP 700: EXTERNSHIP (2 CR.)   *Skip to question 53*

⬭ SEDP 700: EXTERNSHIP (6 C.R.)   *Skip to question 56*

⬭ I took a course not listed   *Skip to question 59*

⬭ I took more courses in Spring 2021 and/or Summer 2021   *Skip to question 10*

⬭ I have finished discussing courses I participated in

Spring 2021   Please select a course you took from the dropdown menu.

12.   Which course(s) did you participate in?

Mark only one oval.

⬭ SEDP 330: Survey of Special Education- Dr. Scott   *Skip to question 63*

⬭ SEDP 330 Survey of Special Education Dr deArment   *Skip to question 66*

⬭ SEDP 501 Characteristics of Students with Disabilities   *Skip to question 69*

⬭ SEDP 533 Assessment of Individuals with Disabilities   *Skip to question 72*

⬭ SEDP 533 ASSESSMENT OF INDIVIDUALS WITH DISABILITIES
Skip to question 75

⬭ SEDP 533 Assessment of Individuals with Disabilities   *Skip to question 78*

⬭ SEDP 533: Assessment of Individuals with Disabilities   *Skip to question 81*

⬭ SEDP 561 Characteristics of Students with Severe Disabilities
Skip to question 84

⬭ SEDP 600 Language/Communication Intervention for Young Children and
Individuals with Severe Disabilities   *Skip to question 87*

⬭ SEDP 603: Theories, Assessment and Practices in Literacy Development for
Individuals with Exceptionalities   *Skip to question 90*

⬭ SEDP 610: Teaching Strategies for Students with Severe Disabilities
Skip to question 93

⬭ SEDP 630: TRENDS IN SPECIAL EDUCATION   *Skip to question 96*

⬭ SEDP 631: Behavior Support of Individuals with Disabilities   *Skip to question 99*

⬭ RTR SEDP 651: Issues in Urban Education   *Skip to question 132*

⬭ SEDP 651: Special Topics—Seminar for School Counselors as Related Services "
Skip to question 102

⬭ SEDP 651: Special Topics—Research in Action in Early Intervention/Early Childhood
Special Education   *Skip to question 105*

⬭ SEDP 658: Educating Students with Severe Disabilities   *Skip to question 108*

⬭ SEDP 700-001: Externship   *Skip to question 111*

⬭ SEDP 700: EXTERNSHIP (2 CR.)   *Skip to question 114*

⬭ SEDP 700: EXTERNSHIP (4 CR.)   *Skip to question 117*

⬭ SEDP 700: EXTERNSHIP   *Skip to question 120*

⬭ SEDP 705: Seminar on Disability Policy   *Skip to question 123*

⬭ SEDP 709: Literature Reviews in Special Education and Other Social Sciences
Skip to question 126

⬭ SEDP 772 Doctoral Teaching Internship   *Skip to question 129*

◯ I took a course not listed   *Skip to question 135*

◯ I took more courses in Fall 2020 and/or Summer 2021   *Skip to question 10*

◯ I have finished discussing courses I participated in

Summer 2021   Please select a course you took from the dropdown menu.

13.   Which course(s) did you participate in?

Mark only one oval.

◯ SEDP 401. Assessment in Diverse Settings   *Skip to question 139*

◯ SEDP 503: Supervision Seminar II   *Skip to question 142*

◯ SEDP 505-C02: Theory & Practice of Educating Individuals with Special Needs
Skip to question 145

◯ SEDP 533: ASSESSMENT OF INDIVIDUALS WITH DISABILITIES
Skip to question 148

◯ SEDP 601: METHODS I – TEACHING STUDENTS IN SPECIAL EDUCATION AND
GENERAL EDUCATION   *Skip to question 151*

◯ SEDP 603: Theories, Assessments, and Practices in Literacy Development for
Individuals with Exceptionalities   *Skip to question 154*

◯ SEDP 611: Secondary Education and Transition Planning   *Skip to question 157*

◯ SEDP 632: Secondary Programming for Students with Disabilities
Skip to question 160

◯ I took a course not listed   *Skip to question 163*

◯ I took more courses in Fall 2020 and/or Spring 2021   *Skip to question 10*

◯ I have finished discussing courses I participated in

SEDP 200:
Characteristics
of Individuals
w/Disabilities
Fall 2020

Description of course goals/objectives:

By the end of the course students will be able to:
1.   Describe the evolution of Special Education in the areas of intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury through historical, psychological, medical and educational perspectives.
2.   Identify the characteristics of individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments and traumatic brain injury, to be able to respond to their varying abilities and behaviors. Describe age-span/developmental issues, levels of severity, cognitive functioning, language development, emotional and behavioral adjustment, social development, medical aspects, and cultural/ethnic and socioeconomic factors.
3.   Demonstrate respect for individuals with disabilities as unique human beings through their use of person-first language.
4.   Identify the effects that intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury can have on an individual's learning in school requiring adaptations to the general curriculum and throughout life
5.   Demonstrate the use of best practices to create learning environments for individuals with disabilities that foster safety and emotional wellbeing, positive social interactions, and active engagement.
6.   Explain the relationship of one diagnostic category to other categories of exceptionality in the case of co-morbid or multiple conditions.
7.   Describe the process of identification of high incidence disabilities and the determination of educational placement decisions within the individualized education planning process in the field of special education as it relates to intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.
8.   Identify state and federal legislation and regulations affecting the delivery of services for students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.
9.   Recognize the psycho-social problems of students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.
10.   Explain life adjustment issues for individuals with intellectual disabilities, learning disabilities, emotional

disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

11.   Explore the research base in the field of disabilities that will foster critical reflection consistent with best practices in working with children, adolescents and adults with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

12.   Interview an adult with a high incidence disability about their experience as a past recipient of special education services.

13.   Describe culturally responsive practices and how they can be used within special education.

14.   Identify broad strategies that are used within special education to provide access to the general education curriculum.

14.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial Achievement

⬭ Complete Achievement

15.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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16.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Course Goals/Objectives:

"1.   Know the evolution of special education in the areas of intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury through historical, psychological, medical and educational perspectives.
2.   Know the characteristics of individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments and traumatic brain injury, to be able to respond to their varying abilities and behaviors. Understand age-span/developmental issues, levels of severity, cognitive functioning, language development, emotional and behavioral adjustment, social development, medical aspects, and cultural/ethnic and socioeconomic factors.
3.   Demonstrate respect for individuals with disabilities as unique human beings through use of person-first language.
4.   Understand the effects that intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury can have on an individual's learning in school requiring adaptations to the general curriculum and throughout life.
5.   Demonstrate the use of best practices to create learning environments for individuals with disabilities that foster safety and emotional well being, positive social interactions, and active engagement.
6.   Understand the relationship of one diagnostic category to other categories of exceptionality in the case of co-occurring or multiple conditions.
7.   Become acquainted with the terminology, labels, and placement used in the field of special education as they relate to intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.
8.   Know state and federal legislation and regulations affecting the delivery of services for students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.
9.   Become familiar with the psycho-social problems of students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.
10. Know life adjustment issues for individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.
11. Gain understanding from the research base in the field of disabilities that will foster critical reflection consistent with best

SEDP 330: Survey of Special Education Fall 2020

practices in working with children, adolescents and adults with
intellectual disabilities, learning disabilities, emotional disturbance,
autism spectrum disorders, other health impairments, and traumatic
brain injury."

17.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

18.   How are you currently using the lessons learned from these course goals in your
current professional or pre-professional environments? Please describe briefly.

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19.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

Description of Course Goals/Objectives:

"Goals:
1.   Human growth and development (birth through adolescence). Skills in this area shall contribute to an understanding of the physical, social, emotional, speech and language, and intellectual development of children and the ability to use this understanding in guiding learning experiences. The interaction of children with individual differences -- economic, social, racial, ethnic, religious, physical, and mental -- should be incorporated to include skills contributing to an understanding of developmental disabilities and developmental issues related to but not limited to attention deficit disorders, substance abuse, child abuse, and family disruptions.
2.   An understanding and application of service delivery, curriculum, and instruction of students with disabilities including: -Use of technology to promote student learning; and -Structure and organization of general education classrooms and other instructional settings, representing the continuum of special education services.
3.   Knowledge and understanding of the characteristics, learning and support needs of K-12 students with disabilities whose cognitive impairments or adapted skills require adaptations to the general curriculum. This includes intellectual disabilities, developmental delay, autism, multiple disabilities, traumatic brain injury and the emotional, social, neurobiological, linguistic, medical, and educational aspects of severe disabilities based upon current research, best practice and legal considerations;
4.   Child abuse recognition and prevention, and issues and strategies unique to working with students with disabilities."

SEDP 501: CHARACTERISTICS OF INDIVIDUALS WITH DISABILITY FALL 2020

20.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

21. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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22. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Course Goals/Objectives:

"1. Locate, read and interpret important assessment reports and IEP documents that comprise a student's cumulative and confidential files, and explain their role in shaping a student's educational history and decision-making regarding the IEP including the eligibility label or labels the student receives servicers under, special education services, related services, the decision to be assessed in the adapted curriculum rather than general curriculum, and placements.

2. Effectively use essential components of the assessment process – record review, interview, observation and systematic structured interactions – to gather information and describe in detail a student's present level of functional and academic performance.

3. Effectively use essential components of the assessment process – record review, interview, observation and systematic structured interactions – to gather information and determine starting points for instruction in reading, writing, mathematics, social studies and science.

