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UNIVERSITY OF CALIFORNIA

Los Angeles

We Are Responsible for All of Our Students: One Program's General Education Teacher

Preparation for Students with Disabilities and Universal Design for Learning

A dissertation submitted in partial satisfaction of the

Requirements for the degree Doctor of Philosophy

in Special Education

by

Rebecca Elizabeth French

2021

ABSTRACT OF THE DISSERTATION

We Are Responsible for All of Our Students: One Program's General Education Teacher

Preparation for Students with Disabilities and Universal Design for Learning

by

Rebecca Elizabeth French

Doctor of Philosophy in Special Education

University of California, Los Angeles, 2021

Professor Sandra H. Graham, Chair

This dissertation analyzes a single cohort in a larger two-year general education teacher

preparation program to determine what the program intended for participants to learn about

students with disabilities (SWDs) and Universal Design for Learning (UDL), their interpretation

of that learning, and how they believe they incorporated this learning into their first year

teaching. To understand this, I examined course syllabi from the teacher education program,

lesson plans from participants' student teaching experience, and interviews conducted during

participants' first year in their own classrooms. Participants included 15 of 29 cohort members in

the secondary math and science teacher education program at a large urban university. Each

agreed to the analysis of the lesson plans they created during their student teaching year and 10

participated in one-on-one interviews. Using qualitative methods, 18 course syllabi, 28 lesson

plans, and 10 semi-structured interviews were analyzed.

After completing the analysis, I found that the program spent very little time introducing

participants to UDL or disability. Content analysis of course syllabi revealed mention of UDL in

one course syllabus and less than 5% of readings or course materials addressed disability, based

on review of available summaries and abstracts. Coding of lesson plans for UDL strategies

showed emerging inclusion of strategies and techniques aligned with UDL. In the interviews,

participants varied in how prepared they felt to work with SWDs, some felt they were as

prepared as they could be while others stated they did not feel prepared. In a variety of ways, all

participants stated that it was their responsibility to find the best ways to meet the needs of all of

their students. Lesson plans reviewed in this dissertation showed the need for further study into

how new teachers incorporate what they learn in their teacher education programs into their

actual classrooms, especially around SWDs and UDL. Overall, this dissertation showed that the

program could incorporate more learning about SWDs and UDL to better prepare general

education teachers to meet the needs of all of their students.

The dissertation of Rebecca Elizabeth French is approved.

Nicole Sparapani

Leila Ricci

Connie L. Kasari

Lois A. Weinberg

Sandra H. Graham, Committee Chair

University of California, Los Angeles

2021

DEDICATION

This dissertation is dedicated to the women in my life who have paved the way for me. I hope I

have taken the tools you gave me and use them well.

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ACKNOWLEDGEMENTS

To my Fremont family, I would not have lasted beyond year one without you.

To my mom, for having unwavering faith in my education and my dad for unwittingly pushing me further, I wish you were here to see this and so much more.

To Mila and Chelsea, you hardly know a life when your mom didn't have to go to school or do something for school. It has not been easy, but I hope you have learned to work hard for what you want, to work for and with others, and to keep going.

To Fred, for not letting me give up, over and over again, for taking the early Saturday mornings so I could consume endless cups of coffee and stare at a screen.

My former students, you made me better from day one. Thank you for letting me be a part of your journey, you have shaped so much of mine.

Education

Ph.D. Special Education, University of California, Los Angeles/California State University, Los Angeles, candidate

M.A. Public Policy, University of Southern California, May 2012

M.A. Special Education, Loyola Marymount University, May 2007

B.A. History and Women's Studies, Gettysburg College May 2005

Research

Book Chapter

French, R., Gyles, S., Quartz, K. H., & Kushon, S. (forthcoming). Community Teacher Learning and Development: The Promise of University-Assisted Community Schools. In J. Ferrera, J. Nath, & R. Beebe (Eds.), Professional development schools (PDS) and community schools: A nexus of practice. Information Age Publishing Inc.

Poster Presentations

Universal Design for Learning: Building a Foundation for Special Education Inclusion, **Rebecca French**
2020 Council for Exceptional Children Convention

California's Years of Budget Deficits and its Effect on Special Education Teacher Preparation Lois Weinberg, Qiana Barner, **Rebecca French**
2019 California Council on Teacher Education Conference

Presentation

UDL and Teacher Education, Rebecca French
2021 University of California Center for Research on Special Education, Disabilities, and Developmental Risk

Research Experience

Graduate Student Researcher, UCLA Center for Community Schooling September 2019-present

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Noah Erenberg Fellowship, Spring 2019-Fall 2019

Teaching Experience

Higher Education

Loyola Marymount University

January 2013 – Spring 2020   **Instructor**

- Special Education Intern Seminar 2
- Special Education Intern Seminar 1
- Creating and Maintaining Effective Environments for Student Learning

Loyola Marymount University

August 2012 – May 2019   **Fieldwork Instructor**

- Supervise and support first year Special Education teachers to improve classroom instruction, create and implement IEPs, and assess student achievement and growth
- Evaluate teachers based on rubrics created by the program and California teaching standards
- Provide feedback to improve practice both on an immediate and ongoing basis

California State University, Los Angeles   Instructor

August 2017 – May 2018

- Intern Supervision Seminar
- Psychological Foundations of Education

K-12

Comprehensive Therapy Associates   Case Manager

January 2018 – present

- Assess students with special for triennial Individual Education Plans (IEPs)
- Coordinate and write IEPs for students with special needs
- Collaborate on on-sight general and special education teachers to ensure implementation of IEPs
- Deliver Resource Specialist Services

Pathways Community School   Special Education Coordinator

June 2014 – June 2017

- Develop and implement Special Education program at new school
- Supervise Special Education teachers and Instructional Aides in class
- Collaborate with all teachers to incorporate proper supports for all student in their classrooms
- Develop and support implementation of IEPs

LAUSD   Special Education Long Term Substitute Teacher

July 2011 – December 2012

- Develop relationships with all teachers to collaboratively program for students with IEPs
- Implement and maintain Individual Education Plans for students as designated by the principal
- Create transition plan for permanent teacher to move into position

LAUSD   Special Education Teacher, Esperanza Elementary School

August 2010–June 2011

- Differentiate 4th and 5th grade curriculum to meet students' individual needs
- Collaborate with General Education teachers to facilitate mainstreaming students
- Maintain, update, and implement Individual Education Plans for all students on case load

LAUSD   Special Education Teacher, Fremont High School

August 2005-June 2010

- Used student data to create and differentiate units and lessons to meet needs of all students
- Courses taught: Integrated Science (ICS), U.S. History, Health, Government, Economics
- Initiated introduction of co-teaching with general education teachers in Small Learning Community,
- Established facilitated a series informative parent meetings for students with special needs
- Mentor, observe, and evaluate new Special Education teachers
- Develop school-wide professional development plans

Awards and Honors

Selected Doctoral Scholar - 2018 Special Education Legislation Summit TED Doctoral Student Cohort

Currently, more than 60% of students with disabilities (SWDs) spend at least 80% of their school day in the general education setting (Students with Disabilities). Most SWDs are primarily taught by general education teachers, with varying levels of support from special education teachers. Special educators may be co-teaching with a general education teacher every day, coming into classes a few times a week, pulling students out of general education classes, or running a learning or resource center. Additional service providers, such as Occupational or Speech Therapists, may provide services in or outside of the general education setting as well. These support services often occur only 1 or 2 times a week. Therefore, it is primarily the responsibility of general education teachers to provide the necessary supports to students with Individual Education Plans (IEP).

Since 1975 public schools in the United States have been required to teach all children regardless of ability in their Least Restrictive Environment (LRE). For all students, the general education setting is considered their home placement; IEP teams are to consider what supports are necessary for the student to remain in general education before discussing placement options outside of general education. The Individuals with Disabilities in Education Act (IDEA) specifies 13 eligibility categories under which students may qualify for Special Education services; schools are required to meet children's needs for any eligible student without cost to the child's family. The most common eligibilities are Specific Learning Disability (SLD) and Speech or Language Impairment (SLI). In the 2017-2018 school year, 4.6% of students enrolled in public education were served under IDEA with an eligibility of SLD, over 2.3 million students (Digest of Education Statistics), many of whom are served in the general education setting.

Although outcomes for SWDs have improved over time as support has evolved, they are still not equivalent to general education students. The overall graduation rate for the 2016-2017

school year was 84.6% while the rate for SWDs was 67.1% (Common Core of Data). For many students, not graduating means limited access to consistent employment. The unemployment rate for people with disabilities between the ages of 16 and 64 was 8% in 2019 and increased to 13.4% in 2020. The unemployment rate for people who do not have a disability in 2019 was 3.6% and 7.9% in 2020 (U.S. Bureau of Labor Statistics, 2021). Changing these outcomes requires more than one solution, but teacher preparation can play an important role. To further understand the role teacher education plays in teacher learning about SWDs, this dissertation examines the following questions:

1) What are general education teachers taking from the teacher education programs about SWDs and Universal Design for Learning (UDL)?

2) How are general education teachers making meaning of what they are learning in the teacher education program around SWDs?

3) How are teachers synthesizing information learned in the entirety of their teacher education programs around UDL and disability?

4) How does a program based on social justice incorporate disability?

Looking at a single teacher education program in which the teachers are placed within a large urban district provides an avenue to look at a diverse population of students and a diverse population of teachers. The student population of the placement district consists of students who are 74.1% Latinx, 10.3% White, 7.7% African American, 3.6% Asian, 1.9% Filipino, less than 1% American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, and .4% Not Reported. The entire district is labeled as Title 1 by the federal government. Students with disabilities make up 16% of the student population. The district shows similar challenges in ensuring SWDs graduate at the same rate as all students to the national numbers. In 2018-2019,

59.9% of seniors with disabilities graduated with a high school diploma while 77.3% of seniors overall graduated with a diploma. It provides a setting for examining new teacher learning in a district that in many ways is representative of the country as a whole.

Universal Design for Learning

Schools enact many programs and supports, such as full inclusion, providing services in general education settings, or co-teaching perhaps, to improve outcomes for SWDs. One of the most important influences on students, however, is teachers. Teacher success often begins before they enter a classroom, with teacher preparation programs (Darling-Hammond et al., 2005). Despite training in teaching methods, general education teachers often do not have comprehensive training about teaching SWDs from their teacher preparation programs, despite the number of SWDs in the general education setting (Pugach & Peck, 2016). Engaging a framework that prepares teachers for the variety of students they will inevitably have in their classrooms can set them, and their students, up for future success. Implementing the Universal Design for Learning (UDL) framework may provide increased access to the curriculum for a broader range of students than many traditional ways of thinking about instruction, as it asks teachers to plan for students on the margins (Hall et al., 2015; King-Sears, et al., 2015). Although more research is needed in this area, especially with students and teachers with diverse backgrounds, implementing UDL practices has benefits for all students (Capp, et al., 2017; Ok, et al., 2017; Rao, et al., 2014).

The UDL framework is designed to help educators meet the needs of all students without creating different lessons for each student; the strengths and needs of all students are considered while a lesson or unit is being developed and before it is presented to a class. The concept of an "average" student is dismissed. The three UDL principles compel teachers to use: Multiple

Means of Action and Expression, Multiple Means of Engagement, and Multiple Means of Representation when planning and teaching. Each principle corresponds to a specific network in the brain and aspect of learning (CAST, 2018a). Action and Expression is the 'how' of learning corresponding to the Strategic Network. Engagement is the 'why' of learning, corresponding to the Affective Network. Representation is the 'what' of learning, corresponding to the Recognition Network. This framework requires teachers to know their students' strengths and interests well. Additionally, teachers must believe that all of their students can learn and that all students should have access to and support with the general education curriculum. Although developed initially by David Rose and Anne Meyer, (Meyer et al., 2014; Hall et al., 2015) to remove barriers to accessibility for SWDs, they soon realized that implementing the UDL framework could benefit all students when applied to general education curricula. Using the framework consistently has the potential to engage, and meet the differing needs, of the millions of students in the K-12 public school system in the United States (Cook and Rao, 2018; Ok et al., 2017; Rao et al., 2014).

The UDL guidelines do not include specific teaching practices, as the guidelines are meant to be pathways to create expert learners, not prescriptive (Appendix A) (Meyer et al., 2014). The three principles form the basis of the guidelines, subcategories under each principle further detail how the principle might be implemented. The guidelines, developed and revised by CAST (2018b), are currently used to guide implementation in classrooms as a way to think about access for all students. CAST (2018a) argues that following these principles when planning for instruction can help teachers identify and remove barriers students may have faced in traditional instruction. For example, in a traditional classroom, all students may be required to learn about a concept by reading the same article or book and then writing an essay on a single prompt. In a

classroom guided by UDL principles, students may be able to choose from several resources (books, articles, podcasts, videos) to learn about a concept. Students can also follow a teacher or student-created checklist for reminders to support individual executive function and have a menu of assessment options (write an essay, create a podcast, present their findings visually) to show what they know at the end of a lesson or unit.

Planning using UDL as a frame requires more resources and time according to multiple studies (Smith Canter et al., 2017; Cunningham et al., 2017; Sokal and Katz, 2017). Consequently, using this framework can be overwhelming and time-consuming for teachers, especially if they do not feel as if they have enough training or support. This concern is regularly expressed by teachers participating in UDL training as a barrier to implementation. Further support for teachers is needed to ensure they have a deep understanding of UDL, the time to create lessons that truly meet the needs of all their students, and space to move beyond surface-level implementation. One place to start is teacher preparation programs. Student teachers in these programs have time to deeply examine systemwide structures. Participants also have the opportunity to examine personal beliefs about student learning and thoroughly examine how they can bring all learners' strengths into the classroom.

The potential positive effects of UDL were recognized in the 2015 authorization of the Every Student Succeeds Act (ESSA), which requires assessments created by states and districts to reflect UDL principles. This allows students to have options to show that they have mastered a concept. Before ESSA, the Higher Education Opportunity Act of 2008 (HEOA) focused on how technology and UDL practices can be combined to meet the needs of all students through assessments as well. HEOA also includes provisions about the need to use these principles across all higher education instruction. These pieces of federal legislation, paired with state legislation

and guidelines, to be discussed below, guide how teacher preparation programs plan their learning experiences and potentially improve student outcomes.