4. Create and evaluate a high-impact, meaningful goal for a target student that enables academic learning, addresses other functional and academic needs, enhances communication competence, and which reflects the students chronological age, and the concerns and priorities expressed by family members.

5. Identify needs for assessment and curriculum development of learners who have dual exceptionalities such as being gifted or ELL and having a moderate/severe disability."

SEDP 533 Assessment of Individuals with Disabilities FALL 2020

23. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

24. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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25. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Course Goals/Objectives:

"The following Virginia Department of Education competencies will be addressed by this course as they relate to students with severe disabilities (Special Education Adapted Curriculum K-12):

1.   Human growth and development (birth through adolescence). Skills in this area shall contribute to an understanding of the physical, social, emotional, speech and language, and intellectual development of children and the ability to use this understanding in guiding learning experiences. The interaction of children with individual differences -- economic, social, racial, ethnic, religious, physical, and mental -- should be incorpo-rated to include skills contributing to an understanding of developmental disabilities and developmental issues related to but not limited to attention deficit disorders, sub-stance abuse, child abuse, and family disruptions.

2.   An understanding and application of service delivery, curriculum, and instruction of students with disabilities including: -Use of technology to promote student learning; and -Structure and organization of general education classrooms and other instructional settings, representing the continuum of special education services.

3.   Knowledge and understanding of the characteristics, learning and support needs of K-12 students with disabilities whose cognitive impairments or adapted skills require adapta-tions to the general curriculum. This includes intellectual disabilities, developmental delay, autism, multiple disabilities, traumatic brain injury and the emotional, social, neurobiological, linguistic, medical, and educational aspects of severe disabilities based upon current research, best practice and legal considerations;

4.   Child abuse recognition and prevention, and issues and strategies unique to working with students with disabilities."

SEDP 561 Characteristics of Students with Severe Disabilities FALL 2020

26.   How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

27. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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28. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 600
Language/Communication
Intervention for Young
Children and Individuals
with Severe Disabilities
FALL 2020

Description of Course Goals/Objectives:

"Upon completion of this course, teacher candidates/students will be able to:
1.   Identify characteristics of non-symbolic and symbolic communication
2.   Describe and discuss methods for assessment, identification of priorities, and monitoring progress of individuals with communication impairments.
3.   Discuss and evaluate the range of augmentative and alternative communication devices and systems/assistive technology available for individuals with severe disabilities.
4.   Implement assessment strategies to improve students' social interaction with peers and others.
5.   Implement communication/AAC/AT assessment strategies to develop and implement individual educational planning and group instruction with students with disabilities in an adapted curriculum across the K-12 grade levels.
6.   Understand and identify behaviors associated with communication.
7.   Describe language development and emergent literacy skills for students who use augmentative and alternative communication devices and systems/assistive technology.
8.   Identify and implement strategies and activities that foster an appreciation of a variety of literature and independent reading for students who use augmentative and alternative communication devices and systems/assistive technology.
9.   Demonstrate knowledge of best practices and strategies in reading instruction for students with severe disabilities for students who use augmentative and alternative communication devices and systems/assistive technology."

29. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

30. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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31. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

SEDP
610:
Teaching
Strategies
for
Students
with
Severe
Disabilities
FALL
2020

Description of Course Goals/Objectives :
" Upon completion of this course, teacher candidates/students will be able to:

1.   Write IEPs so they define individualized sequences of measurable objectives for teaching needed functional skills that link to standards of learning general curriculum and begin with present level of performance and end with goal performance.

2.   Construct, use, and interpret nonstandard, informal skill assessment (such as task analysis and observation) to identify appropriate objectives, evaluate student performance during baseline and intervention, and make improvements in instruction for students with disabilities in an adapted curriculum across the K-12 levels.

3.   Assess target skills before (baseline probes) and during (instructional probes) instruction using direct observation or assessment of permanent products.

4.   Create dated graphs of student performance data using Excel; draw aim and trend lines using Excel.

5.   Use "raw" and graphed student performance data (along with aim and trend lines and problem analysis) to evaluate the effects of instruction and make data-based decisions for improving student performance.

6.   Embed instruction on targeted IEP objectives into functional daily routines and activities.

7.   Plan, implement, and evaluate instructional programs that use effective antecedent teaching strategies (e.g., observational learning, milieu approach, system of least intrusive prompts, simultaneous prompting, time delay, graduated guidance, picture assists, audio/video-modeling, backward and whole task chaining) and consequent strategies (e.g., shaping, error correction, consequential strategies, and interspersed review).

8.   Write and implement an instructional plan that specifies a sequence of instructional objectives leading to a goal, uses a task analysis (for multiple step skills) or a skill sequence (for discrete skills), incorporates antecedent and consequence teaching strategies aimed at a specific stage of learning, and specifies a plan for collecting and analyzing student performance data on an ongoing basis.

9.   Understand general education teaching practices that promote inclusion of students with severe disabilities in the general education curriculum and support them in the least restrictive environment (e.g., curriculum and instructional adaptation, group instruction, self-management, schedule following, cooperative learning, peer tutoring). Understand when and how to use small group instruction, peer tutoring, community-based instruction, simulated instruction, video-modeling instruction, and instruction involving both typical students and students with disabilities.

10.   Apply a model to plan with general educators any adaptations and modifications that are needed in the general education curriculum

and class activities in order to meet the instructional needs of students with severe disabilities.

11.	Train paraprofessional support staff to use appropriate teaching methods and supportive interaction styles with students to support students without encouraging dependency. Provide these staff members with supervision and feedback.

12.	Demonstrate proficiency in the use of educational technology for instruction.

13.	Apply course concepts to K-12 school settings through field-based learning experiences (e.g., field experiences in K-12 classrooms, field-based case studies, field-based virtual/online learning experiences, etc.)."

32.	How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

33.	How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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34.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 631:
Behavior
Support of
Individuals
with
Disabilities
FALL 2020

Description of Course Goals/Objectives:

"Objectives:
Each student will demonstrate the following competencies:
1. Understand theoretical contexts of behavioral approaches used in classroom management, behavioral assessment and instruction (e.g., applied behavior analysis, functional behavioral assessment and positive behavioral supports);
2. Become familiar with essential elements of effective classroom behavior management and developmentally appropriate methodologies for addressing challenging behavior of children and youth;
3. Demonstrate an understanding of primary/school-wide/universal, secondary/targeted, and tertiary/individualized systems and supports in applied settings;
4. Describe the procedures (systematic assessment, intervention, and evaluation techniques) to assess problem behavior using functional behavioral assessment methods;
5. Create an operational definition of a problem behavior.
6. Synthesize information from reviewed records, interviews, and observations to formulate a hypothesis of the function of challenging behavior;
7. Attain the ability to develop systematic individualized behavior plans for improving students' behavior performance;
8. Demonstrate knowledge of strategies to create supportive learning environments and apply behavioral strategies that prevent/reduce problem behavior and facilitate positive behavior;
9. Promote individual and group motivation for encouraging positive social interaction through appropriate use of stimulus control techniques, social skill training, active engagement in learning, and self management;
10. Demonstrate knowledge and an understanding of various school crisis management and safety plans and the ability to create a safe, orderly classroom environment;
11. Identify issues of diversity in learners which may affect the classroom environment;
12. Demonstrate knowledge of the ethical considerations in classroom behavior management, and teacher attitudes and behaviors that can positively or negatively influence student behavior "

35. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

36. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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37. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

SEDP 641 Independent Study FALL 2020	Description of Course Goals/Objectives: "1. To connect and negotiate M.Ed. program curricula with practice within the context of high need schools; 2. To promote understanding of issues in schools and communities that impact the inclusion of individuals with disabilities in society and the workforce and identifying individuals and agencies collaborating to support students; 3. To introduce community-serving agencies and/or non-profits as a means of knowing students, schools, and communities and to understand how these agencies/non-profits partner (or could partner) with schools/teachers to impact their communities, families, and students; 4. To promote residents' development as community-minded and critically reflective high-needs serving teaching professionals; and 5. To foster residents' development as antiracist teaching professionals. 6. BOTTOM LINE: To grow. "

38. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

39. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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40.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 651: Special
Topics—Research in
Action in Early
Intervention FALL
2020

Description of Course Goals/Objectives:

"Objectives
1.   Explore action research in theory and practice.
2.   Identify empirical research and evidence-based
practices.
3.   Conduct literature review and synthesize the
findings.
4.   Learn knowledge and skills in inclusive community-
based early intervention/early childhood special
education practices using the action research cycle.
5.   Learn techniques and skills for data collection and
analyses for child developmental and learning outcomes.
6.   Demonstrate competencies in linking assessment to
instruction/intervention for infants and young children
with disabilities.
7.   Develop collaborative teamwork skills working with
families and other professionals.
8.   Use principles of UDL across all aspects of the
course."

41.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

42.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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43.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 655
Practicum A for
Special
Education in
an Elementary
General
Education
Environment (1
cr.) Fall 2020

Description of Course Goals/Objectives:

"Course Objectives

Through observation and participation, as well as supervised
planning and implementation, the student will:
Communicate the relationship between learning and behavior
problems.
Demonstrate an understanding of classroom organization and
curriculum development that meets the varying needs of
students with higher incidence of disabilities.
Implement and evaluate individual interventions that teach and
maintain emotional, behavioral and social skills.
Identify research-supported instructional strategies and
practices for teaching students with high-incidence disabilities
including literacy strategies/reading and the complex nature of
numeracy acquisition and the sequential nature of mathematics.
Demonstrate knowledge of the structure and organization of
general education classrooms and other instructional settings in
which special education services are provided which promote
inclusion of students with disabilities.
Develop an individualized educational plan that emphasizes
access to the general education curriculum and integrates
assistive and instructional technology.
Learn alternative ways to teach content material including
curriculum adaptation and curriculum modifications that
promote successful integration of students with disabilities with
their non-disabled peers. Implement and monitor IEP specified
accommodations within the general education classroom."

44.   How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

45.   How are you currently using the lessons learned from these course goals in your
      current professional or pre-professional environments? Please describe briefly.

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46.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

      Mark only one oval.

      ( ) Yes   *Skip to question 10*

      ( ) No

**SEDP 655
Practicum B
for Special
Education in a
Secondary
General
Education
Environment
FALL 2020**

Description of Course Goals/Objectives:

"Course Objectives

Through observation and participation, as well as supervised planning and implementation, the student will:
Communicate the relationship between learning and behavior problems.
Demonstrate an understanding of classroom organization and curriculum development that meets the varying needs of students with higher incidence of disabilities.
Implement and evaluate individual interventions that teach and maintain emotional, behavioral and social skills.
Identify research-supported instructional strategies and practices for teaching students with high-incidence disabilities including literacy strategies/reading and the complex nature of numeracy acquisition and the sequential nature of mathematics.
Demonstrate knowledge of the structure and organization of general education classrooms and other instructional settings in which special education services are provided which promote inclusion of students with disabilities.
Develop an individualized educational plan that emphasizes access to the general education curriculum and integrates assistive and instructional technology.
Learn alternative ways to teach content material including curriculum adaptation and curriculum modifications that promote successful integration of students with disabilities with their non-disabled peers. Implement and monitor IEP specified accommodations within the general education classroom."

47.   How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

48. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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49. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Course Goals/Objectives:

"Upon completion of this course, teacher candidates/students will be able to:

1.   Describe typical physical development of children and apply this knowledge in guiding learning experiences.
2.   Have a basic understanding of the most common medical diagnoses associated with students with severe disabilities and the impact on their functioning in school and community settings.
3.   Understand the role muscle tone plays in the positioning and handling of students.
4.   Be familiar with common positioning equipment used in the classroom.
5.   Be able to identify the physical, sensory, and/or health/medical needs of students with severe disabilities and understand how these needs impact the educational program.
6.   Be familiar with common medical terms used in conjunction with a variety of medical diagnosis.
7.   Understand the roles and responsibilities of related and support staff working in a collaborative setting.
8.   Be able to write educationally relevant IEP goals and objectives that address self-care and/or self-management of student physical, sensory, and/or medical needs that also enhances academic success.
9.   Given an IEP, be able to develop lesson plans incorporating the goals and objectives, integrating positioning programs into the lessons.
10. Know where to go for help in the school system for related services, and how and when to initiate requests for assistance.
11. Know how to establish self-help, feeding, grooming, sensory, and toileting programs."

SEDP 658
Educating
Students with
Severe
Disabilities
FALL 2020

50.   How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

51. How are you currently using the lessons learned from these course goals in your
     current professional or pre-professional environments? Please describe briefly.

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52. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

     Mark only one oval.

     ( ) Yes   *Skip to question 10*

     ( ) No

SEDP 700: EXTERNSHIP (2 CR.) FALL 2020	Description of Course Goals/Objectives: "● Respect and work effectively with students of varying backgrounds and disabilities ● Assume the various responsibilities of the classroom teacher ● Plan instruction and learning experiences that recognize the individual needs and differences of students ● Organize and manage the classroom environment to maximize learning and to practice being a reflective teacher."

53. How well do you think you achieved the course goals in this course?

     Mark only one oval.

     ( ) Not at all

     ( ) Minimal achievement

     ( ) Partial achievement

     ( ) Complete achievement

54. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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55. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 700: EXTERNSHIP (6 C.R.) FALL 2020	Description of Course Goals/Objectives: "● Respect and work effectively with students of varying backgrounds and disabilities ● Assume the various responsibilities of the classroom teacher ● Plan instruction and learning experiences that recognize the individual needs and differences of students ● Organize and manage the classroom environment to maximize learning and to practice being a reflective teacher. "

56. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

57. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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58. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

FALL 2020 Course Not Listed

59. What Special Education (SEDP) course(s) did you participate in?

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60. To the best of your recollection, how well do you think you achieved the course goals in this/these course(s)?

Mark only one oval.

○ Not at all

○ Minimal Achievement

○ Partial Achievement

○ Complete Achievement

61. To the best of your recollection, how are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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62. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

Description of Course Goals/Objectives:

"A.   Goal: As outlined more specifically below, the overall goal of the course is to provide future teaching professionals with characteristics, prevalence, and etiology of the disabilities they will encounter in their classrooms along with evidence-based instructional strategies and supports for working with these students that represent culturally diverse populations, their families, the school, and community at-large. Candidates will gain information on professional organizations and other sources of supports students and their families may need to access throughout their lifespan.

1.   Knowledge of the foundation for educating students with disabilities, including:
a)   Historical perspectives, models, theories, philosophies, and trends that provide the basis for special education practice;
b)   Characteristics of children and youth with disabilities relative to age, varying levels of severity, and developmental differences manifested in cognitive, linguistic, physical, psychomotor, social, or emotional functioning;
c)   Typical patterns of development (i.e., physical, psychomotor, cognitive, linguistic, social, emotional development and their relationship to the various disabilities);
d)   Medical aspects of disabilities;
e)   The dynamic influence of the family system and cultural/environmental milieu and related issues pertinent to the education of students with disabilities;
f)   Educational implications of various disabilities; and
g)   Understanding of ethical issues and the practice of accepted standards of professional behavior.

2.   Understanding and application of the legal aspects, regulatory requirements, and expectations associated with identification, education, and evaluation of students with disabilities, including:
a)   Legislative and judicial mandates related to education and special education (e.g., the Individuals with Disabilities Education Act, §504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, the Every Student Succeeds Act, etc.);
b)   Current regulations governing special education (e.g., individualized education program (IEP) development; disciplinary practices, policies, and procedures; and alternative placements/programs in schools); and ""Rights and responsibilities"" of parents, students, teachers, and schools as they relate to individuals with disabilities and disability issues.

SEDP
330:

B.   Objectives:

Survey of Special Education Spring 2021 - Dr. Scott

1.   Know the evolution of special education in the areas of intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury through historical, psychological, medical and educational perspectives.

2.   Know the characteristics of individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments and traumatic brain injury, to be able to respond to their varying abilities and behaviors. Understand age-span/developmental issues, levels of severity, cognitive functioning, language development, emotional and behavioral adjustment, social development, medical aspects, and cultural/ethnic and socioeconomic factors.

3.   Demonstrate respect for individuals with disabilities as unique human beings through use of person-first language.

4.   Understand the effects that intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury can have on an individual's learning in school requiring adaptations to the general curriculum and throughout life.

5.   Demonstrate the use of best practices to create learning environments for individuals with disabilities that foster safety and emotional well being, positive social interactions, and active engagement.

6.   Understand the relationship of one diagnostic category to other categories of exceptionality in the case of co-occurring or multiple conditions.

7.   Become acquainted with the terminology, labels, and placement used in the field of special education as they relate to intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.

8.   Know state and federal legislation and regulations affecting the delivery of services for students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

9.   Become familiar with the psycho-social problems of students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.

10.   Know life adjustment issues for individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

11.   Gain understanding from the research base in the field of disabilities that will foster critical reflection consistent with best practices in working with children, adolescents and adults with intellectual disabilities, learning disabilities, emotional disturbance,

autism spectrum disorders, other health impairments, and traumatic
brain injury."

63. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

64. How are you currently using the lessons learned from these course goals in your
current professional or pre-professional environments? Please describe briefly.

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65. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

Description of Course Goals/Objectives:

"A.   Goal: As outlined more specifically below, the overall goal of the course is to provide future teaching professionals with characteristics, prevalence, and etiology of the disabilities they will encounter in their classrooms along with evidence-based instructional strategies and supports for working with these students that represent culturally diverse populations, their families, the school, and community at-large. Candidates will gain information on professional organizations and other sources of supports students and their families may need to access throughout their lifespan.

1.   Knowledge of the foundation for educating students with disabilities, including:
a)   Historical perspectives, models, theories, philosophies, and trends that provide the basis for special education practice;
b)   Characteristics of children and youth with disabilities relative to age, varying levels of severity, and developmental differences manifested in cognitive, linguistic, physical, psychomotor, social, or emotional functioning;
c)   Typical patterns of development (i.e., physical, psychomotor, cognitive, linguistic, social, emotional development and their relationship to the various disabilities);
d)   Medical aspects of disabilities;
e)   The dynamic influence of the family system and cultural/environmental milieu and related issues pertinent to the education of students with disabilities;
f)   Educational implications of various disabilities; and
g)   Understanding of ethical issues and the practice of accepted standards of professional behavior.

2.   Understanding and application of the legal aspects, regulatory requirements, and expectations associated with identification, education, and evaluation of students with disabilities, including:
a)   Legislative and judicial mandates related to education and special education (e.g., the Individuals with Disabilities Education Act, §504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, the Every Student Succeeds Act, etc.);
b)   Current regulations governing special education (e.g., individualized education program (IEP) development; disciplinary practices, policies, and procedures; and alternative placements/programs in schools); and ""Rights and responsibilities"" of parents, students, teachers, and schools as they relate to individuals with disabilities and disability issues.