Teacher preparation

Teacher preparation programs provide the foundation for teachers as they first enter the classroom. How both special education and general education teachers are prepared varies greatly in the United States. California's teacher preparation standards and practices are this dissertation's focus. Until recently, special education and general education teachers were prepared on two separate tracks in California (Blanton et al., 2017). Currently, not all teacher education programs offer special education credentials alongside general education credentials because the special education program is often small. Therefore, some pre-service general education teachers do not even have an option to interact with special education pre-service teachers or faculty whose focus is special education or disability. In many programs, general education teachers have one class about special education; often this class centers on the laws associated with educating SWDs and some techniques for teaching, but it does not delve deeply into special education or disability (Voltz, 2003; Pugach and Peck, 2016). Some programs do weave this content through other classes, but best practices for teaching SWDs are often not centered in general education programs (Gottfried & Kirksey, 2020; Grimsby, 2020). This can result in general education teachers who may not be fully prepared to work with SWDs.

In California, prospective teachers can choose from several types of teaching programs offering varying levels of depth and time for learning teaching practices. In traditional teacher education programs participants complete coursework while student teaching in a practicing teacher's class. The intern pathway has participants teaching in their own classrooms while taking classes in a university or school district program to earn their credential. Until recently

much of the work for completing a teaching credential had to be done after earning a bachelor's degree. However, several programs in the California State University (CSU) and University of California (UC) systems have developed programs that allow teachers to complete their preliminary credentials while working toward their bachelor's degree (CalTeach; Teacher and Educator Degrees and Credentials). Many programs can be completed in as little as nine months, leaving little time for deep instruction on teaching SWDs and disability in general.

To successfully prepare teachers for all students they will have, faculty in teaching programs must be versatile and be able to teach new teachers how to meet the needs of all their students. Vitelli's (2015) survey about UDL practices of 712 faculty members across the United States who taught in college and university-based teacher education programs (excluding faculty who taught Special Education) found about half the participants did not know about UDL. Of those approximately 350 participants, about half did use UDL principles in their classes without knowing they were engaging with them. Although this is promising because UDL is in many ways a mindset, a way of thinking about opening instruction for all, explicit instruction of UDL and modeling for new teachers would be more likely to ensure further depth and understanding. In a smaller study focusing on special education personnel preparation programs that also included general education teachers, Scott and colleagues (2017) found education faculty who were including UDL in their courses were largely focusing on the overarching ideas, the three principles. Programs were not necessarily teaching the principles in depth. Based on these findings, many pre-service general education teachers may not be getting sufficient instruction in how to implement and use UDL, contrary to what is written in HEOA and ESSA.

At present, research on UDL implementation in classrooms is relatively small and does not offer a broad range of participants in terms of race/ethnicity and gender both in teachers and

students (Ok et al., 2017; Rao et al., 2015). Primarily, the research focuses on pre-service teacher implementation of UDL in lesson plans for course assignments (Courey et al., 2012), with few studies examining if teachers (general or special education) can take their knowledge of UDL and implement this into actual classroom teaching (Craig, et al., 2019; Frey et al., 2012). Little of the current research on UDL describes how teachers take the knowledge they have gained about UDL in either teacher preparation programs or professional development and implement it in their classrooms. Introduction to UDL via either an embedded model where UDL is spiraled throughout an entire course or where it is taught in one specific class or module have both shown positive effects for understanding UDL (Frey, et al., 2012; Wu, 2012; McGhie-Richmond & Sung, 2013; Owiny et al., 2019; Johnston-Rodriguez and Henning, 2019).

Both Courey and colleagues (2012) and Frey and colleagues (2012) engaged the UDL principles to analyze lesson plans their pre-service teachers created, using rubrics for analysis. Frey et al. defined a specific set of practices that fit within UDL and examined lesson plans for evidence of these practices, while Courey and colleagues used a rubric based on the principles, following the work of Spooner and colleagues (2007). Additionally, Basham et al. (2020) conducted in-class observations using a 42-item tool they developed to identify UDL in classrooms. This dissertation aims to add to this body of research by examining what pre-service teachers are expected to learn, how they interpret that learning, and how they implement this knowledge into their own classrooms.

Positionality

Starting my career as a K-12 Intern Special Education teacher, I entered the field assuming general education teachers also learned about disabilities and special education in their teacher education programs and entered teaching with some knowledge of how to teach SWDs.

From early in my career, I realized I was wrong and I was seen as the expert when really I had very little knowledge at the beginning. The longer I stayed in the classroom, and then transitioned to supporting teachers, the more I realized how inadequate teacher preparation programs often were at preparing general education teachers to teach SWDs. As inclusion has increasingly become the dominant model of service delivery for SWDs, teachers must receive adequate preparation and support.

I worked with the secondary math and science cohort in a teacher preparation program at a large public university in Southern California as a Graduate Student Researcher (GSR). I worked with the teacher program since Fall 2018, spending Winter and Spring 2019 with an elementary cohort and the rest of the time with the secondary math and science cohorts. I observed teachers during their student teaching year or resident year when they have their own classrooms. After each observation, I spent between 20 and 30 minutes debriefing with them on the lesson presented. Since my background is in special education, I came to all support sessions with this lens often focusing on questions about access and support. I worked with the 2019-2021 cohort, the focus of this dissertation, looping as their support providers for two years.

The Teacher Education Program

The teacher education program that is part of this dissertation has a social justice focus aiming to develop teachers who create and champion an equitable education for all students. It prepares general education teachers to obtain English, Math, Science, or Social Studies Single Subject Credentials or Multi-Subject Elementary Credentials. Participants in this dissertation all taught in general education classrooms in one Southern California public school district. All placement schools are Title 1 schools. The teaching program is situated within a larger center meant to innovate and find better, more equitable ways to educate urban students, to center these

students and the teaching practices designed for them, in the city in which the program is located. The center was conceived in the wake of racial uprisings of the early 1990s to develop new teachers and support continuing teachers to become community teachers leveraging the assets of their students to transform their education and outcomes. The program is designed for the population of students specific to this district, primarily Black and Latinx, many of whom are first-generation immigrants and emerging bilinguals. Since its inception, the program has aimed to change the way students in urban centers are taught and the way teachers engage in their own learning and growth.

This dissertation focuses on participants in the Math and Science cohort who began the program in Fall 2019. Teachers in the teaching program begin their time in the classroom either observing at the beginning of the K-12 public school year (usually August), before classes start at the university, or when the university academic year begins in September. Participants are referred to as "novices," and their host teachers as "guiding teachers." These terms will be used going forward. Math and science novices spend the rest of the academic year in a single placement with one guiding teacher, though they are encouraged to observe other teachers. Initially, they observe classes and then slowly transition to teaching two of the guiding teachers' class periods, with support, before the end of the school year. Guiding teachers are given latitude to decide how much of their own planning and materials novices will use, following school and district guidelines. While many guiding teachers provide novices with their past units and materials for support, some novices create all of their lessons from scratch. Novices, however, are required to fully take over two classes for at least two weeks and create their own plans for this time near the end of the academic year. Novices' learning trajectory is highly influenced by the guiding teacher and school placement.

In addition to time spent in classrooms, novices are also full-time students participating in three to four classes each quarter ranging from educational theory to teaching methods. During their entire novice year, they participate in a seminar focused on one specific topic each quarter: classroom ecology, family engagement, and finally bring all their learning together to articulate own their teaching philosophy. This course serves as the touchstone course for all of their learning throughout the year. Novices take all classes together except for methods, where they are split into separate math and science cohorts. One course in the program is dedicated to special education, or "exceptional learners" as it is termed. The focus is largely on the legal and logistical aspects of special education. Other courses during their novice year focus on critical media literacy, inquiry-based practices, designing curriculum, and instruction. During their resident year (the second year in the program) novice teachers participate in a weekly seminar with their faculty advisor and develop a master's degree project on a topic of their choice. During both years they are required to have a field support provider who observes their teaching multiple times throughout the year. This has been my role. Novice teachers' focused and specific time to learn about SWDs is short and although UDL is included as one of the categories on their teaching evaluation rubric, explicit instruction is limited.

Organizing Learning in Teacher Education Programs

Syllabi are the traditional organizing documents for higher education courses, creating the framework by which students will interact within the course and how faculty plan student learning (Parkes & Harris, 2002). Recorded within syllabi are not only the also course readings and assignments, but also the values of the course and/or program. Students rely on these documents to plan their learning and their time for the length of the course. Creating a syllabus requires instructors to choose between a myriad of resources to share with students. What is

chosen and what is left off often speaks to the values of the program and instructor. What is read as a class and what materials are suggested or optional suggests a hierarchy of importance. Of course, time is an important factor. There is only so much one can cover in a semester or quarter, and there is only so much participants can absorb and in turn make meaning of to develop deep understanding. Nevertheless, those choices matter, particularly when introducing new ideas to students. In a program with a high level of focus on theory, courses in the teaching program are guided by certain learning, cultural, and linguistic theories and practices. These theories set up the framework within which new teachers are brought into the teaching profession and begin to develop the philosophy through which they will design their students' learning experiences.

Reviewing the syllabi collectively establishes a bird's-eye view of the program that allows one to see how the individual pieces of the program are meant to work together. Syllabi reveal the behind-the-scenes work of faculty and program directors who create the program's framework. For example, a theory, practice, or text may be taught in multiple courses or a specific idea may only be reviewed in one course, signaling the importance of the ideas presented. Again, time constraints cannot be forgotten, much needs to be compressed into a short time allotted for a teaching program. Conducting document analysis of course syllabi allows researchers to break down the program into its parts and bring those parts together to reveal the guiding principles of the program meant to be achieved.

Analyzing these syllabi provides context for what teachers are expected to learn in their classes. This research focuses on how the program introduces and supports learning about UDL, disability, and special education. An analysis of the readings and resources novices are expected to review and learn from provides background for what they choose to implement in their own classrooms while participating in the program. Assignments provide a glimpse of how pre-

service teachers were expected to implement their knowledge and make meaning of what they have been learning, taking into account their interaction with the myriad of content they are being taught. Further, this program is meant to provide interlocking knowledge creation and building between and across courses. This approach reinforces specific topics/concepts and provides participants a framework to develop and refine teaching practices and their own theoretical development.

Further, instructors from each course design their syllabi under the guidelines of the program and state teacher certification guidelines, the Teaching Performance Expectations (TPEs) (Commission on Teaching Credentialing, 2016) which are housed within the California Standards for the Teaching Profession (CSTPs). The TPEs cover a wide range of "knowledge, skills, and abilities" new general education teachers are expected to learn in teacher education programs. The TPEs cover six major expectations. Additionally, a set of sub-expectations is contained within each of the six overarching expectations. In total, 43 TPEs sub-guidelines guide teacher education programs in the development of their programs.

Within the TPEs, UDL, disability, and special education are woven throughout the sub-guidelines. Two sub-guidelines explicitly name incorporating UDL principles in planning and teaching, TPE 1.4 and 4.4. Within the entire document, UDL is included twice and disability/disabilities 14 times, special education is not referenced in the guidelines. The guidelines state the TPEs are meant to be inclusive of "all students," and teachers are expected to meet the needs of everyone in their classes including SWDs, English Learners, and any students who do not respond to a single type of instruction. Therefore, teachers have to enter the classroom with the knowledge and tools to meet these needs or be able to find the information that will guide their teaching and planning.

Multiple TPEs address topics that align with UDL principles in their language without explicitly stating it. Ideally, this would provide teachers with appropriate knowledge for supporting all students in their teaching. For example, TPE 6.5 addresses a teacher's responsibility to all students, TPE 3.4 acknowledges the need for multiple means of representation, and TPE 2.3 addresses creating an inclusive learning environment. All are topics housed under the UDL principles. In addition, several TPEs address concepts that overlap with special education services and practices, such as TPE 5.8 where teachers are expected to use data from students' Individual Education Plans (IEPs) to establish learning goals and plan their curriculum. TPE 3.5 ensures that teachers can adapt the curriculum to meet the needs of SWDs. Similar to the UDL framework, the TPEs guide teacher education programs and individual instructors to design a series of courses and learning experiences meant to develop new teachers into strong facilitators of student learning. These guidelines provide a foundation, but still do not put focus on exactly what to cover in a program.

Pulling multiple threads together to further understand teacher learning and development involves questioning how and what teachers are learning and how they are interpreting that learning. The following describes a path to examining teacher learning about UDL and disability in teacher education programs.

Methods

To analyze data in this dissertation, I employed a constant comparative method that draws from grounded theory methods for the overall framework for data analysis (Corbin & Strauss, 1990; Creswell & Poth, 2018; Maxwell, 2013). These methods facilitate an iterative process of analysis to develop and refine the understanding of the incorporation of UDL in this program and additional touchstones such as disability and special education.

Participants

This dissertation focuses on a cohort of general education teacher candidates, novices,

from a single teacher education program. Participants are from the secondary math and science

cohort who are participating in a residency program in which they spend their first year

observing and then student teaching in a single classroom based on their specific single-subject

credential. In their second year, they are full-time teachers in their own classrooms as well as

full-time students working toward their master's degrees in Education. The cohort contains a

total of 29 participants and all members were invited to be part of this dissertation. Fifteen cohort

members agreed to participate. All participants were provided with a Study Information Sheet

(see Appendix B) and I answered any questions they had before they agreed to participate. Ten

participants completed individual semi-structured interviews, 5 participants did not respond to

the requests to sign up for interviews. Seven interview participants self-identified as female and

3 as male. Participants self-identified as Latino (3), Asian (3), White (2), Black (1), and bi-racial

(1) (see Table 1 for additional teacher and school information). All participants teach in schools

that are part of a large urban district in Southern California. Although one school is a charter

school, it is a district affiliated charter defined as a semi-autonomous district public school

governed by the school district's board of education.

Data Sources

Data for this dissertation came from three sources: (1) course syllabi, (2) lesson plans,

and (3) individual semi-structured interviews. Multiple data sources allow for triangulation of

data to ensure the authenticity and accuracy of the interpretations drawn from the data (Creswell

& Poth, 2018). Syllabi were reviewed to provide an overall framework of the program's plan for

new teacher learning and support. Reviewing lesson plans provided anecdotal and exploratory

evidence of how teachers were interpreting what they were learning in the program and how that was being implemented in their teaching. Interviews were conducted to understand how participants understood and interpreted their learning about UDL, disability, and special education.