SEDP 330:
Survey of

B.   Objectives:

1.   Know the evolution of special education in the areas of

Special Education Spring 2021 - Dr. deArment

intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury through historical, psychological, medical and educational perspectives.

2.   Know the characteristics of individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments and traumatic brain injury, to be able to respond to their varying abilities and behaviors. Understand age-span/developmental issues, levels of severity, cognitive functioning, language development, emotional and behavioral adjustment, social development, medical aspects, and cultural/ethnic and socioeconomic factors.

3.   Demonstrate respect for individuals with disabilities as unique human beings through use of person-first language.

4.   Understand the effects that intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury can have on an individual's learning in school requiring adaptations to the general curriculum and throughout life.

5.   Demonstrate the use of best practices to create learning environments for individuals with disabilities that foster safety and emotional well being, positive social interactions, and active engagement.

6.   Understand the relationship of one diagnostic category to other categories of exceptionality in the case of co-occurring or multiple conditions.

7.   Become acquainted with the terminology, labels, and placement used in the field of special education as they relate to intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.

8.   Know state and federal legislation and regulations affecting the delivery of services for students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

9.   Become familiar with the psycho-social problems of students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.

10.   Know life adjustment issues for individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury.

11.   Gain understanding from the research base in the field of disabilities that will foster critical reflection consistent with best practices in working with children, adolescents and adults with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury."

brain injury.

66.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

67.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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68.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 501
Characteristics
of Students
with
Disabilities
SPRING 2021

Description of Course Goals/Objectives:
"1. Know the evolution of Special Education in the areas of intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury through historical, psychological, medical and educational perspectives.
2. Know the characteristics of individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments and traumatic brain injury, to be able to respond to their varying abilities and behaviors. Understand age-span/developmental issues, levels of severity, cognitive functioning, language development, emotional and behavioral adjustment, social development, medical aspects, and cultural/ethnic and socioeconomic factors.
3. Demonstrate respect for individuals with disabilities as unique human beings through their use of personfirst language.
4. Understand the effects that intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, health impairments, and traumatic brain injury can have on an individual's learning in school requiring adaptations to the general curriculum and throughout life
5. Demonstrate the use of best practices to create learning environments for individuals with disabilities that foster safety and emotional wellbeing, positive social interactions, and active engagement.
6. Understand the relationship of one diagnostic category to other categories of exceptionality in the case of co-morbid or multiple conditions.
7. Become acquainted with the terminology, labels, and placement used in the field of special education as it relates to intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury.
8. Know state and federal legislation and regulations affecting the delivery of services for students with intellectual disabilities, learning disabilities emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury
9. Become familiar with the psycho-social problems of students with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments and traumatic brain injury
10. Know life adjustment issues for individuals with intellectual disabilities, learning disabilities, emotional disturbance, autism spectrum disorders, other health impairments, and traumatic brain injury
11. Gain understanding from the research base in the field of disabilities that will foster critical reflection consistent with best practices in working with children, adolescents and adults with

intellectual disabilities, learning disabilities, emotional
disturbance, autism spectrum disorders, other health
impairments, and traumatic brain injury"

69. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

70. How are you currently using the lessons learned from these course goals in your
current professional or pre-professional environments? Please describe briefly.

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71. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

SEDP 533
Assessment
of
Individuals
with
Disabilities
SPRING
2021 Coyle

Description of Course Goals/Objectives:
"Upon completion of this course, teacher candidates/students will be able to:
1.   Locate, read and interpret important evaluation reports, assessment data, and IEP documents that comprise a student's cumulative and confidential files, and explain their role in shaping a student's educational history and decision-making regarding the IEP including the eligibility label or labels under which the student receives services, the determination of , special education services, services, related services, and supplementary aides and services, the decision to be assessed in the adapted curriculum rather than general curriculum, and placement decision.
2.   Effectively use essential components of the assessment process - record review, interview, observation and systematic structured interactions using task analysis and routine-based and curriculum-based assessment strategies - to gather information and describe in detail the needs and present level of functional and academic performance for a student with severe disabilities.
3.   Effectively use essential components of the assessment process to gather information and determine starting points for, and assess progress in, instruction in reading, writing, mathematics, social studies and science for a student working in the adapted curriculum.
4.   Describe the eligibility process and legal and regulatory requirements for IEP development including timelines, components, team composition, roles, and responsibilities.
5.   Create and evaluate high-impact, meaningful goals for a target student with severe disabilities which enable academic learning, addresses educationally relevant self-care and self-management needs, enhances communication competence, and which reflects the student's chronological age, and the concerns and priorities expressed by family members and the student."

72.   How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

73. How are you currently using the lessons learned from these course goals in your
     current professional or pre-professional environments? Please describe briefly. Did
     you participate in any other SEDP courses from Fall 2020-Summer 2021?

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74. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

     Mark only one oval.

     ( ) Yes   *Skip to question 10*

     ( ) No

Description of Course Goals/Objectives:

"1. Understand the special education processes from pre-referral, through assessment, decision
making and the possible interventions.
2. Understand the factors that may influence assessment findings such as cultural, behavior, and
learning diversity.
3. Become familiar with the terminology and technical/statistical aspects of educational
measurement including the types of scores used in reporting test results.
4. Understand and develop competency in administering and interpreting the different assessments used for academic achievement and adaptive behavior.
5. Understand the administration, scoring and interpretation of commonly used individual and
group instruments, including norm-referenced, criterion-referenced, and curriculum-based
measures.
6. Attain the ability to select, administer, score, and interpret formal and informal tests that are
appropriate for students with high incidence disabilities.
7. Understand, use and interpret a variety of standardized and non-standardized data collection
techniques such as observation.
8. Become proficient in understanding, developing, and using alternative classroom testing,
including curriculum based assessment, functional behavior assessment, and teacher-made
assessment.
9. Make decisions about student progress, instruction, program accommodations, placement,
and teaching methodology for students with disabilities who are accessing the general

SEDP 533 ASSESSMENT OF INDIVIDUALS WITH DISABILITIES SPRING 2021 Dr. Chen

curriculum and the standards of learning. Understand the importance of data driven instruction and problem solving in the classroom.
10. Identify the procedures and accommodations in their selection and administration of assessment tools to address the unique needs of students with disabilities.
11. Attain the ability to assemble test results into a written report which includes all pertinent information and recommendations for programmatic instruction and remediation.
12. Develop the competencies involved with using assessment information to guide IEP development."

75. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

76. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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77.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 533
Assessment
of
Individuals
with
Disabilities
SPRING
2021 Dr.
Johnson

Description of Course Goals/Objectives:

"1.   Locate, read and interpret important evaluation reports, assessment data, and IEP documents that comprise a student's cumulative and confidential files, and explain their role in shaping a student's educational history and decision-making regarding the IEP including the eligibility label or labels under which the student receives services, the determination of special education services, related services, and supplementary aids and services, the decision to be assessed in the adapted curriculum rather than general curriculum, and placement decision.
2.   Effectively use essential components of the assessment process – record review, interview, observation, and systematic structured interactions using task analysis and routine-based and curriculum-based assessment strategies – to gather information and describe in detail the needs and present level of functional and academic performance for a student with severe disabilities.
3.   Effectively use essential components of the assessment process to gather information and determine starting points for and assess progress in instruction in reading, writing, mathematics, social studies and science for a student working in the adapted curriculum.
4.   Describe the eligibility process and legal and regulatory requirements for IEP development including timelines, components, team composition, roles, and responsibilities.
5.   Create and evaluate high-impact, meaningful goals for a target student with severe disabilities which enable academic learning, address educationally relevant self-care and self-management needs, enhance communication competence, and which reflect the student's chronological age, and the concerns and priorities expressed by family members and the individual."

78. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

79. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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80. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

Description of Course Goals/Objectives:

"1. Demonstrate knowledge of the selection, administration, and interpretation of formal and informal assessment techniques for young children with disabilities or who are at risk for disabilities and their families.
2. Demonstrate competence in using, scoring, and interpreting selected assessment tools for key early intervention decisions, including screening, evaluation, program planning, and progress monitoring for growth compared to same age, typically developing children.
3. Demonstrate competence in selecting assessment tools and processes that are appropriate for specific decisions for eligibility and diagnosis and curriculum-based assessments for instructional planning as well as child and family characteristics.
4. Demonstrate comprehension of educational procedures and instruments for program development and improvement in assessing infants and young children w/disabilities
5. Demonstrate the ability to write assessment reports with thorough understanding of and proficiency in grammar, usage and mechanics and their integration in writing.
6. Demonstrate skills in interpreting assessment procedures and results in writing to communicate to the child's family and professionals in other disciplines for a variety of purposes.

SEDP 533: Assessment of Individuals with Disabilities SPRING 2021 Dr. Xu

7. Demonstrate skills in selecting and implementing valid and reliable classroom-based assessments of student learning, including formative and summative assessment to meet the needs of diverse learners.
8. Demonstrate knowledge of the conceptual foundation of the assessment process and competence in analytical skills to inform ongoing planning and the functions of various assessment activities to help students understand their own progress and growth.
9. Demonstrate the ability to understand the relationship among assessment, instruction, and monitoring student progress using a variety of assessment procedures and terminology in the delivery of services to infants, young children, and their families
10. Demonstrate understanding of the impact which culture may have on the assessment process and demonstrate cultural competence when conducting assessments.
11. Demonstrate knowledge of the legal aspects of assessment pertaining to Part B and Part C of the Individuals with Disabilities Education Improvement Act and Virginia State assessment programs and accountability systems
12. Identify and describe the various team approaches used for assessment, and reflect on team assessment experiences.
13. Demonstrate an understanding of the link between the assessment process and the development of individualized educational plans (IEPs) and individualized family service plans

(IFSPs), and the use of assessment results to develop goals and objectives/outcomes.
14. Demonstrate an awareness of computer applications for scoring, interpreting, and tracking assessment data.
15. Demonstrate awareness of professional ethics and behavior in interactions with colleagues, families and other professionals within the community
16. Demonstrate knowledge of strategies to involve families in the assessment process, and reflection about personal effectiveness in working with families."

81.   How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

82.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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83.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

SEDP 561
Characteristics
of Students
with Severe
Disabilities
SPRING 2021

Description of Course Goals/Objectives:

"1.	State the federal definitions of students with severe disabilities including students with autism, developmental delay, intellectual disability, traumatic brain injury, and multiple disabilities including sensory, deaf-blindness, speech-language, orthopedic and other health impairments as an additional disability.
2.	Describe the history and evolution of severe disability.
3.	Describe the characteristics of individuals with severe disabilities whose cognitive im-pairments or adaptive skills require adaptations to the general curriculum and whose functional skills are significantly different from typically developing peers and there-fore require adaptations to the general curriculum for an appropriate education. Discuss and evaluate how the following characteristics impact education, behavior, and social interactions:
a)	Age-span and developmental issues;
b)	Levels of severity;
c)	Medical, health, sensory, and positioning and handling needs;
d)	Cognitive functioning;
e)	Speech, language development, and communication;
f)	Emotional and behavioral development and supports;
g)	Social development; and
h)	Cultural, ethnic, and socio-economic factors.
4.	Describe the impact of disability on self-determination and self-advocacy skills.
5.	Describe historical and legal perspectives, models, theories, philosophies, and trends re-lated to specific student populations.
6.	Discuss and examine how educational environments impact students with severe disa-bilities.
7.	Discuss and examine how to build strong parental connections and relationships for families with severe disabilities."

84. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

85. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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86. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 600
Language/Communication
Intervention for Young
Children and Individuals
with Severe Disabilities
SPRING 2021

"Upon completion of this course, teacher candidates/students will be able to:
1.   Identify characteristics of non-symbolic and symbolic communication
2.   Describe and discuss methods for assessment, identification of priorities, and monitoring progress of individuals with communication impairments.
3.   Discuss and evaluate the range of augmentative and alternative communication devices and systems/assistive technology available for individuals with severe disabilities.
4.   Implement assessment strategies to improve students' social interaction with peers and others.
5.   Implement communication/AAC/AT assessment strategies to develop and implement individual educational planning and group instruction with students with disabilities in an adapted curriculum across the K-12 grade levels.
6.   Understand and identify behaviors associated with communication.
7.   Describe language development and emergent literacy skills for students who use augmentative and alternative communication devices and systems/assistive technology.
8.   Identify and implement strategies and activities that foster an appreciation of a variety of literature and independent reading for students who use augmentative and alternative communication devices and systems/assistive technology.
9.   Demonstrate knowledge of best practices and strategies in reading instruction for students with severe disabilities for students who use augmentative and alternative communication devices and systems/assistive technology."

87.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

88.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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89.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 603: Theories, Assessment and Practices in Literacy Development for Individuals with Exceptionalities SPRING 2021

Description of Course Goals/Objectives:

"Upon completion of this course, teacher candidates/students will be able to:
1.   Describe language development and emergent literacy skills
2.   Describe the nature, function, and rules of language.
3.   Describe disorders and deviations in language and related areas.
4.   Demonstrate an understanding of components of literacy acquisition, including sound/symbol relationships, explicit phonics instruction, syllables, phonemes, and morphemes.
5.   Demonstrate an understanding of how syntax and semantics interact in the construction of meaning in literacy and its relationship to reading comprehension.
6.   Demonstrate an understanding of the relationship of on-going assessment and the planning of reading instruction.
7.   Identify and implement a variety of early reading comprehension strategies
8.   Identify and implement strategies and activities that foster an appreciation of a variety of literature and independent reading;
9.   Demonstrate knowledge of best practices and strategies in reading instruction for students with severe disabilities."

90.   How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

91.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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92.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   _Skip to question 10_

◯ No

Description of Course Goals/Objectives:

" Upon completion of this course, teacher candidates/students will be able to:

1.   Write IEPs so they define individualized sequences of measurable objectives for teaching needed functional skills that link to standards of learning general curriculum and begin with present level of performance and end with goal performance.

2.   Construct, use, and interpret nonstandard, informal skill assessment (such as task analysis and observation) to identify appropriate objectives, evaluate student performance during baseline and intervention, and make improvements in instruction for students with disabilities in an adapted curriculum across the K-12 levels.

3.   Assess target skills before (baseline probes) and during (instructional probes) instruction using direct observation or assessment of permanent products.

4.   Create dated graphs of student performance data using Excel; draw aim and trend lines using Excel.

5.   Use "raw" and graphed student performance data (along with aim and trend lines and problem analysis) to evaluate the effects of instruction and make data-based decisions for improving student performance.

6.   Embed instruction on targeted IEP objectives into functional daily routines and activities.

7.   Plan, implement, and evaluate instructional programs that use effective antecedent teaching strategies (e.g., observational learning, milieu approach, system of least intrusive prompts, simultaneous prompting, time delay, graduated guidance, picture assists, audio/video-modeling, backward and whole task chaining) and consequent strategies (e.g., shaping, error correction, consequential strategies, and interspersed review).

8.   Write and implement an instructional plan that specifies a sequence of instructional objectives leading to a goal, uses a task analysis (for multiple step skills) or a skill sequence (for discrete skills), incorporates antecedent and consequence teaching strategies aimed at a specific stage of learning, and specifies a plan for collecting and analyzing student performance data on an ongoing basis.

9.   Understand general education teaching practices that promote inclusion of students with severe disabilities in the general education curriculum and support them in the least restrictive environment (e.g., curriculum and instructional adaptation, group instruction, self-management, schedule following, cooperative learning, peer tutoring). Understand when and how to use small group instruction, peer tutoring, community-based instruction, simulated instruction, video-modeling instruction, and instruction involving both typical students and students with disabilities.

10.   Apply a model to plan with general educators any adaptations

SEDP 610: Teaching Strategies for Students with Severe Disabilities SPRING 2021

and modifications that are needed in the general education curriculum and class activities in order to meet the instructional needs of students with severe disabilities.

11.   Train paraprofessional support staff to use appropriate teaching methods and supportive interaction styles with students to support students without encouraging dependency. Provide these staff members with supervision and feedback.

12.   Demonstrate proficiency in the use of educational technology for instruction.

13.   Apply course concepts to K-12 school settings through field-based learning experiences (e.g., field experiences in K-12 classrooms, field-based case studies, field-based virtual/online learning experiences, etc.)."

93.   How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

94.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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95.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

Description of Course Goals/Objectives:

"1.   To become familiar with the general characteristics of children with and without exceptionalities relative to age, varying levels of severity, and developmental differences manifested in cognitive, linguistic, physical, psychomotor, social, or emotional functioning. (CF I.2, III.1) ICC2K1, ICC3K1
2.   To have an understanding of the physical, social, emotional, language and intellectual development of children birth through adolescence in guiding learning experiences. This includes understanding normal patterns of development (i.e., physical, psychomotor, cognitive, linguistic, social, emotional development and their relationship to the various disabilities). (CF I.2 III.2) ICC2K1, ICC3K1
3.   To become familiar with basic terminology, history, and legal concerns as well as current trends and issues in special education including the legislative and judicial mandates that include, but are not limited to: the Individuals with Disabilities Education Act, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, and No Child Left Behind Act of 2001. Included will be current regulations governing disciplinary practices, policies and procedures. (CF I.1) IGC1K3
4.   To introduce the concept of adapting instruction for pupils with exceptionalities according to current regulations governing special education especially as they relate to IEP development and the implementation process. (CF II.1) ICC7S13, ICC9S4
5.   To relate the role of the special education teacher and the professional team and understand ethical issues and the practice of accepted standards of professional behavior. (CF IV.4) CC9S1, ICC9S2, ICC10K2
6.   To understand the transition of children with exceptionalities from school to the community and the ""world of work"", in particular, and life span issues in general. (CF I.2) ICC4S3
7.   To enhance the student's knowledge or skills concerning children and youth with disabilities with regard to the following:
●   Models, theories, and philosophies that provide the basis for special education practice. (CF I.1, I.2) ICC1K1
●   Integration of children with individual differences – economic, social, racial, ethnic, religious, physical, and mental – will be incorporated to include skills contributing to an understanding of developmental disabilities and developmental issues related to but not limited to attention deficit disorders, gifted education including the use of multiple criteria to identify gifted students, substance abuse, child abuse and family disruptions. (CF III.1) ICC2K1, ICC2K2
●   Assurances and due process rights related to assessment, eligibility, and placement. (CF I.2) ICC1K6
●   Rights and responsibilities of parents, students, teachers and other professionals, and schools as they relate to individual