Procedures

To begin the development of this dissertation, I received approval from the teaching program in January 2020, contingent on university IRB approval. IRB approval was granted from my graduate institution in February 2020. No part of the study was conducted before university IRB approval was obtained. This approval allowed me to collect lesson plans and syllabi from the teaching program. Since all participants are employed by the same school district, IRB approval from the district was sought and granted in February 2021, before teacher interviews and analysis of lesson plans began.

A key piece of this study is analyzing authentic work completed in the program to determine how the program itself affects novice teacher learning and philosophy. Therefore participants were not asked to submit any additional work specifically for this study. Study participants turned in coursework based on program guidelines although not all work was submitted from each participant. Coursework was submitted through an online platform I had access to due to my position as Fieldwork Supervisor in the program, requiring no additional time from participants to submit directly to me. The only additional time commitment was from participation in the interview. Syllabi were largely provided by the Program Manager of the teaching program for analysis. Specific procedures used with each data source are described below.

Syllabi

To gather the course syllabi for analysis, the Program Manager of the teaching program provided the syllabi for most of the courses through a secure drive. After reviewing the documents and the course plan available on the program website along with one provided to pre-service teachers, I determined that a few syllabi were missing. I was able to have these syllabi emailed to me from program participants who had them in their personal files.

A total of 18 syllabi were collected and analyzed. The syllabi represented all coursework for both years in the program, except the state-required Health course that is not designed by the program and therefore not part of this dissertation. Participants take a total of 24 courses over two years in the program, but, as noted, some courses share syllabi and instructors. Program participants enroll in a course titled *Directed Field Experience* in each quarter of the program. This course is their student teaching placement and time in the field, coinciding with their seminar course and sharing a syllabus. Including their Directed Field Experience course, participants took 6 courses in Fall Quarter 2020, 6 courses in Winter Quarter 2020, and 5 courses (including the Health course) in Spring Quarter 2020. During the Fall and Winter Quarters of their first year in the program, participants take a teaching methods course. Students are split into separate science and math groups (seven total courses are offered in Fall and Winter quarters, but participants take six depending on the single subject credential they are earning - math or science). Additionally, some participants worked toward their Bilingual, Cross-Cultural, Language and Academic Development (BCLAD) certification. Those courses, however, were not included in this analysis since not all participants pursue this certification. During their second year in the program, when participants are full-time teachers, they enroll in two courses each quarter which include their work on the master's degree project and field support with

Fieldwork Supervisors; these courses operate from the same syllabus each quarter. Three of the total 18 syllabi are from their second year in the program.

Lesson Plans and Materials

Throughout their first year, participants must submit lesson plans for review regularly. All lesson plans were submitted via a secure online portal used by the program that I had access to as a Fieldwork Supervisor in the program. After the 2019-2020 school year, I accessed the first lesson plans submitted by participants in Fall 2019 and the final product of their first year, a Project-Based Learning (PBL) unit submitted during the COVID-19 school closures for future analysis. In total, there were 28 lesson plans from 15 participants (four participants worked in pairs to complete their PBL units). The COVID-19 closures beginning in March 2020 prevented some participants from implementing their final submitted lessons in their student teaching placements. They were, however, able to submit what they had planned to implement if the shift to remote learning had not happened. I ensured that I had all materials participants submitted for each assignment and reviewed all materials in the secure portal while analyzing.

To begin, I read through each plan and accompanying material, taking initial notes about the content, lesson objective, materials, any reference to UDL, and the lesson itself. After reviewing all plans and materials, I composed a memo of questions, ideas, and connections. I then used the UDL-Observation Management Tool (UDL-OMT) developed by Basham and colleagues (2020). It is a 42-item tool meant to assess UDL alignment in a classroom or learning environment. The tool is divided into 4 sections: introducing and framing new material (6 items), content representation and delivery (9 items), expression of understanding (7 items), and activity and student engagement (9 items). Each item is rated on a scale of 0-3 (0=no evidence of UDL, 1=incomplete evidence of UDL in environment, 2=UDL is occurring, 3=dynamic, interactive

UDL). The tool is designed to be flexible, for example depending on when an observation occurs, an observer may not need to use the entire tool because they may not see evidence of each section.

I met with the designers of the UDL-OMT and received an introduction to the background of the tool and how to use the tool for lesson plans and lesson observations. Unfortunately, the plans and materials submitted were often inconsistent, the same lesson plan form was not utilized for all three submissions by all participants, some participants did not use a lesson plan form at all, making use of the tool challenging as a means to understand the extent of UDL implementation. It became clear that a consistent measure of implementation would not be possible. Therefore, I chose to take a more exploratory approach and use the notes taken about each lesson to inform ideas about the trajectory of learning for each participant and across participants. I noted practices that could be connected to the three principles of UDL: visual and auditory directions, student choice, options for task completion, in addition to other practices noted in the Data Analysis section.

Interviews

All 15 participants who agreed to be part of this study were contacted via group and individual email to schedule interviews to be conducted via Zoom. Interviews were conducted in Winter 2021 with 10 participants who responded. All participants were provided the Study Information Sheet via email. Participants were informed that interviews would last approximately 30 minutes and that no preparation was needed on their part. I provided an individual Zoom link to each novice teacher to log in for the interview. When the participant and interviewer were logged in to the Zoom session, the interviewer obtained verbal consent for participation and reminded the interviewee that everything said would be confidential, that the

interview could be stopped at any time, and that they could have their information removed from the study after the interview concluded if they wished. Before recording, the interviewer asked and received permission from each participant to record. All 10 interviews were recorded via Zoom and saved to the university's secure cloud. Once I transcribed the interviews, recordings were removed from the cloud.

To begin each interview, I asked participants to identify their race/ethnicity and gender and to provide an overview of their school site along with the courses they were currently teaching. Interviewees were asked if they felt prepared to teach SWDs, if and what they remembered learning about UDL in their program, their school site's level of support for them to teach SWDs, how they see UDL in their planning even if they did not remember learning about it, and what they wish they knew before entering their own classroom. Appendix C includes the full list of interview questions. Follow-up questions were asked to probe further based on individual responses. I took notes while conducting interviews, making connections between coursework, prior observations, and across interviews being conducted. Upon completion of each interview, I wrote a memo of observations, questions, wonderings, and connections. When all 10 interviews were complete I wrote a composite memo connecting all interviews. After each interview, I used the Zoom transcription service as the basis for transcription. I was able to view each interview a second time while transcribing and reviewed the Zoom transcript for accuracy, making any needed corrections. Then, I read the transcripts fully once they were complete, noting general observations while reading, adding to original memos conducted after each interview.

Validity

To establish validity, I employed several techniques. First, using three different sources of data allows for triangulation, seeing the plan for learning the syllabi, the interpretations of learning through implementation in the lesson plans, and the understanding of learning from interviews with multiple participants. Second, long-term involvement with participants throughout their entire program created trust between participants and me as the researcher. Next, rich data obtained through long-term involvement with participants in the program produced a great deal of detailed data to examine and compare. Finally, comparisons between and among participants throughout the entire process served to establish connections and helped me to document similarities and differences in how participants interpreted the same experiences (Creswell, 2009).

Data Analysis

The intertwined goals of the UDL framework, the TPEs, and program goals create a space to examine how teacher education programs incorporate these into their participants' learning experiences. Outcome measures such as lesson plans and actual teaching provide insight into how teachers interpret what they are learning. Using a constant comparative approach, I analyzed each source separately and then examined the connections between and across sources through continual review and iterative analysis (Corbin & Strauss, 1990).

Syllabi

Following the work of Rambler (1982), before reviewing syllabi I defined what I could possibly see in each syllabus signaling inclusion of UDL or related topics: UDL in the titles of readings, reference to UDL course descriptions, and assignments about UDL or those using the framework (Hazel et al., 2020). Examples include readings or references to the CAST website, work by the developers of UDL (Meyer, et al., 2014), or mention of any of the three guiding

principles of UDL. From this, I developed a chart that included a checklist (Appendix D) to mark

each occasion in which UDL was referenced, a resource designed using UDL practices was

included, or participants had to complete an assignment using UDL principles. Following an

initial review of the syllabi, I wrote a memo of observations and wonderings generated from the

overall review. Initial findings showed few mentions of UDL, which led me to begin to reassess

how UDL could be seen and what methods would best illuminate how UDL is or is not

incorporated in the program.

Then, using content analysis methods, I examined the planning and structure of each

course to determine if/when UDL was included, adding to the previous layer of assessment. Each

syllabus contained the standard language about SWDs accessing university supports; this was not

included in the analysis. After finding few instances of the mention of UDL, I expanded the

terms to include the more encompassing language of disability and special education, adding

those terms to the checklist and chart. Since euphemisms or other terms associated with

disability, such as "difference," "differently-abled," "exceptional learner," or dis/ability" are

often used, these were also noted and included as well. Terms generally associated with

disability in education such as differentiation, Individual Education Plan (IEP), and special

education were also noted. This required me to look beyond just the words on the checklist and

examine the underlying ideas presented in the syllabi concerning disability and UDL. The

subsequent reading consisted of line-by-line analysis, entering the specific information into the

chart - required course texts (articles, book chapters, YouTube videos, podcasts, etc…), optional

texts, mention of disability, an allusion to disability, mention of UDL, an allusion to UDL,

evidence of UDL in assignments or course construction, and additional notes that may have been

needed (Scott et al., 2017). Determining if a syllabus alluded to UDL or disability required

examining language used in the syllabus in conjunction with the actions students would be required to take (assignments, discussion topics, reflections, for example).

Once this process was complete I drafted another memo of findings. This showed holes in the analysis since an assessment of course materials and content could not provide enough depth by only including the title of the materials/readings in the analysis. In the next round of review, I included all available abstracts or summaries for articles, books, videos, podcasts, and any miscellaneous materials. Not all materials contained abstracts and I was not able to find all materials for all courses due to expiring webpages or materials that were no longer available. All of the titles referencing disability were available. Table 2 shows the total number of readings/course materials I initially planned to analyze by quarter and the number of unavailable materials. From this table, one can see the highest number of readings/materials were assigned in the first quarter of the program (Fall 2019). This is the quarter participants spend most of their time in the field observing and then preparing for their gradual incorporation into the classroom as novice teachers, the foundation is being laid at this time.

To determine how often specific terms were used in each abstract, I searched each for the following terms: Accommodation(s), Disability(ies), Differentiation, Universal Design for Learning (UDL), special need(s), special education, Individual Education Plan (IEP). I totaled the use of each term or concept for that reading. I then took notes on each abstract, noting if/when the text may have features that align to UDL or disability if either were not explicitly mentioned. For example, Moll and colleagues' (1992) work does not explicitly include the terms listed above, but its overarching concepts align with that of UDL - asset-based approaches to students and student learning, students coming with life experience and knowledge that can be built upon. Similarly, the program uses Vygotsky's (1978) work explaining constructivist

approaches to learning to underscore the need to engage learners, build scaffolds into lessons, and create social learning environments. In addition, these texts and concepts are used throughout several courses in multiple quarters of the program, illustrating the importance placed on these ideas within the design of the program. Though UDL and disability are not explicit, novices could potentially draw connections between these readings and the strengths and needs of SWDs.

In addition to reviewing abstracts, I added a column to the chart to note specific references to the TPEs found in each syllabus and the alignment between TPEs and course content. Determining which TPEs were guiding the construction of each syllabus can illuminate underlying connections to UDL or disability that may not be explicit in the syllabus. Not all syllabi listed TPEs and not all syllabi linked TPEs to specific readings/materials which were noted in the chart therefore connections could not be drawn in all courses.

These analyses produced overarching categories when looking solely at the syllabi. The categories informed analysis of interview data and illuminated teacher learning, to be addressed later. They show the concrete concepts in the syllabi along with how the intentionality of the program guides new teachers to certain concepts and how this lands with participants. Categories found included: educational theories, educational practices, explorations of identities (race, LGBTQIA+, gender, language status). How the structure of the program influences teacher learning and philosophy is explored in more depth in individual interviews.

Lesson Plans and Materials

After reviewing each set of lesson plans/materials, I generated initial notes based on the content of the lesson and additional information about the intended teaching practices intended for use. After this process, I evaluated the plans and material using the UDL-OMT. The lesson

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plans, however, proved too inconsistent for quantitative analysis using the tool, as stated previously. Many of the lesson plans/materials did not contain enough specific information for the ratings to prove comparable between or across participants, especially because of the small number of participants in the study. The tool was useful in pointing out specific aspects of UDL that were or were not included in the lessons such as student choice, focus on lesson goal, and student clarity on what they are learning, but I was not confident in their consistency for this study.

I was able to use notes taken about the lessons to provide examples of practices teachers used in their plans that do or do not align with UDL principles such as types of assessments, evidence of student choice, efforts to engage students in lessons, and support for students' executive functioning. I coded the notes for evidence of these practices to illustrate how new teachers implement practices that offer students multiple ways to access and interact with the content.

Interviews

After completing each interview, I carefully reviewed the transcripts provided by Zoom and made all necessary corrections (for example, an incorrect transcription of a word or phrase) to ensure accuracy. While reviewing, I stopped as necessary to take down notes. Then, I read the transcripts fully once they were complete, noting general observations. After all interviews were fully transcribed, I read each interview again, individually recording observations between and across interviews in a series of memos. Next, I combined all interviews into a single document and did line-by-line analysis of statements made by participants for initial coding (Saldaña, 2021), breaking down the transcripts into discrete pieces, and labeling each concept discussed by a participant. I used the comment feature in Microsoft Word to note these individual concepts

such as participants' perceived preparation level, memories of UDL, mention of program components, and what they would have liked to have learned. I noted more detailed observations as well. Table 3 includes examples of initial codes. These included how participants discussed SWDs, their overall teaching philosophy, references to specific courses, individual classes, or specific readings. When participants were discussing their planning and teaching, I noted specific strategies, examples of UDL in practice even if the participant did not recognize this as UDL, and ways their experiences of student teaching impacted their planning.

After all transcripts were reviewed and initial coding was complete, I moved to axial coding (Saldaña, 2021; Strauss & Corbin, 1990), creating categories based on those that emerged during open coding. In service to the research questions about teacher learning specific to UDL and SWDs, the categories that emerged were: Preparation, UDL Familiarity, Philosophy, Experiential Learning, Sites of Learning, and COVID-19. Table 4 provides examples of each category. The categories provided a view of the data that consolidated the initial or open coding into the next phase. I reviewed the transcripts identifying these categories as the next level of review and analysis. After completing this, I wrote another memo drawing connections between and within the interviews.

From these categories, four themes emerged from the interviews: Participant Interpretation of Material Presented, Where Teacher Learning Occurred, What Were Specific Examples of Teacher Learning, and Personal Teaching Philosophy. Table 5 provides examples for each of these themes in participants' own words. Instead of coding for specific instances or mentions of UDL, I decided to wrap this into what they had learned generally and then break out connections to UDL. Each theme serves to reveal a different aspect of teacher learning. After reviewing transcripts and systematically identifying the themes throughout, I reexamined codes

to ensure they represented the data accurately as they related to the research questions. Table 6

shows how the codes moved to categories and finally to themes. To establish reliability, I created

clear definitions of codes, reviewed codes continually, and created a table to define themes based

on codes to maintain consistency when applying themes to the interview transcripts. In addition,

my second coder and I met to review the codes and processes. I reviewed each step of my

process with her, she then coded 30% of the transcripts (three interviews) using the themes

identified above. We met after and discussed any differences coming to 80% agreement on the

themes identified.

Results

The purpose of this dissertation is to determine the extent to which teachers learn about

UDL and SWDs through their teacher education program, how new teachers interpret that

learning, and how they take that learning to their classrooms. In addition, the study aims to take

steps to understand how teacher learning and one's teaching philosophy intertwine. The

following research questions frame this research: (1) What are general education teachers taking

from the teacher education programs about SWDs and UDL? (2) How are general education

teachers making meaning of what they are learning in their teacher education programs about

SWDs? (3) How are teachers synthesizing information about UDL and disability learned in the

entirety of their teacher education programs? (4) How does a program based on social justice

incorporate learning about disability? Three data sources: syllabi review, interviews, and lesson

plans/materials were used to gain context about what teachers are expected to learn about UDL

and SWDs and how they understood and interpreted that learning. Qualitative methods provided

the framework for data analysis employing a constant comparative approach to allow for an

iterative process while analyzing data (Creswell, 2009; Creswell & Poth, 2018). Results from each data source are reported below.

Syllabus Review

As stated, course syllabi reveal the overarching framework the teacher education program uses to guide the learning of new teachers. Syllabi provide answers to what teachers are meant to learn in the program, the values the program holds, and how teachers will learn these values. Research Question 1 asks, "What are general education teachers taking from the teacher education programs about SWDs and UDL?" To understand what teachers are taking from the program, we have to first understand what the program offers. After reviewing all course syllabi the findings could be grouped into four categories: syllabus overview, course readings, course assignments, and TPE alignment. The findings of each are described below in a broad overview of the program down to a more detailed look into a single class.

Syllabus Overview

The syllabi as a whole showed little direct information about UDL and only some focus on disability. Below is a description of the initial results when reviewing each syllabus in its entirety. These results include only the titles of course readings, those will also be examined in more detail below. Beginning with the initial review using the chart in Appendix D, I found that UDL was directly mentioned in one syllabus in the program. Table 7 shows the number of times UDL or disability are mentioned in the program by quarter. Two syllabi use terms or phrases that may indicate UDL: "inclusive environments," "multiple representations." Of the six courses students take in their first quarter, disability is mentioned in the syllabus of three courses as either 'disability,' 'difference,' 'dis/ability,' or 'special education.' The courses were science methods, seminar, and *Teaching in Urban Schools* (a course paired with seminar/fieldwork). In

the second quarter, students take six courses including the required course on special education. Four courses mention either "diverse student needs," "special needs," or reference disability through readings or content. These four courses are the second quarters of science methods and seminar, *Teaching in Urban Schools*, and *Principles of Teaching Exceptional Individuals* (the special education course). Two courses allude to what could be UDL using terms such as "differentiation" and "multiple representations." Finally, of the four courses taken in the third quarter, two reference disability with terms such as "special needs" or "special education." Two courses allude to UDL with the terms "inclusive learning environments" and "multiple ways to present content" and highlighting the importance of using technology to support student learning, a common UDL practice. *Principles of Teaching Exceptional Individuals* offers one mention of UDL. There were no references to UDL or disability in the syllabi for the second year of the program. Syllabi do not provide enough detail to determine what the presentation of information looks like in class.

When examining the readings for each course by looking at their titles, few direct references to UDL or disability were found. Five syllabi, about 25% of the total syllabi, included required readings that explicitly mentioned special education, disability, learning "differences," or differentiation in their title, none referenced UDL. The science methods course was one of the main courses in which participants learned teaching techniques specific to science. This course extended over the first two quarters of the program, requiring a book referencing disability for both quarters. However, while the first quarter weekly schedule does show the use of this text, the second quarter does not. Math methods, the course in which teachers will learn techniques unique to teaching math, was also two quarters and also required a text about differentiation, but

only in the second quarter. For both of these classes, how these texts are used beyond the assigned chapters to read is unclear.

Beyond their work in methods and seminar classes, all participants take a class titled *Principles of Teaching Exceptional Individuals*. This course intends to cover topics specific to SWDs, for example, how to respond to their needs. It is in this description that UDL is listed as one of the responses. The title and abstract of the required course book indicate it is a series of case studies meant to guide general education teachers in their understanding of SWDs. Unfortunately, the syllabus of the course did not include a weekly schedule to provide more information about the design of the course and how teachers were meant to gain further understanding of teaching SWDs. The assignments for the course include creating a lesson plan in a small group based on a sample IEP and conducting an interview within the field of education, but it does not specify that the person has to work with SWDs. How participants remembered and what they drew from these assignments will be presented in the interview section. This is the only syllabus in the program with detailed mention of disability, special education, and UDL.

Overall, after reviewing the syllabi for mention of UDL or disability, UDL only appears directly in one syllabus and disability in 10 of 18 total syllabi. Most syllabi do not offer enough detail to determine how UDL and disability are specifically addressed in class and what participants learn. Connections between readings along with the core principles of the program emphasized the importance of supporting all students, honoring their knowledge, and recognizing and respecting differences. Course readings do offer further insight into how UDL and disability are handled within the program.

Course Readings

As stated, the initial syllabi review did not provide a robust understanding of what the courses offered to participants about UDL and disability. Course readings provided a mechanism for a more in-depth examination of the courses and how UDL and disability are presented. Paired with a review of the program's mission and goals along with demographic information about participants' teaching placements, the course readings provide evidence of the values of the program as they relate to the program goals for teacher learning. As stated previously, all teachers are placed in Title 1 schools with primarily Latinx students. The students' needs cross identities and recognition of this is apparent throughout the readings in the course syllabi with a primary focus on race, ethnicity, and English Learners.

In total, participants are assigned 156 readings: book chapters, books, podcasts, reports, websites, or videos, across their courses over the length of the program. Table 8 shows the total number of readings by quarter and the number of readings each quarter in which the abstract or summary includes one of the following terms: accommodation(s), disability, differentiation, UDL, special needs, special education, and/or IEP. If a reading was repeated, each instance is counted in the total. The total number of readings drops significantly from the high of 68 readings in the first quarter, tracking an increase in responsibility teachers have in the class, especially notable in quarter four when they are now the teacher of record in their own classrooms. Of the readings I was able to access, seven individual sources include reference to disability or UDL based on a search of the terms listed above, approximately 4.5% of the total readings in the program. Four of the seven readings are books, two guide the science methods courses. Carr and Bertrando (2012) is listed in two quarters but only on the weekly schedule in the first quarter. While Tomlinson and Moon (2013) is used in the second quarter of the science methods course. Another text guides the math methods course (Carr et al., 2009) in the first

quarter. The final book guides the special education course (Torres & Barber, 2017). It is important to note that books do make up a large part of the materials that address disability, as opposed to articles, but the syllabi do not all provide enough detail about how participants engaged with the materials.

To understand the central ideas of the program, three articles are read several times, creating continuous threads back to the program's core values. I counted each time one of these articles was listed in a different class toward the total number of readings since this has implications for workload and importance to the mission of the program. The repeated articles are Moll et al., (1992) -repeated 3 times, Ladson-Billings (1995) - repeated twice, and Duncan-Andrade's (1997)- repeated twice. Although none of these articles directly address or mention UDL, the central themes, particularly of Moll and colleagues and Ladson-Billings (Waitoller & King Thorius, 2016; Alim et al., 2017) align with the central tenets of the UDL framework, recognizing the variability of all students and the need to pull from students' strengths. Without mentioning UDL or its principles, similar ideas are included through readings such as these which may impact teacher learning and how they understand their SWDs.

Finally, the course *Teaching in Urban Schools: Exploring Identities* allows teachers to delve into their own philosophy of education and the many identities students may have. Course readings explore race, gender, sexuality, and ethnicity and include two readings about disability (Annamma, Conner, et al., 2013; Annamma, Boéle, et al., 2013). One of the weekly topics is "Critical Disabilities Studies" where the work of Annamma, Conner, et al. (2013) is included as a reading that half the class read (readings are split among the class with each grouping sharing what they read in class, it is unclear what the other reading for the week is). This article asks readers to examine disability from varying perspectives, illuminating the connections between

racism and ableism and laying out the author's framework, DisCrit. This is the students' first

exposure in the program to this framework which builds on and connects to other frameworks

introduced in the program such as Humanizing Pedagogy and Queer Theory. Although not all of

these frameworks are developed specifically for education all provide novices with a lens to

examine the education system. Other courses in the program do not have related readings or

content on their syllabi.

Course Assignments

Since one of the tenets of UDL is student choice, I also examined if syllabi showed

evidence of choices participants could make in their learning, a way to model how they could

incorporate choice for their students, for example. In some form all classes did offer participants

choice, they were able to choose the topic for required papers, the mode they would use to

respond to readings, the topic for lessons, and options to complete work in groups. There was no

evidence, though, that these options were given to model UDL. Additionally, syllabi offer

inconsistent details about course assignments offering notes that more will be discussed in class.

The final assignment participants complete at the end of their first year is to create a

Project Based Learning (PBL) unit. PBL allows students to work on a project over an extended

period of time instead of only at the end of a unit (What is PBL?) A focus on PBL requires a

focus on choice, centering students in instruction, and student voice, all values that align with

UDL. Key components of the project ask participants to incorporate students' families and/or

community along with designing a student presentation that is culturally responsive and/or

related to students' real lives. No direct connections to UDL are presented, but the parallels are

evident through the culturally responsive component and empowering students to incorporate

their own communities and knowledge, similar to Moll and colleagues' (1992) work.

TPE Alignment

The TPEs provide guideposts for teacher education program planning and are often noted on course syllabi. However, the labeling of TPEs in syllabi is inconsistent. Some syllabi identify specific expectations and subcategories, others only provide a list of overall TPEs (for example: listing all 6 expectations), and finally, some syllabi have no reference to the TPEs. I specifically looked for references to TPE 1.4 and 4.4 because each specifically references UDL. Three classes list TPE 1.4, both quarters of math methods and the language development class. Five classes list TPE 4.4, both math and science methods list this in the first quarter, the second quarter of science methods, *Social Foundations of Education*, and *Language Instruction, Acquisition, and Development*. The exceptional learner class lists TPE 4 overall. In the final quarter of their first year, the critical media literacy course also lists TPE 4 overall, but no other courses referenced either TPE 1.4 or 4.4.

Summary

Looking solely at the syllabi as a unit of data, emerging themes showed materials on the practice of teaching and theories about teaching and education that center students and families. Creating and maintaining community with students and their families is a consistent idea coming through multiple courses and assignments. Students focus on understanding communities in their first quarter, center their identities as teachers in the 2nd quarter, and focus on relationships with families in the third quarter in the program. In addition, multiple syllabi address deficit lenses or frameworks from which communities in urban spaces have often been seen. The aim seems to be to flip this idea and although this does not directly address UDL or disability, the concepts dovetail with one another as disability has often been referred to solely through a deficit lens. Ultimately, UDL and disability are not given specific focus throughout the program.

Lesson Plans/Materials

Originally, I was planning to review lesson plans for evidence of UDL using the UDL-OMT. The variety of lesson plans and materials submitted, along with the small sample size proved to be challenging to rate and then compare scores. For example, some participants submitted only materials such as worksheets or PowerPoint presentations, while others submitted agendas or full lesson plans for their first submission. Evidence of what was actually occurring in the lesson varied widely, with some materials offering detailed plans of what both teachers and students would be doing while others simply gave general overviews of the lesson goals. I decided to take and analyze detailed notes of the lesson plans, noting specifically what strategies participants planned to employ. The strategies noted are not exhaustive of what teachers were implementing. Often the lesson plans and materials did not contain enough information to determine specifically how the lessons would be taught. The anecdotal notes from the first lesson plan submission and the final lesson plan submission of participants' student teaching year offer some insight into what strategies teachers were using in their instruction, and if those strategies were aligned with UDL.

Strategies

One of the most common strategies participants used was group work. The lessons from the first submission included group work in 11 lessons, while four lessons do not provide enough information to determine if group work was included. Unfortunately, the plans were not detailed enough to determine if participants had structures in place for groups or if they were using heterogeneous or homogenous groupings. Group work is a central piece of eight of the PBL lesson plans as well, while six of the plans do not contain enough information to determine if participants have their students working in groups. Several of these plans note that students are

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allowed to choose their groups for the PDL unit. Teachers are providing avenues for student choice and independence through groupings by the end of the student teaching year, a key component of UDL.

In addition to group work, teachers listed several strategies to support students in their lesson plans. The initial lesson plans/materials showed teachers using timers on PowerPoint slides, contained references to graphic organizers they would use, showed work broken down into smaller parts, and references to students' prior knowledge. Participants have also embedded some student choices into their lessons. For example, students in a Chemistry class can choose which element they are going to explore in one lesson. One teacher listed points in the lesson when she was going to check for understanding to ensure students were following along with the lesson. The detail provided in lesson plans was critical to determining the strategies participants were using. Unfortunately, it was not possible to determine all strategies that were being used because of the nature of what was submitted. What can be seen from their initial submission, though, is that teachers are employing supportive strategies from the outset of student teaching. The strategies are often entry-level but can benefit all students. They are not implementing a wide variety of strategies that show their depth of understanding of how to support SWDs and implement UDL yet.

Project Based Learning Plans

For their final project of their first year, participants submitted plans for a PBL unit. Unfortunately, the COVID-19 closures affected the extent to which lessons were implemented and how they were designed, especially because distance learning was new at the time and schooling procedures were inconsistent across all settings. These plans varied in their depth. Some participants only submitted a single sheet while others were able to submit and implement

full plans and include work submitted by their students. Participants aimed to create engaging lessons and projects, so that students would be able to connect to the content, following the principles of UDL and PBL. Even if they did not hit the mark with their plans, they were learning about what they could do with their future students.