SEDP 630:
TRENDS IN
SPECIAL
EDUCATION

EDUCATION
SPRING
2021

learning needs. (CF I.2) ICC1K4
- Personal philosophy of special education including its relationship to/with regular education. (CF IV.3) ICC1S1
- Similarities and differences among the cognitive, physical, cultural, social, and emotional needs of individuals with and without exceptional learning needs. (CF I.2, III.1) ICC2K5
- Differential characteristics of individuals with exceptionalities, including levels of severity and multiple exceptionalities. (CF I.2, III.1) ICC2K6, ICC3K1
- Effects an exceptional condition(s) may have on an individual's life. (CF I.2, III.1) ICC3K1
- Characteristics and effects of the cultural and environmental milieu of the child and the family including cultural and linguistic diversity, socioeconomic level, abuse/neglect, and substance abuse. (CF III.1) ICC2K3
- Effects of medical conditions/aspects and various medications on the educational, cognitive, physical, social, and emotional behavior of individuals. (CF I.2, III.1) ICC2K7
- Educational implications of characteristics of various exceptionalities. (CF 1.2, II.5, III.1) ICC2K2
- Access information on various cognitive, communication, physical, cultural, social, and emotional conditions of individuals with exceptional learning needs. (CF I.1, I.2, I.3) ICC9S10
- Factors that promote effective communication and collaboration with individuals, parents, and school and community personnel in a culturally responsive program. (CF III.4) ICC10K4
- Ethical practices for confidential communication to others about individuals with exceptional learning needs. (CF IV.4) ICC10S1
- Demonstrate proficiency in oral and written communication. (CF 1.2) ICC9S8
- Comply with local, provincial, and federal monitoring and evaluation requirements.(CF I.2) ICC8K2
- Practice within the Council for Exceptional Children Code of Ethics and other standards and policies of the profession. (CF 1.3, IV.4) ICC9S1
- The historical foundations and classic studies, including the major contributors that support the growth and improvement of knowledge and practices in the field. (CF I.1) ICC1K
- Analyze and articulate current issues and trends in special education. (CF I.1) ICC
- Issues, resources, and techniques used to integrate students with special needs into and out of alternative environments, including special centers, psychiatric hospitals, and residential treatment centers."

96.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

97.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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98.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 631: Behavior Support of Individuals with Disabilities SPRING 2021

Description of Course Goals/Objectives:

"Objectives:
Each student will demonstrate the following competencies:
1. Understand theoretical contexts of behavioral approaches used in classroom management, behavioral
assessment and instruction (e.g., applied behavior analysis, functional behavioral assessment and positive
behavioral supports);
2. Become familiar with essential elements of effective classroom behavior management and developmentally
appropriate methodologies for addressing challenging behavior of children and youth;
3. Demonstrate an understanding of primary/school-wide/universal, secondary/targeted, and
tertiary/individualized systems and supports in applied settings;
4. Describe the procedures (systematic assessment, intervention, and evaluation techniques) to assess problem
behavior using functional behavioral assessment methods;
5. Create an operational definition of a problem behavior.
6. Synthesize information from reviewed records, interviews, and observations to formulate a hypothesis of the
function of challenging behavior;
7. Attain the ability to develop systematic individualized behavior plans for improving students' behavior
performance;
8. Demonstrate knowledge of strategies to create supportive learning environments and apply behavioral
strategies that prevent/reduce problem behavior and facilitate positive behavior;
9. Promote individual and group motivation for encouraging positive social interaction through appropriate use
of stimulus control techniques, social skill training, active engagement in learning, and self-management;

10. Demonstrate knowledge and an understanding of various school crisis management and safety plans and the
ability to create a safe, orderly classroom environment;
11. Identify issues of diversity in learners which may affect the classroom environment;
12. Demonstrate knowledge of the ethical considerations in classroom behavior management, and teacher
attitudes and behaviors that can positively or negatively influence student behavior "

99. How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

100. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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101.	Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes		*Skip to question 10*

⬭ No

SEDP 651: Special Topics—Seminar for School Counselors as Related Services SPRING 2021

Description of Course Goals/Objectives:

"1. Learn new knowledge and gain understanding of disabilities, diversity, inclusion, multicultural counseling, social justice advocacy, and behavior supports for students with disabilities.
2. Learn new knowledge and experience in providing individual, small and large group counseling services to diverse students with disabilities.
3. Learn new knowledge and experience in providing specific related services components (i.e., IEP facilitation, behavior consultation with student and families).
4. Developing, implementing, and evaluating multicultural transition and career planning services to diverse students with disabilities. "

102.	How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

103.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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104.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 651: Special Topics—
Research in Action in Early
Intervention/Early Childhood
Special Education SPRING
2021

Description of Course Goals/Objectives:

"Objectives
1.   Explore action research in theory and practice.
2.   Identify empirical research and evidence-based practices.
3.   Conduct literature review and synthesize the findings.
4.   Learn knowledge and skills in inclusive community-based early intervention/early childhood special education practices using the action research cycle.
5.   Learn techniques and skills for data collection and analyses for child developmental and learning outcomes.
6.   Demonstrate competencies in linking assessment to instruction/intervention for infants and young children with disabilities.
7.   Develop collaborative teamwork skills working with families and other professionals.
8.   Use principles of UDL across all aspects of the course. "

105. How well do you think you achieved the course goals in this course?

Mark only one oval.

⭘ Not at all

⭘ Minimal achievement

⭘ Partial achievement

⭘ Complete achievement

106. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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107. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⭘ Yes   *Skip to question 10*

⭘ No

SEDP 658
Educating
Students
with
Severe
Disabilities
SPRING
2021

Description of Course Goals/Objectives:

"Upon completion of this course, teacher candidates/students will be able to:
1.   Describe the impact of the unique physical, sensory, communication, and health and medical needs of students with significant disabilities on development, academics, behavior, and social interaction and engagement.
2.   Discuss the role muscle tone plays in the positioning and handling of students and familiarity with common positioning equipment used in the classroom.
3.   Identify common medical diagnoses and medical terms associated with students with significant disabilities, and the specialized health care interventions that may be required.
4.   Identify the roles and responsibilities of related and support staff working in a collaborative setting and the process and procedures related to initiating a related service report.
5.   Read and understand evaluation reports written by medical and therapy professionals in order to understand and communicate their impact on the studentâ€™s functioning in school and community settings and to determine the need for medical and related services as part of the IEP for students with severe disabilities.
6.   Discuss and evaluate the range of augmentative and alternative communication devices and systems/assistive technology available for individuals with severe disabilities and identify an appropriate communication strategy or system based on the needs of the individual student.
7.   Discuss typical physical and sensory development of children and apply this knowledge to develop adapted learning experiences, environments, and equipment for students with significant disabilities with atypical physical and sensory development and functioning.
8.   Write educationally relevant IEP goals and objectives that address individual physical, sensory, communication, and/or medical needs and that also enhance academic success and develop lesson plans that blend and incorporate the academic, functional, communication, and behavioral goals and objectives, while integrating positioning, self-care, self-management, feeding, grooming, sensory, and toileting programs into the instructional delivery.
9.   Design physical or sensory management plans that incorporate positioning and handling strategies and assistive technology.
10. Identify and use evidence-based strategies for instruction and adaptations to address physical, sensory, communication, and health and medical needs."

108.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

109.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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110.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 700-001 Externship SPRING 2021	"● Respect and work effectively with students of varying backgrounds and disabilities ● Assume the various responsibilities of the classroom teacher ● Plan instruction and learning experiences that recognize the individual needs and differences of students ● Organize and manage the classroom environment to maximize learning and to practice being a reflective teacher."

111.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⚪ Not at all

⚪ Minimal achievement

⚪ Partial achievement

⚪ Complete achievement

112.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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113.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⚪ Yes   *Skip to question 10*

⚪ No

SEDP 700: EXTERNSHIP (2 CR.) SPRING 2021	Description of Course Goals/Objectives: "● Respect and work effectively with students of varying backgrounds and disabilities ● Assume the various responsibilities of the classroom teacher ● Plan instruction and learning experiences that recognize the individual needs and differences of students ● Organize and manage the classroom environment to maximize learning and to practice being a reflective teacher."

114.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⚪ Not at all

⚪ Minimal achievement

⚪ Partial achievement

⚪ Complete achievement

115.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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116.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⚪ Yes   *Skip to question 10*

⚪ No

SEDP 700: EXTERNSHIP (4 CR.) SPRING 2021	Description of Course Goals/Objectives: "● Respect and work effectively with students of varying backgrounds and disabilities ● Assume the various responsibilities of the classroom teacher ● Plan instruction and learning experiences that recognize the individual needs and differences of students ● Organize and manage the classroom environment to maximize learning and to practice being a reflective teacher."

117.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⚪ Not at all

⚪ Minimal achievement

⚪ Partial achievement

⚪ Complete achievement

118.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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119.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⚪ Yes   *Skip to question 10*

⚪ No

SEDP 700: EXTERNSHIP SPRING 2021 Dr. deArment

Description of Course Goals/Objectives:

"The major goal of this course is to provide teacher candidates with a challenging, relevant and rewarding experience, which will allow them to acquire and demonstrate professional competence as special educators. This includes the ability to:
•   Respect and work effectively with students of varying backgrounds and disabilities;
•   Assume the various responsibilities of the special education teacher;
•   Plan instruction and learning experiences that recognize the individual needs and learning differences of students;
•   Organize and manage the classroom environment to maximize student learning; and,
•   Enhance skills as a reflective educator.
In addition, upon completion of SEDP 700, each teacher candidate will be competent at:
1.   Planning lessons that are based on the general education curriculum;
2.   Adapting instruction to meet the needs of students with high incidence disabilities;
3.   Reflecting on their practice and making plans for their own future growth and development; and,
4.   Working collaboratively with other professionals, as well as families and students with disabilities. "

120.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

121. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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122. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 705: Seminar on Disability Policy SPRING 2021	Description of Course Goals/Objectives: "The primary goals of this course are to familiarize the student with contemporary public policies concerning disability and education, the evolution of those policies and their impact upon people with disabilities, their families and society. In particular, this course will: • Familiarize students with both the medical and social models of disability so that they will be able to articulate the differences and to describe how those models relate to the implementation of different policies and legislative actions; • Provide an in-depth analysis of the major laws and policies that affect supports and services for individuals with disabilities; • Assess the effect of policies and the impact they have on people's lives, including people with disabilities, family members and professionals; • Describe the processes for social change at the federal, state and local levels; • Discuss future directions for disability policy and describe how to affect and/or provide leadership in social change through policy."