Since this lesson submission is part of a series, it offers a broader look at what teachers were capable of planning by the end of their first year. The first submission was a single lesson showing what teachers would be expected to do at that early point in their learning. The PBL submission offers a wrap-up that is meant to engage the variety of skills they were exposed to throughout the year. Projects focused on climate justice, poverty, the chemistry of cooking, and food justice in their students' own communities. Although it is not referenced, teachers were focusing on the Multiple Means of Engagement principle of UDL. They were engaging families and communities by having students explain the chemistry of a family recipe, for example, or address an issue students could choose in their communities. Participants intentionally created plans their students would be able to bring their own knowledge to, relying on the assets they knew their students had. They were aligning to UDL principles and course readings they had completed (Bartolome, L., 1994; Ladson-Billings, 1995; Moll et al., 1992). Student choice is also evident in many of the PBL plans. Students were able to choose their groups and group roles in one plan, they can choose the recipe they will examine in another, and how they will present their findings about how to prevent further COVID transmission in another.

Summary

Overall, these lessons show signs of a novice understanding of how to engage students and how to allow them opportunities to show what they know in different ways. Participants were using strategies that align with both accommodations and UDL. At this point in their

program (end of their first year) they were still gathering knowledge to implement. Unfortunately, their second year in the program does not offer intentional and specific support for learning more about SWDs or UDL, except for me as their fieldwork supervisor. This makes deepening their knowledge in either area a challenge and leaves that learning largely up to what their school sites offer or what they seek out on their own. The interviews provide insight into how they make this transition. Further study is needed about actual implementation, tracking changes over time through consistent means, and what students learned from the lessons.

Interviews

Interviews allowed participants to share their perspectives about what they learned in the program about SWDs and UDL. In addition, participants were able to share how they believed they were implementing what they learned in the program. Interviews were conducted via Zoom when teachers were in their second semester of teaching in their own classrooms and the second year in their teaching program. All were teaching via fully remote distance learning due to COVID-19 and had not met their students in person. Interviews with approximately one-third of the math/science cohort (10 participants) provided a variety of perspectives. Four themes emerged through the analysis of the interviews: *Participant Interpretation of Material Presented, Where Teachers Learn*, *What Teachers Learn*, and *Philosophy of Education*. Further description of each theme is included below.

Participant Interpretation of Material Presented

The responses to interview questions revealed how varied each participant's experience in the program was. This category shows that even though participants were presented with the same information in their classes, how they interpreted that information depended on several

factors: their student teaching placement, their educational experiences, and their life

experiences. Table 5 contains additional examples of responses illustrating this theme.

When asked if they felt prepared by the program to teach SWDs, three participants stated

they did not feel prepared, three felt somewhat prepared, and four said they did feel prepared.

They not only interpreted their learning experiences differently but also what it meant to be

prepared to teach SWDs. Abby (interview participants have been given pseudonyms, see Table

1) did not feel prepared to fully participate in and make recommendations at IEP meetings, or to

refer students to begin the assessment process to determine special education eligibility. She did

not remember learning this information in her classes and her guiding teacher did not provide her

with details about students in her class who had IEPs. Her student teaching placement and what

she felt was missing was a key factor in her answer. However, Kamile said she felt very prepared

to teach SWDs. She cited her guiding teacher's support as the reason she felt so prepared but did

not cite other aspects of the program in her answer. Carrie remembered presentations novices

gave in the special education class about disabilities and ways to support students, but most

participants did not recall these.

Another participant, Alex, questioned how much the program could reasonably prepare

participants because there was only so much information that participants could absorb in the

time allotted. He stated, "Given the kind of like pedagogical theoretical approach in classes at

[the program] I think I was prepared enough to go into work and figure out the rest based off of

the specifics of like what's happening inside of that classroom…" From his point of view, the

program gave him the tools that he needed to develop the skills once he knew his students and

their needs. In particular, he stated they had an entire class to learn about IEPs and he had many

SWDs in his classes in his student teaching placement. These two experiences intertwined for

him in such a way that gave him confidence in his knowledge about SWDs as he started teaching. He stated the following about starting in his classroom,

it seemed more like putting into practice, some of the things that I had learned and trying to remember those things that I had planned without. Yeah, maybe I'm not perfect or great at it, but I think I was exposed to it and didn't feel like I was drowning but it didn't feel like I couldn't handle it.

After planning, he was checking to make sure he had included supports he had learned in the program, for him this was enough.

Each of these perspectives shows how for some participants, the pieces of the program came together to compliment one another. For others, crucial learning was left out. Abby felt information about how to support SWDs was missing while Kamile stated she learned much of this from her guiding teacher. Abby also did not recall the special education class the same way Alex had and this made a big difference in how prepared she felt. Alex raised an important question about what and how much can realistically be included in the program and how much new teachers can absorb and eventually take to their classrooms. The participants' perspectives show that the program cannot rely on one way or place for teachers to learn. Participants may be in the same class and take away very different experiences. The program has less control over what happens in student teaching placements but far more control over what happens in the classes participants take. Because disability and UDL are not at the forefront of the program it was easy for participants to miss this information.

Where Teachers Learn

Participants explained that where they learned about teaching is not simply a location, but a collection of the places and ways they learned. For example, some of the "places" cited by

participants were the program itself, guiding teachers, their time as students, prior experience in the classroom, and personal experience with a disability. Table 5 contains additional examples. What was notable about their responses were the many different connections each participant had made. Based on their perspectives, teacher learning is dynamic and occurs all the time and in many places. Where teachers were learning about SWDs and UDL varied based on participants with some stating they learned about SWDs in guiding teachers' classrooms, school professional development, university classes, peer support, and life experiences. Still others had little experience with and knowledge of students with disabilities. How they learned about UDL was not as varied as many did not remember learning about UDL in their teaching program and schools were not providing professional development about UDL.

About Students with Disabilities. In noting where they were learning about teaching, participants revealed the spaces in which they were and were not learning about SWDs. Examples were their guiding teacher's classroom, school professional development, university classes, peer support, and life experiences. Each place mentioned by participants reveals where their teaching influences came from, along with the missing pieces, or the places they were not learning about SWDs.

Guiding Teachers' Classrooms. For some participants, their guiding teacher's classroom was one of the most important places for learning about SWDs. Participants spent more time with their guiding teachers than in any other part of the program. Guiding teachers were highly influential to the participant's learning and growth as teachers. Kamile stated, "everything we did she showed me a process of how to modify instruction not only like how I was teaching like the things that were coming out of my mouth, but the tools that I made for teaching the lessons, the assessments." Her guiding teaching made learning about SWDs a continual process throughout

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Kamile's time in this classroom. Julia's guiding teacher instilled in her the importance of following students' IEPs and their role in helping students reach their IEP goals by reminding her that SWDs have specific goals and it is their job to help the student reach the goal. But, another participant, Jessica, noted she was not learning the same set of skills as the other participants partially because her placement was in a magnet program where many "high performing" students attend. Very few of the students in her classes had identified disabilities, so student teaching provided little practical experience about working with SWDs to take to her own classroom. A place where she spent most of her time during her student teaching year was not effective for learning about SWDs. If a guiding teacher's classroom was not a place where participants learned about SWD's, other parts of the program would have to make up for that missing piece.

School Professional Development. School professional development (PD) was only mentioned by one participant as a place where they learned about disability, and this was only at their current school placement. No participant brought up PD at their student teaching placement, many may not have participated in the PD the site offered during that time due to other obligations. Jessica described that her school had a continual process of discussing SWDs, led largely by the assistant principal who has a personal connection to people with disabilities. This was completely different from her student teaching placement where she did not learn about disability, IEPs, or UDL. Doug, who teaches at a school with a unique program for twice-exceptional learners, expressed that he had a lot of support for working with SWDs at his school, particularly in his co-taught classes. His school PD, however, was not focused on teaching SWDs. Doug stated about the school's PD, "I wish ... more like direct practical techniques for special ed. students and I do find myself frustrated sometimes because it's not that."

Nevertheless, Doug's school-site support and learning relied largely on his co-teacher to ensure he knew what was needed for his SWDs. From his perspective, the school as a whole was not focused on how to teach SWDs.

June also said her school had not had any professional development about SWDs. She noted that her school is a magnet school with very few identified SWDs. Kamile had a similar experience at her magnet school, not unlike Jessica's experience during her student teaching year at a magnet school. Although Kamile had contact with her school's Resource Specialist Teachers, June had not, presumably because none of her students had IEPs. She did not state if she knew the school's process for identifying SWDs. It is important to note that schools may have decreased the amount and type of professional development they had due to distance learning and COVID-19 building closures. School site PD is another place teachers could be learning about SWDs, but this was not happening for all participants. It was another thread of the program that was not connecting participants to learning about SWDs.

University Classes. Although participants struggled to remember what they learned in specific classes, one class came to mind for several participants. They remembered the instructor of the class *Language Structure, Acquisition, and Development,* who noted when specific practices they were discussing would benefit both emerging bilingual students and SWDs. This was of interest because it came up in more than one interview and seemed to be a class where participants were able to apply what they were learning directly to their work. Participants saw the direct connections between different student needs while providing support to all students using similar strategies. Kamile stated:

classes supporting English Language Learners was a really, really high priority and I

understand why right, like if we're teaching in [the school district] that is a huge priority,

but I didn't see that same vein of supporting students with IEPs in the same way.

Doug found this connection too throughout the program noting when discussing assessments in

the science methods class, "there was always like a little blurb about how it would support both

English Language Learners and students with special needs." Learning strategies that supported

both seemed to go hand-in-hand, but more in-depth learning about disabilities did occur across

classes. Participants did not discuss ELs who may have had a disability or vice versa.

The class *Principles of Teaching Exceptional Individuals* was not cited by participants as

a place they felt they learned about SWDs in a way that impacted their teaching or everyday

experiences at their schools. Dom shared that in his opinion the information in the special

education class was "great," but did not state that he used it in his teaching. It may have been that

he simply did not have the opportunity to use what he had learned yet. He did not remember or

cite specific information. Julia remembered learning about students with complex needs who

attended separate schools. Carrie remembered presentations about specific disabilities done by

other students, but not the specifics of any of the disabilities covered. Abby stated that the

exceptional learner class did not help her in her teaching and that this was not a place she learned

about SWDs. In all, participants made note of the science and math methods classes, seminar, the

exceptional individual class, and the language class when discussing where they were learning

about SWDs in their university classes. The connection between their learning and applying it to

their classrooms varied by course and interpretation. This is not necessarily in the program's

control. What is in the program's control is what is taught and centered in its classes.

Peer Support. Finding support from peers in the program was another important "place" for participants' development. Peer support often made up for what they may not have been learning elsewhere. Jessica mentioned that she learned from peers in her cohort who had more SWDs and English Learners in their classes. Of one peer she noted, "we would like plan stuff together, I was learning so much from her because that's the kind of stuff that she had to be doing." Jessica's peer, in a very different placement than her own, had spent a great deal of time working with her guiding teacher to meet the needs of SWDs. For several participants quick conversations they had with peers, or when instructors gave them a few minutes to share with one another were important to their growth. This was not necessarily structured within the program, could easily have been missing, and may have been missing for several participants. Learning from peers seemed contingent upon participants needing information to support their students and seeking a peer to work with. If they did not need to seek this support, they would have missed this opportunity since it is not specifically laid out in the program, an opportunity for growth within the program.

Life Experience. Finally, life experience came through as another place for learning. Jessica reflected on her years as a teaching assistant in classes that had SWDs and brought lessons learned from those experiences with her to her classroom. Kamile and Dom described their experiences having disabilities and the impact that has had on their learning and teaching. Both shared they felt they were able to connect more to SWDs or at least their experiences because of their time as students. Dom shared, "I think that at least gave me a basic understanding of having to be flexible, of having to communicate in their language or style and just understand that they don't see the world the same way, and so we have to communicate in the way they do." Having to find ways of teaching that worked for all students was not a surprise

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to either. For others, such as Julia, their own education was a significant place where she learned about teaching, but this did not necessarily include SWDs. Of course, teachers learn from a variety of places. What is challenging is taking all of these experiences and developing teachers within the social justice mission while including students of all abilities.

Participants' reflections on where they were learning about SWDs were inconsistent and varied from participant to participant. Each space provided different experiences and information. For some participants, that meant they received useful information, while others felt they did not learn enough from these spaces. Ideally, information lacking in one aspect of the program would be picked up in another - what was not covered in classes would be covered by guiding teachers, but this was not the experience for participants when it came to SWDs. There was no balancing out of what they were learning in different places and several felt they missed important content because of this.

About Universal Design for Learning. When asked if the program was a "where" of learning about UDL, seven participants remembered something about UDL in the program. Recollection ranged from definitive "yes" to "I think" or "maybe." Most participants could not name, specifically, where they had heard about UDL. Jessica remembered being asked reflective questions by myself, her fieldwork supervisor, about UDL and accessibility in her placement even though, as noted, her placement during student teaching had very few students with IEPs. June also remembered a short presentation I gave about UDL and differentiation during a seminar class in the program. June also offered this statement, "I definitely think it was across the program, I think I learned it at different instances through the program ..." She was able to list classes she remembered hearing about UDL, but other participants were not able to identify such specifics. Kamile did not remember UDL at all and Valerie had only a vague recollection.

The integrative nature of the program, the length of time between the interviews and when they took the classes, and completing the program during a global pandemic, may all account for participants' challenges in identifying where or if they learned about UDL.

Some mentioned possibly hearing about UDL in one of their classes, but several did connect and bring up parallel ideas learned in their classes and attached those to the principles of UDL during the interview. Dom specifically stated connections to readings and concepts such as funds of knowledge when asked about UDL:

we were given a lot, as far as the motivation, the enthusiasm, the again a connection to

funds of knowledge, the connections of prior learning the connections to just engaging

and soon on a social-emotional level, to get them connected with the material.

He went on to discuss who multiple access points was one of the concepts repeatedly emphasized by the program. Kamile and Valerie highlight this connection as well. Others connected UDL to how they built scaffolding into their lessons because, as they stated, they learned this is in the program. Jessica mentioned she struggled with this because her guiding teacher did not demonstrate scaffolding, but Carrie stated that she was beginning to do this naturally and "without thinking." None of the participants mentioned their school sites as a "where" for learning about UDL.

Having several "wheres" for participants to learn from offers the opportunity for many perspectives, but also opens the potential for information to be lost. The program facilitated several "wheres" for learning, the university classroom, their student teaching placement, and their classrooms. Each of these is meant to complement one another, but based on interview responses this was not happening for all participants when it came to learning about SWDs and UDL. What was missing in one place was not necessarily picked up in another, particularly

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instruction about UDL. This affected how confident participants were to teach SWDs and their practice when teaching. Teachers were making connections across settings, but could not do this if the information was never there in the first place.

What Teachers Learn

To answer the questions that guide this study it became clear that identifying what exactly teachers were learning, from their perspective, was important. After noting where teachers were learning, it was obvious participants were bringing together concepts and practices from multiple places. They were making connections between and across their in-class learning, personal experiences as teachers, and their own life experiences. Participants were able to connect those concepts and practices to UDL's overarching tenets without being shown the connections or even given a name for the ideas. Where teachers learn is deeply connected to what they learn, a reality teacher education programs must balance. If a teacher is at a school with few SWDs they may not have the opportunity to learn about specific teaching methods from their student teaching placement. They will, instead, have to rely on what they learn in other elements of the program, as shown in the section above. Responses that illuminate what participants learned were broken into the following categories: what they learned about SWDs, what they learned about UDL, the connections they were making, what they wanted to learn.

Students With Disabilities. Participants' knowledge about SWDs was often limited to the IEP process, accommodations, and vague memories of presentations about eligibilities for IEPs. Carrie recalled presentations about several of the eligibilities that can qualify students for an IEP from the exceptional learner class but did not remember further details about disabilities. Many did not seem to know about disabilities or the basic information about how to teach SWDs, based on their interview responses. Participants were not asked about specific disabilities

and did not discuss any further information they may have known about specific disabilities. If participants had an understanding of disability justice or the medical and social models of disability, for example, this did not come out in the interviews. What came out in the interviews was that all teachers felt responsible for making sure their teaching met the needs of all students and that they believed they needed to change their instruction if students were not learning.

Accommodations. Throughout the interviews, several participants referenced accommodations they used in their classes or learned about in the program. When asked if she thought she was prepared to teach SWDs, Julia responded that she felt that she was and cited her use of accommodations in her classes as one example, "I've naturally just started to like repeat directions and, like use sentence starters, for all the students, which, hopefully, makes the students who have accommodations feel like more inclusive and that they're not just having specific things for them." Within this statement she reveals two important ideas. First, repeated directions and sentence starters are common accommodations in IEPs. Julia is showing how those strategies have become a natural part of her class. Second, before being asked about UDL, she stated a key idea in the framework, that is, providing accommodations for all students allows everyone to feel more included and to have more tools for learning at their disposal. Julia continued to reference accommodations and the need to accommodate lessons for students throughout her interview but does not go further into what she learned about supporting SWDs. Kamile said she learned about accommodations from her guiding teacher and her personal experiences. Meanwhile, Alex mentioned how difficult it was to implement some accommodations in distance learning, but only specifically referred to preferential seating. His statement offered fewer examples of accommodations he was using in his class. As participants discussed accommodations when asked about SWDs, they showed that they knew these were

necessary and were their responsibility to implement. Participants did not, however, offer a more in-depth understanding of SWDs or UDL.

Universal Design for Learning. There is no way to ensure all participants in the program take away exactly what is intended because they are all coming from different backgrounds and experiences. Their perspectives shape their learning and their interpretations of what is presented. This could be seen in participants' responses to what they learned about UDL, keeping in mind that three participants did not remember UDL at all, four thought they might have remembered something, and three did remember UDL. Presumably, if they had remembered learning about UDL, they might remember more about UDL itself. When discussing if she remembered UDL, Carrie stated, "Like I definitely remember doing UDL and how it should be like multiple means multiple opportunities like various ways, because everyone learns differently, and everyone can learn." She remembered "doing UDL" in the program, which to her meant focusing on student choices, such as incorporating choice boards into lesson and unit plans. She had not been able to incorporate this into her lessons/units up to this point though. She was the only participant who spoke of her experience with UDL in this manner. Other participants who remembered the term seemed to have a cursory understanding, Dom and Kamile remembered "multiple access points" being mentioned in connection to UDL.

Course Readings. Although participants were not able to articulate details about UDL, they were able to see the connections between what they had learned in the program and UDL. They were able to reflect on these connections, or the lack of them, in the ways they were taught and the ways they were teaching. For example, when shown Figure 1 (all participants were shown the graphic when asked about UDL), participants were able to connect what they were doing in the classroom with the tenets shown. Alex made these connections, "it seems like

Culturally Relevant Pedagogy addresses maybe the representation piece, engagement is something like a phenomena-based like approach." The Multiple Means of Representation principle often guides teachers to find multiple ways to show what students are learning. Alex's connection to Culturally Relevant Pedagogy (CRP) (Ladson-Billings, 1995) shows a broadening of the idea of representation, an awareness of students' need to see themselves in their learning, and a deep connection to coursework. Both Alex and Carrie made the connection to the phenomena-based approach learned in the science methods course, an approach that centered students' learning in their community, a further connection to CRP. Both were able to make connections quickly after seeing Figure 1. As mentioned above, Dom connected UDL to accessing students' "funds of knowledge" (Moll et al., 1992), a reading fundamental to the program, as shown in the syllabi review.

Figure 1

The Universal Design for Learning Guidelines
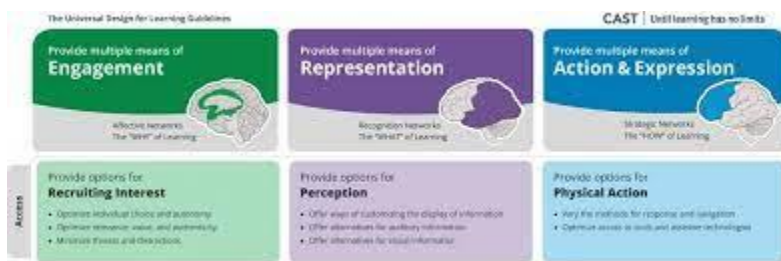
"Multiple access points". Several participants made the connection between UDL and the phrase they heard from many sources in the program, "multiple access points." They recalled instructors and guiding teachers reinforcing that students needed multiple access or entry points to the curriculum and content. Kamile stated, "my guiding teacher really made it clear that you needed to have multiple points of access and multiple points of entry for students to get into the lesson." Her guiding teacher, along with several others, were graduates of the same teaching program. Dom remembered instructors in the program stressing the need to have different access

points as well. He connected this to providing options in assessments, the UDL principle Multiple Means of Action and Expression, by stating that he gives assessments with different types of questions. Alex stated, "I want to make sure that there's multiple ways for students to make some type of connection to what we were talking about in class. So that's really center [sic] in how I go about my teaching." His statement aligns with the UDL principle, Multiple Means of Engagement. The interpretations of what multiple access points meant, from instructors to guiding teachers, to participants varied with no singular definition coming from one source. This statement shows participants learning a set of theories and strategies that are parallel to UDL, but this parallel learning can also lead to misinterpretation of UDL. Participants may believe they are using the framework when in fact they are not. A future study on implementation could help answer these questions.

What They Wanted to Learn. Finally, all participants were asked what they would have liked to learn in the program specific to SWDs. Answers covered a range of areas from practical teaching skills to more preparation for IEP meetings. Abby suggested, "being given a sample IEP and being asked, based on the classes that we're teaching, how would you make accommodations for a student with this particular IEP." A similar suggestion was made by several participants, they wanted more practice making sure their lessons were accessible to all students and making sure they fully understood what the accommodations in an IEP meant and how to implement them. As noted above, an assignment of this type was included on the syllabus for the exceptional learner class, but this was not referenced or remembered by any participants. Abby also felt she was not prepared for how to recommend a student for assessments for an IEP or how to make recommendations for accommodations at IEP meetings. She would have liked more focus on these areas. In addition to more practice, Dom and Valerie would have liked to

have been able to observe special education teachers working with students, either at their student teaching sites or elsewhere, to see what specific techniques may look like in action.

Based on the interviews, participants learned about disabilities in one of their classes and learned some techniques for teaching SWDs in four classes in total. They learned about accommodations and the IEP process. Several participants recognized UDL and were able to connect the principles with other concepts they were learning in the program such as CRP, phenomenon-based teaching, and funds of knowledge. Based on their responses, UDL and SWDs were not a large part of the program. It was clear that participants wanted to know more about how to teach SWDs, but many understood that there were limitations in what the program had time to cover. What they learned covered basic concepts and left them needing to know more after they completed the program.

Philosophy of Education

Without being directly asked, participants' education philosophies came through in their responses. In the program, participants are not given a philosophy to subscribe, but rather are provided a variety of materials from which to draw their own conclusions. Beginning in their second quarter in the program they reflect on and start writing their Philosophy of Education for an assignment. They are asked to reflect on all that they have learned and read so far and connect that to their experiences in the classroom. Their philosophies came out in the ways they addressed their curriculum, their planning, and how they believed they should interact with students. While connections between philosophy and the UDL framework were not explicit, major tenets such as: meeting students where they are, getting to know and developing relationships with students, and designing curriculum and choosing content that embraces and

honors students came through, all hallmarks readings from the program (Bartolome, 1994; Howard, 2002; Ladson-Billings, 1995, Moll et al., 1992).

The social justice framework that the teaching program uses to guide its instruction was clear to many participants, as shown by Doug saying, "I think the philosophy in the theoretical kind of frameworks [in the teaching program] as well prepared me for which is like more of a teaching philosophy, you know the asset-based and differentiating learners like those sort of kind of frameworks." Doug's school's program for "twice exceptional" learners, means he has a concentrated number of SWDs in some of his classes and must respond to their needs. The philosophy he was developing in the teaching program provided him with the framework he needed to meet the needs of all of his students, if not all of the teaching tools. This is shown when he mentioned asset-based thinking and differentiation. He also stated that he did not believe the program would be able to fully prepare anyone for the classroom because of the time constraints and the variety of placements participants had. Nevertheless, he believed the program gave him the foundation he needed to move forward in his teaching career.

Like Doug, all participants noted in multiple ways that the students in their classes were theirs to teach, meaning they had to figure out the best way to meet their needs. None of the participants said they believed others were responsible for meeting the needs of the students in their classrooms. Dom noted, "if it's not working, you need to find a new technique." He felt it was his responsibility to find ways to reach all of his students, there was no divide between his SWDs and any other students in his classes. This came from both his personal convictions based on prior experiences and lessons learned within the program, aligning with key UDL ideas that teachers need to make the curriculum accessible to all students. All participants shared the belief that they were responsible for bringing the curriculum to students and meeting their needs. They

cited the program's focus on asset-based thinking as one of the places that reinforced this belief. It came through in what they said and what they did not say in their interviews. None of the participants stated SWDs were the responsibility of another teacher, they all believed they had to meet their needs in their classrooms.

At the end of his interview, Alex noted "...at the school that I'm teaching at, it seems like everybody needs some sort of accommodation, or has some sort of like learning disability and that doesn't take away from their potential to do well in school…" He was not demeaning students, but recognizing that at his school, when more than 25% of the students have an IEP and 99% qualify for free or reduced lunch, all students needed some type of support beyond what may be traditionally given. He saw the need to honor his students by supporting their unique needs so they can achieve. This shows another connection to the philosophy behind UDL without him specifically stating that connection. He believed he would not be able to effectively teach his students without providing additional supports to all, no matter their label. Here he reveals a cross between what he learned in the program and his school's philosophy and student needs. These connections were present for all participants and showed their developing philosophies around access to education for all students.

The interviews show that where and what teachers were learning varied for all participants. Each was bringing their own lens to their classrooms, which impacted their interpretations of what they learned in the program. For some participants, but not all, guiding teachers and school sites provided direct learning experiences, and the time and space to practice implementing strategies for working with SWDs. The coursework provided another place to develop strategies and philosophies, but again, not all for all participants. Life experiences

provided a third place to draw from. However, not all participants had experiences working with SWDs. This is not something the program could rely on for student learning for everyone.

Summary

In all, the interviews showed that the program provided many learning opportunities, but this did not prevent participants from feeling like they were unprepared to work with SWDs. If one of these opportunities was not intentional about including SWDs or UDL, another opportunity did not necessarily fill in the gaps because there may not have been intentional inclusion of SWDS or UDL in that opportunity either. The parallel set of beliefs many participants were defining were from very intentional choices the program made to include certain readings, though none were specific to UDL. Therefore, participants' depth of knowledge about UDL was understandably minimal, and their knowledge about SWDs was primarily about implementing accommodations. Participants would need further time and support to develop their knowledge about both SWDs and UDL.

Each data source in this dissertation provided a lens with which to examine multiple aspects of the program, ranging from what teachers were supposed to learn, to how they interpreted that learning, and how they began implementing this understanding in their classes. The syllabi show a social justice focus across the program, but that did not include a focus on disability and UDL. Based on interview data, participants can identify the basics of UDL in their planning and teaching. They could see the choices they offered students, the importance of reaching all students with the tools they offered everyone in their classes. All this was done without explicit instruction in UDL. The lesson plans show that teachers are implementing some practices that align with UDL even if they were not aware of it. The lack of awareness presented challenges for many students in moving forward with deepening the practices that benefit all

students, they did not have the depth of knowledge and understanding this would take, based on interview data. Finally, many participants realize their knowledge of SWDs and UDL has much room to grow and participants are seeking ways to learn more.

Discussion

Teacher education creates a foundation for pre-service teachers as they establish their career. Hopefully, it provides them with enough knowledge and skills to enter their classrooms prepared to teach all of their students. General education teachers must be prepared to support a wide range of students, particularly, SWDs. Making up nearly 14% of public school students, many SWDs spend the majority of their day in the general education setting with a general education teacher. They are responsible for implementing accommodations that the IEP team has decided are necessary for student success, especially when special education teachers are not present. They must design a curriculum that meets all of their students' needs, and they have to know how to do this as soon as they enter their classrooms.

Examining a cohort of pre-service teachers in a single teacher education program reveals how a teacher's knowledge about disability and UDL is built. This is especially relevant for the participants in this dissertation whose schools range from having 3.2% SWDs to 26.8% SWDs. Gottfried and Kirksey (2020) found that many general education teachers in California feel prepared to teach SWDs when they complete their programs; what they are learning though is an important question. The next step is to see how their preparation aids in their transition to their own classrooms. Syllabi review, exploratory review of lesson plans, and one-on-one interviews help to illustrate the answers to the research questions guiding this dissertation.