123.   How well do you think you achieved the course goals in this course?

Mark only one oval.

- ( ) Not at all
- ( ) Minimal achievement
- ( ) Partial achievement
- ( ) Complete achievement

124.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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125.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

- ( ) Yes   *Skip to question 10*
- ( ) No

SEDP 709: Literature Reviews in Special Education and Other Social Sciences SPRING 2021

Description of Course Goals/Objectives:

"1.   formulating a research question;
2.   conducting database, ancestry, and manual searches of the literature;
3.   selecting pertinent coding variables and performing the coding of articles;
4.   synthesizing and evaluating published research findings;
5.   identifying gaps in the research literature and needs for future research;
6.   writing an abstract, introduction, methods, results, and discussion sections of a systematic literature review;
7.   oral presentation of research findings."

126.   How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

127.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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128.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

SEDP 772 Doctoral
Teaching Internship
SPRING 2021

Description of Course Goals/Objectives:

"1. Become familiar with the purpose(s) of the course/initiative and the target population.
2. Become familiar with current structure of course and the rationale(s) and constraints that helped to shape its structure (includes familiarity with syllabus).
3. Observe teaching of instructor/mentor currently teaching class. Reflect on teaching style of instructor/mentor and how it can provide you with suggestions for your own teaching.
4. Become familiar with all currently used teaching materials, including textbook.
5. Identify reasons/purposes of currently used materials and class structure.
6. Identify currently used assessment methods and rationale for the selected methods.
7. Prepare & present at least two class sessions in graduate level courses.
a. Prepare and deliver lecture.
b. Respond to student questions in teaching session and as part of follow-up to teaching session.
c. Select and utilize any instructional support materials/equipment.
d. Prepare and enact application activity with students.
e. Prepare test questions/assessment activity items for session.
f. Notify course faculty of identified session date.
g. At least two weeks prior to teaching session, provide course faculty and instructor/mentor with outline for sessions. Make sure outline has enough detail to allow course faculty and instructor/mentor to provide you with feedback on plans. Also, be sure to identify and describe any teaching materials you may use and activities you have planned.
h. Course faculty will observe teaching session and provide feedback.
i. Seek informal evaluative feedback from instructor/mentor regarding teaching session.
8. Assist in preparing and grading at least one other assessment activity.
9. Prepare a self-evaluation of your teaching and what you learned during this experience.

As interested in or comfortable with, you may add any of the following activities:
10. Create teaching goals and plan to reach those goals.
11. Identify and suggest other instructional materials.
12. Teach additional session(s).
13. Create other application activities.
14. Meet with students outside class (via office hours or other advising activities).
15. Assess/evaluate overall purpose or structure of class and its relative standing within the various undergraduate/graduate curricular sequence.
16. Assist in any other activities as desired.
17. Other – proposed and approved by your advisor. "

129. How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

130. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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131.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

○ Yes   *Skip to question 10*

○ No

RTR SEDP 651: Issues in Urban Education SPRING 2021	Description of Course Goals/Objectives: "1. Focus on becoming a reflective practitioner by allowing residents to discuss and reflect on current placements, observations, practices, and planning 2. Support residents in making plans for their own future growth and development 3. Identify and understand the different communities of Richmond and surrounding areas and the impact of non-profit organizations within those communities 4. Discuss and reflect on current and social issues impacting communities in which residents teach and the school's role in the community 5. Discuss and reflect on issues related to urban education and reflect on current practices and their roles as an urban/high needs educator 6. To foster residents' development as antiracist teaching professionals. 7. BOTTOM LINE: To grow. "

132.   How well do you think you achieved the course goals in this course?

Mark only one oval.

○ Not at all

○ Minimal achievement

○ Partial achievement

○ Complete achievement

133. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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134. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Course Not Listed Spring 2021

135. What Special Education (SEDP) course(s) did you participate in?

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136. How well do you think you achieved the course goals in this/these course(s)?

Mark only one oval.

◯ Not at all

◯ Minimal Achievement

◯ Partial Achievement

◯ Complete Achievement

137.   To the best of your recollection, how are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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138.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Course Goals/Objectives:

"• Knowledge of the conceptual foundation of the assessment theories, principles, and
purposes of different assessment approaches.
• Comprehension of key assessment concepts including validity and reliability.
• Comprehension of different types of assessment approaches and procedures including
formative and summative assessments as well as measures for assessing children and
students in inclusive educational settings.
• Knowledge and skills in designing assessments for all learners including English
learners, children and students with developmental delays or disabilities, and children and
students from high-need communities.
• Competence in linking the assessment and instruction using assessments as instructional
tools and the use of assessment results to develop learning goals and objectives.
• Knowledge and skills in performance-based assessment, curriculum-based
assessment, developmental assessment, and authentic assessment across naturalistic
settings.
• Knowledge of the legal aspects of identification and placement assessment pertaining
to individualized educational program (IEP) under Part B and individualized family
service plan (IFSP) under Part C of the Individuals with Disabilities Education
Improvement Act and Virginia State law.
 Competence in using, scoring, and interpreting selected assessment tools for
instructional or intervention decisions, including screening, evaluation, instructional
planning, and progress monitoring.
• Strategies for interpreting student performance in classroom assessments, skills in
interpreting assessment procedures and results to the child/student's family and
professionals in other disciplines, and the ability to write assessment reports.
• Understanding of test score information from standardized achievement and
diagnostic assessments.
• Competence in selecting assessment tools and

SEDP 401: Assessment in Diverse Settings Summer 2021

processes that are appropriate for
specific decisions as well as child development,
family characteristics, and student
achievement.
• Understanding of the impact that culture may
have on the assessment process and
demonstrate cultural competence when conducting
assessments.
• Knowledge of assessment terminology used by
interdisciplinary teams involved in the
delivery of services to infants, young children, and
school-age students with
disabilities in inclusive settings.
• Knowledge of strategies to involve students and
families in formative assessment
process including goal setting, rubric developing,
and progress monitoring, and
reflect personal effectiveness in working with
families.
• Knowledge of assessment policy including
standards-based reform and test-based
accountability as illustrated in federal legislation -
NCLB, IDEA, and ESSA.
• Comprehension of assessment design and
instructional alignment with Virginia Standards
of Learning (SOL) and Virginia's Foundation Blocks
for Early Learning.
• Knowledge of aptitude measures for college and
career readiness. "

139. How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

140. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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141. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

SEDP 503
Supervision Seminar
II SUMMER 2021

Description of Goals/Objectives:

"1. developing lesson plans and IEPs that are data and standards driven
2. identifying practical challenges impacting instructional activities
3. using data from student performance to make instructional and IEP decisions includes Curricula access, Standards-Based IEP, Instructional Design, and Differentiated Instruction, and discover ways to resolve conflict and overcome resistance."

142. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

143.   How are you currently using the lessons learned from these course goals in your
        current professional or pre-professional environments? Please describe briefly.

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144.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 505-C02: Theory & Practice of Educating Individuals with Special Needs Summer

Description of Course Goals/Objectives:

"1. Explain current philosophies, legal foundations, and procedures related to serving students with
disabilities and develop an awareness of the culture of disability.
2. Demonstrate knowledge of the disability characteristics and how disabilities affect specific services
in education.
3. Describe effective general practices for inclusive instruction.
4. Recognize and explain the role of the general education teacher in the education of students with
disabilities.
5. Explain the various components of an IEP and 504 plans, and how each component affects the types of services that a student with a disability will/should receive in the educational setting.
6. Demonstrate the ability to respond to the needs of individuals with disabilities through the application of research-based educational approaches, principles, and strategies.
7. Practice developing, implementing, and reflecting on accessible instructional practices with a
Universal Design for Learning lesson.
8. Practice developing, implementing, and reflecting on collaborative co-teaching practices with a cotaught presentation.
9. Explore best practices for building collaborative teams that include families, special educators, and
administrators."