RQ 1: What are general education teachers taking from the teacher education programs about SWDs and UDL?

What They Are Learning

A review of the course syllabi shows pre-service teachers are introduced to information about SWDs and about perceptions of disability (Annamma, Boelé, et al., 2013) but disability is not a central focus of the program as shown by the limited number of reading/materials about disability. The program is designed to meet the needs of students from specific areas in a large urban city who are primarily Black and Latinx, many of whom are recent immigrants or first-generation students. The program's focus on these students and their needs is a necessity, but it is possible that focusing primarily on certain identities leaves out the needed context that other identities, such as disability, provide. That is because of the interconnected nature of race and disability (Annamma, Conner, et al., 2013; Ferri & Connor, 2005), both are inextricably linked and teachers, in particular, context. The program misses an opportunity to connect one of its core principles, anti-racism, and UDL (Fritzgerald, 2020) because there is simply not a great deal to take from the program about disability and even less about UDL.

This presents a potential challenge for general education teachers when they are teaching students who have disabilities, those who may be exhibiting signs of a special education eligibility, or a student who has been inappropriately provided with special education services. Although interview data show participants remembered that disproportionality (over and underrepresentation of students in special education based on race, ethnicity, language status, gender) in special education (Cruz & Rodl, 2018; Kozleski & Proffitt, 2020; Skiba, et al., 2016) was covered in the special education class, few of the interviewees mentioned a possible connection between general education teachers and special education referrals (Park, 2020). Abby mentioned that she did not feel she had enough information to make recommendations for assessment for services or accommodations at IEP meetings. This was echoed in statements

made by Julia and Carrie who were not always sure of their role in the IEP process and at IEP meetings. This is particularly important because of the cross-section between SWDs and those who are emerging bilinguals and/or who are Black and Latinx (Annamma, 2018; Harry & Klinger, 2014). Although this cohort only has middle and high school teachers, students in secondary school may still need to be referred for an evaluation for special education services.

Further, since general education teachers are required to provide vital information about accessing the general education curriculum at IEP meetings, preparation is needed to do this effectively. Additionally, several interview participants noted the depth their classes went into when discussing strategies for teaching emerging bilinguals and for honoring language diversity. However, they stated that they did not think they spent a similar amount of time on teaching strategies for SWDs or learning about disability in general. There was an awareness by some participants that they were missing information that they felt they needed to be successful in the classroom with all students.

Similar to disability, UDL is not a central focus of the program. Therefore, it is expected that teachers would not be able to reference and define UDL itself in detail in the interviews. The syllabi show little direct reference to UDL itself, though participants mentioned UDL in passing references. But, work by others has shown that even an hour-long presentation on UDL can have an impact on teacher understanding of UDL (Spooner et al., 2007; Courey et al., 2012; Frey et al., 2012). June remembered and was able to connect to the one presentation given on UDL. Other participants were able to remember bits and pieces brought out in other parts of the program and references to UDL in passing. It is unclear if they would have made such connections without being directly asked about UDL in the interview. The concepts that underlie UDL were emerging in their responses though. They believed their job was to reach all students

in their classes and to find ways to teach all students effectively. These beliefs are key tenets to UDL (CAST, 2018b; Myer et al., 2014), and for many, the beliefs were shaped by all that they were learning in the program, rather than by separate pieces. Without a strong foundation and the space, time, and support to continually build their craft, it is not clear how participants can develop more depth in supporting SWDs.

What They are Taking to Their Classrooms

When asked if they planned with UDL in mind, none of the interview participants stated that they did. Based on their interview responses, however, they were planning with a parallel set of ideas guided by what they learned in the program. They were taking the concepts of honoring knowledge students already have (Moll et al., 1992), asset-based thinking (Yosso, 2005), and community-centered learning (Murrell, 2000) to their classrooms. Initial review of their early work while student teaching through lesson plans showed the implementation of some techniques that align with UDL practices, such as structured group work, timers, and universal access to resources (calculators, iPads, textbooks). Many participants noted that they looked for student strengths, ways to connect with students, and ways to access student prior knowledge to build additional build upon what students brought to the classroom, concepts they covered in detail in the program (Moll et al., 1992; Vygotsky, 1978; Yosso, 2005). The question is, does this parallel set of ideas provide enough support for teachers to actually reach all students without bringing in specific knowledge about UDL and disability? Edyburn (2010) noted that UDL implementation could and should not be assumed, but that its implementation requires a set of skills and intentional practice. Without intentionally introducing and supporting UDL the program may not be allowing teaching to truly understand what it means to design learning with all students in mind. Since several teachers were not receiving a great deal of support from their

school sites about disability and UDL it is also important to consider how teachers will grow their knowledge without a foundation.

Further, at multiple points in the program, the ideas and concepts that guide UDL are brought into the program and align with many aspects that the program highlights, without mention of UDL. Vygotsky's Zone of Proximal Development (ZPD) (1978) underlies much of the UDL, pushing students further with scaffolded support. Of the interviewees, eight specifically referenced learning about scaffolding in their program and how they were scaffolding concepts for students as a way to involve and engage more students in their lessons. Another paper guiding the framework of the program is Moll and colleagues' (1992) work about funds of knowledge, positing that all students come with knowledge that they can apply. This parallel idea connects to UDL's ideas that students come with knowledge teachers can connect to in their planning and the idea that all students can learn. The program regularly asks participants to challenge deficit notions (Yosso, 2005), examine community-based teaching (Murrell, 2000), and put students and community at the center (Howard, 2002), but this does not cover disability. These notions provide background for a framework of asset-based instruction and beliefs, but without direct instruction and time to reflect on the impact of disability, it is unclear whether participants can incorporate this knowledge in their teaching. Additional study into how participants take what they are learning to their classroom over time would be beneficial.

Finally, participants are also introduced to legal concepts and responsibilities along with broader concepts of what normal means in schools (Annamma, Boelé, et al., 2013), particularly around ideas of ability. But, this occurs during one week only, in one class; overarching concepts of disability are not reinforced over time based on responses from interviews, particularly from those who responded that they did not feel prepared to teach SWDs. These concepts and ideas

merit further study within the program as they greatly impact students' educational history, how students learn, and teachers' understanding of student progress.

In all, participants were learning about multiple concepts of justice in the classroom and were pulling from many of these concepts to inform their teaching practice. They were not, however, introduced to UDL in-depth in the program and therefore could not take UDL tenets specifically to their classrooms. They did learn teaching strategies and educational theories as shown by the syllabus review, lesson plan review, and participant interviews. In addition, disability was not covered in depth either and therefore was not a central part of participants' learning. There are multiple points within the program where UDL disability could be incorporated, particularly within the methods courses. Participants could work from the UDL lens of planning with everyone in mind from the start in these courses which would require more understanding of UDL and disability from the start. Also, the courses focusing primarily on theory do not address disability, a hole in participants' learning that could be filled with the abundance of work on disability available.

RQ 2: How are GE teachers making meaning of what they are learning in the teacher education program around SWDs?

Making meaning was seen in how participants brought ideas together. As noted, disability and UDL were not a central focus of the program therefore they were pulling from many different aspects of the program to explain their understanding of UDL in their interviews. Some participants connected their learning to their experiences with their guiding teachers. Their residency (Coffman & Patterson, 2014) in an experienced teacher's classroom was the foundational experience from which the rest of their learning came (Mourlam et al., 2019). Some connected their guiding teacher's classroom to the coursework, while others built their

foundation from the coursework. All of the interview participants noted that it was difficult to remember specifics from their classes and that what they learned seemed to blend together after a while. This may have prevented them from citing specifics, but as stated previously, they are aligning their work with the theories highlighted in the program whether they are fully aware of it or not. The absence of discussions about UDL and disability from these spaces speaks to its low priority in the program and impedes participants from accessing this knowledge as they develop their teaching philosophies.

The exploratory examination of lesson plans shows teachers planning to use the strategies they were learning in the student teaching year, word walls, grouping strategies, use of timers, for example. Participants were very early in their learning process and the foundational knowledge was present. How the knowledge is maintained and the foundation built upon after they leave the program is explored in the next question, but it was clear participants were taking what they learned to classrooms. The same could be done with UDL and disability. Introducing this later reinforces the idea that it is something additional, but not a core part of the program.

Teachers are making meaning of what they are learning through practice, reflection, and collaboration. For some, these exercises occurred during their student teaching placement where they had the opportunity to work with many SWDs. Others, however, were confronted with these tasks only when they began teaching in their own classrooms where, for the first time, they had to support SWDs. As participants were responding to questions, they were actively reflecting on their learning, reminding themselves of the genesis of their teaching philosophies. They discussed relying on peers to learn, grow, and deepen their practice. Some of this development was stunted by COVID-19 because participants were not able to have as many spontaneous conversations with peers. Still, they were finding new ways to support one another as none of the

participants alluded to their learning being in isolation. Interactions with a peer or a mentor, even if it was simply a text, pushed participants to deepen their practice.

To promote deeper understanding, participants requested more practical experience, time developing and trying lessons/activities that would meet the needs of more students, or observing teachers working with SWDs. The program can strengthen the connection between theory and practice by being intentional about including these opportunities. This serves several purposes. One is to have teachers simply practice teaching, but another is to highlight the importance of designing lessons for all learners. It moves disability toward the center of the program and ensures participants see and understand their role in meeting the needs of all students.

RQ 3: How are teachers synthesizing information about UDL and disability they learned in the entirety of their teacher education programs?

An important aspect of the program is learning to craft lessons and units for students using the educational theories presented. Throughout the methods and seminar courses, participants are required to submit lesson plans for specific assignments. These plans show how participants are synthesizing all information they are learning in the program. Seminar brings all members of the cohort together to examine ideas of community, family engagement, and identity. This course aligns with the student teaching where, rather than exploring abstract concepts, participants create tangible lesson plans to be presented for their students in their teaching placements. This requires participants to make meaning of, and then synthesize concepts into practical application, for their students. Ginsberg and colleagues (2021) found that the deliberate and intricate connection between coursework and student teaching placements made the integration of practices more seamless and grounded in teachers' reality. Additionally, Burroughs and colleagues (2020) note the importance of strong partnerships where the university

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and school sites align on theory and practice. The importance of this balance among components in teacher learning and placement is seen when some participants noted that they felt some of the learning about special education, disability, and UDL was missing.

Bringing the concepts together comes out through their teaching and how they discuss teaching. The interview data show they are connecting their learning and practice to their thinking. Participants were uniform in their understanding that it was their responsibility to meet the needs of their students. Participants brought together multiple sources of learning from their coursework, teaching experiences, and prior knowledge to create a framework for how they think about meeting these student needs throughout their teaching career.

Unfortunately, the program does not intentionally offer space for participants to synthesize knowledge about UDL and disability. This is particularly evident when compared to the space given for participants to synthesize learning about the impacts of multiple identities on student learning. Identities such as language learning, immigration status, race, ethnicity, gender, and sexual orientation are rightfully given space in the program, while disability is not in the same manner. By excluding disability, the program is not deliberate in having participants explore the connections between each of these identities. The goal is not to pit one identity against another, but to see how they work together (Crenshaw, 1991). This is particularly important for the population of students served by these teachers because so many forces impact their students' academic success.

RQ 4: How does a program based on social justice incorporate disability in its program?

The program does not put a focus on disability in coursework which is not unusual in general education teaching programs (Gottfried & Kirksey, 2020; Grimsby, 2020). Based on interview data, this knowledge can come from guiding teachers or school sites. For some

participants who had a guiding teaching or school that incorporated disability into their learning, they were able to add additional skills or deepen their understanding of teaching practices that could be beneficial for SWDs. Participants who did not have a guiding teacher or school site that supported this learning often did have the means to learn this within the program. Most responses to questions about their understanding of SWDs centered on their teaching practice, not necessarily on an understanding of disability, which was understandable based on the context of the interviews. But, this lack of knowledge could lead to under- or over- identification of students who may or may not have disabilities. In addition, it could accidentally perpetuate stereotypes about disability or provide incorrect information. More in-depth focus on SWDs, disability in general, and UDL could provide needed understanding and context that is currently lacking. Disability cannot be left out of discussions about social justice. To do so ignores a significant population of students.

Teaching programs in California are now required to prepare both general and special education teachers with the same framework at least at the initial stages. The time is ripe to look at what programs of all types are doing to prepare teachers to work with SWDs. For this program in particular, reviewing the central tenets, the population of students they intend to serve, and the mechanisms used to prepare teachers in the program as a whole could highlight spaces where disability is not part of teacher learning. When this is determined next steps are to look at how this can not only be incorporated but how the program can draw connections between and across identities that impact students' lives to center disability as it does with other identities. On a larger scale, policymakers at the local, state, and federal levels can support teacher education programs by providing guidance and resources to ensure disability is not an afterthought, but part of the core of all programs.

Limitations

This study contains several limitations. First, the small sample size limited perspectives and generalizability of results. Second, the number of participants was limited to one cohort within a larger program; participants who were working toward other credentials (English, Social Studies, Elementary/multiple subject) may have different views based on their experiences in the program. Third, COVID-19 school building closures limited the number of observations that could be conducted, therefore limiting both my ability to track use of UDL strategies over time and what teachers were taking from the program to their classrooms. Next, although my relationship with participants created trust, working with others would have allowed additional perspectives and voices when analyzing data. Finally, I did not conduct observations of university classes or interview faculty additional insight into what happened in class could have come from this additional data.

Further, I was not able to use the tool, the UDL-OMT, which I originally planned to analyze the lesson plans due to inconsistencies in submissions. Uniform lesson plan submissions would have provided needed consistency. Using this tool would have provided an additional measure with proven reliability.

Future Directions

Since this study focused only on one cohort within the teacher education program, a study that includes participants from across the program would provide a more complete view of what all participants are learning about UDL and disability. Following a group beyond their first year to at least their second year in the classroom, when they are no longer participating in the program, could also provide important information. Tracking how former participants' teaching methods, philosophy, and understanding of SWDs informs what practices teachers continue to

use from their teaching programs and how they refine or move away from these practices would provide a great deal of information for the program to use. One could also see the impact of their school of employment on their teaching practices.

California's transition to more inclusive teacher training requirements to prepare all teachers to work with SWDs opens new ground for research to assess and analyze how these practices are implemented. Following the progression of both general and special education teachers through their learning process, while tracking associated student outcomes, in this new system, is an area in need of further study.