145.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

146.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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147.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 533: ASSESSMENT OF
INDIVIDUALS WITH
DISABILITIES SUMMER 2021

Description of Goals/Objectives:

"1. Understand the special education
processes from pre-referral, through
assessment, decision
making and the possible interventions.
2. Understand the factors that may influence
assessment findings such as cultural,
behavior, and
learning diversity.
3. Become familiar with the terminology and
technical/statistical aspects of educational
measurement including the types of scores
used in reporting test results.
4. Understand and develop competency in
administering and interpreting the different
assessments used for academic
achievement and adaptive behavior.
5. Understand the administration, scoring
and interpretation of commonly used
individual and
group instruments, including norm-
referenced, criterion-referenced, and
curriculum-based
measures.
6. Attain the ability to select, administer,
score, and interpret formal and informal tests
that are
appropriate for students with high incidence
disabilities.
7. Understand, use and interpret a variety of
standardized and non-standardized data
collection
techniques such as observation.
8. Become proficient in understanding,
developing, and using alternative classroom
testing,
including curriculum based assessment,
functional behavior assessment, and
teacher-made
assessment.
9. Make decisions about student progress,
instruction, program accommodations,
placement,
and teaching methodology for students with
disabilities who are accessing the general
curriculum and the standards of learning.
Understand the importance of data driven

instruction and problem solving in the classroom.
10. Identify the procedures and accommodations in their selection and administration of
assessment tools to address the unique needs of students with disabilities.
11. Attain the ability to assemble test results into a written report which includes all pertinent
information and recommendations for programmatic instruction and remediation.
12. Develop the competencies involved with using assessment information to guide IEP development. "

148.   How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

149.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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150.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 601: METHODS I – TEACHING STUDENTS IN SPECIAL EDUCATION AND GENERAL EDUCATION SUMMER 2021

Description of Course Goals/Objectives:

"1. Communicate the relationship between learning and behavior problems. Demonstrate an understanding of classroom organization and curriculum development that meets the varying needs of students with higher incidence disabilities. Implement and evaluate group management techniques and individual interventions that teach and maintain emotional, behavioral and social skills.
2. Demonstrate the use of principles for online learning, including the implementation of a Universal Design for Learning Approach.
3. Identify research-supported instructional strategies and practices for teaching students with high-incidence disabilities including literacy strategies/reading and the complex nature of numeracy acquisition and the sequential nature of mathematics.
4. Identify prevention and intervention strategies as early as appropriate for use with students with high-incidence disabilities. Promote the potential and capacity of individual students to meet high academic, behavioral, and social expectations.
5. Create learning environments for students with high-incidence disabilities that foster cultural understanding, safety, emotional well-being, positive social interactions, and active engagement. Learning environments can include classroom-based, community-based and/or online learning environments.

6. Demonstrate knowledge of the structure and organization of general education classrooms and other instructional settings in which special education services are provided which promote inclusion of students with disabilities.
7. Understand the scope and sequence of the general education curriculum.
8. Develop an individualized educational plan that emphasizes access to the general education curriculum and integrates assistive and instructional technology.
9. Learn alternative ways to teach content material including curriculum adaptation and curriculum modifications that promote successful integration of students with disabilities with their non-disabled peers. Implement and monitor IEP specified accommodations within the general education classroom."

151. How well do you think you achieved the course goals in this course?

Mark only one oval.

◯ Not at all

◯ Minimal achievement

◯ Partial achievement

◯ Complete achievement

152.   How are you currently using the lessons learned from these course goals in your
       current professional or pre-professional environments? Please describe briefly.

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153.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

Description of Course Goals/Objectives:

"1. Demonstrate the use of clinical reasoning and assessment results to identify a child's current level of functioning and to determine a child's plan for instruction. Develop and plan instruction with the family as decision makers. Focusing on involving communication between school and families and increasing family involvement in student learning at home and in school.
2. Demonstrate the ability to acquire or create appropriate assistive technology to promote each child's access to and participation in learning experiences.
3. Demonstrate the ability to plan for the level of support, accommodations, and adaptations needed for a child to access, participate, and learn across activities and routines.
 4. Demonstrate the use of clinical reasoning to evaluate the effectiveness and use of preexisting software and applications. Including demonstrating the ability to select, develop, and use of appropriate curricula, methodologies, and varied materials that support and enhance student learning and reflect the research on unique, age-appropriate, and culturally relevant curriculum and pedagogy relevant to communication. Utilizing media and contemporary technologies and the use of educational technology for instruction
SEDP 603: Theories, Assessments, and Practices in Literacy Development for Individuals with Exceptionalities SUMMER 2021
5. Demonstrate an understanding of the Universal Design for Learning principles to create accessible environments. With a focus on Curriculum-based assessments for instructional planning. Including instructional practices that are sensitive to culturally and linguistically diverse learners, including English learners, gifted and talented students, and students with disabilities.
6. Demonstrate an understanding of early literacy, emergent writing, and communication development when planning for whole-class and individualized instruction. Demonstrate understanding of vocabulary development and comprehension skills in that impact communication in across content areas. Demonstrating the use of strategies that include the understanding of effective questioning, summarizing, and retelling
7. Demonstrate professional behaviors in interactions with colleagues, faculty, and professionals within the community and the online community of practice.
8. Demonstrate the ability to provide instructional support for young children with disabilities who are dual language learners to assist them in learning English and Early Literacy and in continuing to develop skills through the use of their home language
9. Describe the identification process of students at risk of

specific learning disabilities such as dyslexia, dysgraphia, dyscalculia, and auditory processing disorders, speech and language disorders, and attention deficit disorders.
10. Demonstrate an understanding of the speech and language needs of children and demonstrate an understanding of planning and guiding meaningful learning experiences for students. Including an understanding of phonemic and other phonological awareness learning experiences, concept of print, phonics, fluency, vocabulary development, and comprehension strategies.
11. Demonstrate an understanding of Language Acquisition. Skills as related to the Virginia English Standards of Learning, as well as the complex nature of language acquisition as a precursor to literacy. Demonstrate an understanding of language acquisition following the typical development of linguistic competence in the areas of phonetics, semantics, syntax, morphology, phonology, and pragmatics
12. Demonstrate an understanding of the use of language to get needs and wants met and use of functional communication for social interaction."

154. How well do you think you achieved the course goals in this course?

Mark only one oval.

( ) Not at all

( ) Minimal achievement

( ) Partial achievement

( ) Complete achievement

155. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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156.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

◯ Yes   *Skip to question 10*

◯ No

Description of Goals/Objectives:

"1.   To gain an understanding of adolescent and adult development in the context of an individual with a high incidence disability.

2.   To understand and identify the evidence based practices that support the transition from school to adult life as it applies to students with disabilities.

3.   To become knowledgeable about the legislation relevant to adolescents and adults with disabilities including issues surrounding guardianship.

4.   To identify the skills and resources necessary to conduct meaningful transition assessment for adolescents and adults with disabilities, then translate student strengths, needs, preferences, and interests into a plan for providing access to transition services and skill development, as well as assure positive post-school outcomes.

SEDP 611: Secondary Education and Transition Planning SUMMER 2021

5.   Identification of evidence-based instructional strategies to meet student academic, transition and behavior/social goals. Emphasis will be placed on facilitating student self-determination in the process of determining these goals.

6.   To gain an understanding of the adult-service systems, including the differences between entitlement and eligibility for agency services as it applies to accessing both disability-related and/or generic adult services.

7.   To learn skills in consultation, case management, and collaboration for students with high incidence disabilities. In particular, to be able to use these skills to coordinate and facilitate transition planning meetings involving parents, students, outside agencies and administrators.

8.   To discover the issues involved in adult adjustment including employment, post-secondary education, familial issues, social/emotional and personal adjustment (including quality of life issues).

9.   To be knowledgeable of related services and accommodations that pertain to postsecondary transitions that increase student access to postsecondary education and community resources.

10. To learn the assistive technology options, including those in postsecondary settings, for persons with high incidence disabilities that aid a student in their education, work, and independent living."

157.   How well do you think you achieved the course goals in this course?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

158.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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159.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

SEDP 632: Secondary Programming for Students with Disabilities SUMMER 2021

Description of Goals/Objectives:

"Upon completion of this course, teacher candidates/students will be able to

1.   Demonstrate the ability to prepare students and work with families to provide successful student transitions throughout the educational experience to include postsecondary training, employment, and independent living that addresses an understanding of long-term planning, career development, life skills, community experiences and resources, self-advocacy, and self-determination, guardianship and legal considerations.

2.   Coordinate service delivery with general educators, related service providers, and other providers.

3.   Coordinate and facilitate meetings involving parents, students, outside agencies, and administrators.

4.   Identify community resources, agencies, and strategies to interface with community agencies when developing and planning IEPs.

5.   Understand the difference between entitlement and eligibility for agency services as students move to the adult world including a basic understanding of Social Security Income benefits planning, work incentive, Medicaid, and community independent living.

6.   Identify related services and accommodations, including technology, pertaining to postsecondary transitions that increase student access to post secondary education and community resources.

7.   Recognize and plan for individual student potential and their capacity to meet high academic, behavioral, and social expectations and the impact of academic and social success on personal development.

8.   Implement person-centered planning strategies to promote student involvement in planning.

9.   Identify generic skills that lead to success in school, work, and community, including time management, preparedness, social interactions, and communication skills.

10. Demonstrate knowledge of social skills development including the unique social skillsdeficits associated with disability.

11. Assess social skills strengths and needs implement specialized social skills strategies.

12. Demonstrate knowledge of use and implementation of transition assessments (including vocational assessments) to encourage and support students' self-advocacy and self-determination skills.

13. Discuss legal issues surrounding age of majority and guardianship.

14. Understand the principles of online learning and online instructional strategies and the application of skills to deliver online instruction."

160. How well do you think you achieved the course goals in this course?

Mark only one oval.

- ◯ Not at all
- ◯ Minimal achievement
- ◯ Partial achievement
- ◯ Complete achievement

161. How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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162. Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

- ◯ Yes   *Skip to question 10*
- ◯ No

Summer 2021 Course Not Listed

163.   What Special Education (SEDP) course(s) did you participate in?

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164.   How well do you think you achieved the course goals in this/these course(s)?

Mark only one oval.

⬭ Not at all

⬭ Minimal achievement

⬭ Partial achievement

⬭ Complete achievement

165.   How are you currently using the lessons learned from these course goals in your current professional or pre-professional environments? Please describe briefly.

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166.   Did you participate in any other SEDP courses from Fall 2020-Summer 2021?

Mark only one oval.

⬭ Yes   *Skip to question 10*

⬭ No

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