Conclusion

Participants in this dissertation were presented with multiple theories and strategies to prepare them to teach. UDL was not one of the prominent frameworks explored, and learning about disability was not central to the program. Participants had knowledge gaps about IEPs, teaching strategies, and UDL. Teachers, however, did come away from the program believing that it was their job to meet the needs of all students. They wanted more knowledge and more tools to use in support of all of their students. All participants believed that all students in their classrooms were theirs to teach and support, the next step is guiding them to how. If disability is not named, we cannot make the changes necessary to improve outcomes for students (Crenshaw, 2016).

Table 1

Interview Participant Pseudonyms and Demographics

Pseudonym	Gender	Race/ Ethnicity	Grade Levels	Total Enrollment, 2020	Percent SWDs, 2020	School Type	Title 1 (yes or no)
Alex	Male	Latinx	6-12	492	26.8%	Traditional	Yes
Abby	Female	Bi-racial	6-12	555	5%	Application Required*	yes
Carrie	Female	Asian	9-12	1964	11.4%	Traditional	yes
Doug	Male	Asian	9-12	2352	10.2%	District Affiliated Charter	yes
Julia	Female	White	6-8	524	17%	Traditional	yes
Jessica	Female	Latinx	9-12	519	7.7%	Traditional	yes
June	Female	Latinx	6-8	1275	11.9%**	Magnet	yes
Kamile	Female	Black	6-8	1555	3.2%	Magnet	yes
Dom	Male	White	9-12	2586	9.2%	Traditional	yes
Valerie	Female	Chinese	9-12	457	9.6%	Traditional	yes

*school is a public school, part of the same school district, but requires an application

**data only available for the entire school, not magnet program

Table 2						
Number of readings not available						
	Quarter					
	1	2	3	4	5	6
Number of readings in total	68	51	24	6	5	1
Number of readings unavailable	3	9	5	1	0	0

Table 3

Examples of Initial Codes

Mention of UDL	Yeah I, we did at least get a good general introduction overview of what it is.
	I'm not sure how much of it, you can just learn from like hearing other people instead of like trying it out
	We were we talked about it we've definitely like skimmed over it at the time.
	Yeah, I think. The How of learning, in the What of learning yeah I think this was not in this way, like explicitly said, like Universal Design for Learning, maybe not explicitly.
	As far as engagement. I try to provide like an opportunity for students to also bring in what they already know,
Student Teaching/Guiding Teacher	My guiding teacher like I don't think and that's, and this is where I think I definitely struggled with like universal design and scaffolding, you know, like because he didn't really do much of that.
	He was also used to like holding students to a higher expectation and so his way of functioning was more so, like if they're not doing it we're going to drop or they're going to be left behind and then they're gonna have to catch up with us which was really hard for me, because I think that is not the way that I wanted to function, and it also like I didn't see this type of scaffolding in action.
	I think I had a good representation of students with disabilities in my student teaching experience also
Teaching Program	We had an entire course at our school to kind of focus and learn about IEPs and what the process looks like.
	I remember specifically examining like IEP documents.
	Yeah so in my methods class we focused a lot on multiple means of representations when teaching math and then with teaching English Learners.
School Site	My assistant principal who is in charge of the middle school is also very much involved with students with special needs.
	Almost all of our classes have students who need these accommodations.
	I think our school is pretty like I think everybody gets it, it seems like all of the adults there understand that our students need maybe more

	support than students that have their schools, and so it seems like all of the trainings are definitely aware of that.

Table 4

Examples of Interview Categories

Preparation	…we had an entire course at our school to kind of focus and learn about IEPS…
	I don't know if I could have learned all of that beforehand.
	Specifically, there have been some students, where I've had to recommend for IEPs but I was never really shown that process never knew who to talk to,
	…really going through and practicing some of those supports and accommodations…
UDL Familiarity	…yeah I think this was not in this way, like explicitly said, like Universal Design for Learning, maybe not explicitly…
	I just don't think it was ever explicitly called UDL and now that I see all of the principles I think all of those were a little bit touched on throughout.
	multiple means of representations I do try to show what I'm teaching within my unit with visuals and I show multiple ways to go about solving a particular math problem
Philosophy	I think is kind of helpful to all students, not just students with accommodations.
	…what I realized is there is really no one way to support them…
	I guess, even with like students who don't have disabilities or are, in general, and they do benefit from a storyline very asset-based I think was something that, like a mindset, I want to keep when I lesson plan.
Learning on Site	…with the understanding that at our school all of our classes have students
	…I've had to kind of learn as I go with support from administrators and my sped co-teacher…
	I also have a Co-teacher with sped certified and he gives me a lot of support.
Where learning happens	…the coursework at [teacher education program]… my methods class
	…she [guiding teacher] made it very clear to me like these students like have like plan set in place and it's like our job to

like make sure that they are like reaching the goals that they set…

Table 5

Examples of Interview Themes

Participant Interpretation of Material Presented	…it seems like there's, there's a lot to learn and I don't know if I could have learned all of that beforehand.
	I don't think that I got very specific training on how to work with students with disabilities
	the information we got in that class [the special education class] was actually phenomenal
Where Teachers Learn	…we had an entire course at our school to kind focus and learn about IEPs…
	I think I had a good representation of students with disabilities in my student teaching experience.
	…in my methods class we focused a lot on multiple means of representations when teaching math…
	…part of the reason I did is because I had an IEP myself going through high school.
	I was learning so much from her [peer] because that's the kind of stuff that she had to be doing in person like in class
What Teachers Learn	I think the biggest accommodation that was at least the most obvious was just like proximity to the teacher…
	…where I've had to recommend for ieps but I was never really shown that process never knew who to talk to…
	…multiple means of representation that was something that came up multiple times…
	I always try to give different access points where there are questions that anyone can answer.

Philosophy of Education	I think it is kind of helpful to all students, not just students with accommodations.
	I realized is there is really no one way to support them and that's, why it does have to be individual for them.
	…everyone learns differently, and everyone can learn…
	…if it's not working, you need to find a new technique because, again, there is something that will resonate with them…

Table 6

From Codes to Categories to Themes

Theme	Where Teachers Learn	What Teachers Learn	Philosophy of Education	Participant Interpretation of Material Presented
Categories	Where Learning Happens	UDL Familiarity	Philosophy	Preparation
		Learning on Site		Learning on Site
	Learning on Site			
Initial Codes	Student Teaching/Guiding Teacher	Mention of UDL	Teaching Program	Teaching Program
		Student Teaching/Guiding Teacher	Student Teaching/Guiding Teacher	
	Teaching Program			
		Teaching Program		
	School Site			
		School Site		

Table 7

Number of Courses Referencing UDL or Disability by Quarter

	Quarter					
	1	2	3	4	5	6
UDL	0	1	0	0	0	0
Disability	3	5	2	0	0	0

Table 8						
Number of Readings Each Quarter						
	Quarter					
	1	2	3	4	5	6
Number of readings	69	51	24	6	5	1
Number readings referencing disability or UDL	2	5	0	0	0	0

Appendix A

UDL Guidelines and Examples	
UDL Principle	Evidence in an observation
Multiple Means of Engagement • Provide Options for Recruiting Interest • Provide Options for sustaining effort and persistence • Provide options for self-regulation	Choices, examples: who to work with, what work to do (problems in math, what to read in other subjects), where to do work in the classroom, choice in the order work gets done, choice in topic of study, group or independent work Culturally relevant – reflects students in the room, reflects more than one perspective Options for reading – audio or paper form Checklists-daily, project or assignment based Group work Feedback loop Clear goals Classroom management/culture systems: community development, Evidence of ways to deal with frustration/anger Connecting to everyday experience
Multiple Means of Action and Expression • Provide Options for physical action • Provide options for expression and communication • Provide options for executive functions	Students responding verbally or in writing Goal setting Spaces in the classroom to move or quiet space Pair, small, or whole group conversations Total Physical Response Time/Work Management Systems Sentence starts, graphic organizers Modeling Activating prior knowledge and experience Simulations Graphic organizers for note taking/writing Options for sharing knowledge (multi-media, written work, verbal)
Multiple Means of Representation • Provide options for perception • Provide options for language, mathematical expressions, and symbols • Provide options for comprehension	Paper or audiobook, text-to-speech Referencing audio/visually to prior lessons Visuals combined with texts or separately Highlighting key concepts Work broken into parts Pre-teach vocabulary, provide vocabulary resource during a lesson Online textbook Graphic organizers Curated videos, pre-recorded videos Closed captioning Access to dictionary Background knowledge – provide or activate (remind) Context resources (ex. How is this used in the real world?) – links in online materials, verbal explanations

Appendix B

University of California, Los Angeles

RESEARCH INFORMATION SHEET

Student Teacher to Classroom Teacher: Supporting Teachers to Support All Learners

INTRODUCTION

Rebecca French, M.A. and Sandra Graham, Ph.D., from the Graduate School of Education and Information Studies at the University of California, Los Angeles are conducting a research study. You were selected as a possible participant in this study because *you are a current member of the Math/Science cohort in the Teacher Education Program at UCLA*. Your participation in this research study is voluntary.

WHAT SHOULD I KNOW ABOUT A RESEARCH STUDY?
· Someone will explain this research study to you.
· Whether or not you take part is up to you.
· You can choose not to take part.
· You can agree to take part and later change your mind.
· Your decision will not be held against you.
· You can ask all the questions you want before you decide.

WHY IS THIS RESEARCH BEING DONE?

This research is being done to determine how novice and new teachers support students with diverse learning needs based on what they are learning in their credential programs. New teachers face increasingly diverse classrooms where students have a wide variety of learning needs, understanding what teachers are taking from their credential programs to their own classrooms is critical to understanding a program's effect and what new teachers need.

HOW LONG WILL THE RESEARCH LAST AND WHAT WILL I NEED TO DO?

Participation will take a total of about one hour outside of work required to be submitted for TEP (lesson plans, teaching videos).

If you volunteer to participate in this study, the researcher will ask you to do the following:

· Participate in two interviews, near or at the end of the novice year and one near or at the end of the first semester of resident year.
· Complete a short survey about Universal Design for Learning
· Allow researcher to view and code teaching videos from novice year and first year of resident year.
· Allow researcher to view and code lesson plans submitted during novice year and first semester of resident year.
· Novice teachers who consent to participate will also be observed using the UDL guidelines along with their Math/Science rubric currently used for fieldwork.

ARE THERE ANY RISKS IF I PARTICIPATE?

There are no anticipated risks or discomforts. Participation will not affect your course work, grade, teaching position, or relationship to the instructor.

ARE THERE ANY BENEFITS IF I PARTICIPATE?

 You may benefit from the study because you will be able to reflect on your work as educators to improve practice. Additionally, you will receive further support in working with students with diverse learning needs.

The results of the research may inform future practices in TEP for supporting new teachers as they learn to support all learners.

 What other choices do I have if I choose not to participate?

Your alternative to participating in this research study is to not participate. Your course work, grade, teaching position, or relationship to the instructor will not be affected.

HOW WILL INFORMATION ABOUT ME AND MY PARTICIPATION BE KEPT CONFIDENTIAL?

The researchers will do their best to make sure that your private information is kept confidential. Information about you will be handled as confidentially as possible, but participating in research may involve a loss of privacy and the potential for a breach in confidentiality. Study data will be physically and electronically secured. As with any use of electronic means to store data, there is a risk of breach of data security.

Use of personal information that can identify you:

Data will be identified with a code, all personal information will be removed. The PI will have the code sheet, others will not have access.

How information about you will be stored:

Electronic data will be secured using encryption or password protection software. Hardcopies will be stored in a locked cabinet with limited access by authorized personnel.

People and agencies that will have access to your information:

 The research team, authorized UCLA personnel, and the study sponsor may have access to study data and records to monitor the study. Research records provided to authorized, non-UCLA personnel will not contain identifiable information about you. Publications and/or presentations that result from this study will not identify you by name.

Employees of the University may have access to identifiable information as part of routine processing of your information, such as lab work or processing payment. However, University employees are bound by strict rules of confidentiality.

How long information from the study will be kept:

Research data will be kept for 5 years.

USE OF DATA FOR FUTURE RESEARCH

Your data, including de-identified data, may be kept for use in future research

WHO CAN I CONTACT IF I HAVE QUESTIONS ABOUT THIS STUDY?

The research team:
If you have any questions, comments, or concerns about the research, you can talk to one of the researchers. Please contact:
PI: Rebecca French – 570-362-3128, becky.french@gmail.com
Faculty Sponsor – Sandra Graham, graham@gseis.ucla.edu

UCLA Office of the Human Research Protection Program (OHRPP):

If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: participants@research.ucla.edu or by mail: Box 951406, Los Angeles, CA 90095-1406.

WHAT ARE MY RIGHTS IF I TAKE PART IN THIS STUDY?

·   You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.
·   Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
·   You may refuse to answer any questions that you do not want to answer and still remain in the study.

You will be given a copy of this information to keep for your records.

Appendix C

1. Describe your classes this semester: grade, content, class and school sizes, make up of classes, Special Education service delivery model.

2. Do you believe you were prepared to work with students with disabilities when you started teaching this year? Why or why not?

3. How did your view of teaching students with IEPs change throughout the year if at all?

    a.   Was your experience similar or different from what you expected?

4. Now that you have completed (are completing) your first semester do you think you entered with enough preparation to work with students with IEPs and UDL? Why or why not?

5. Has your school offered supports in any way for working with students with IEPS and UDL? Please describe.

6. What do you wish you would have known before having your own classes about supporting students with disabilities?

7. Is there anything else you would like to share?

Quarter	Course #	Course Title	Syllabus	Initial Notes	Required Texts	Optional Texts	Mention Disability	Explicit	Mentions UDL	Alludes to UDL	Evidence of UDL in Assignments	TPEs	Notes:
Fall 2019	ED 320A - Math												
	ED 320A - Science												
	ED 330A												
	ED 360A												
	ED 405A												
	ED 406A/B												
	ED 407												
Winter 2020	ED 320B												
	ED 330B												
	ED 320B												
	ED 360B												
	ED 405B												
	ED 409												
	ED 425												
Spring 2020	ED 330C												
	ED 360C												

	ED 405C											
	ED 466											
	ED 305											
Fall 2020	ED490A											
Winter 2021	ED490B											
Spring 2021	ED490C											

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