

Planning Backward to Go Forward

Examining Preservice Teachers' Use of Backward Design to Plan and Deliver Instruction

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ABSTRACT: Undergraduate teacher preparation programs face scrutiny regarding preservice teachers' preparation on graduation. Specifically, scholars contend that teacher preparation programs do not adequately prepare preservice teachers to plan for effective instruction (Darling-Hammond, 2006; Duncan, 2010; National Council on Teacher Quality, 2010). Situated at a large university in the southwestern United States, this action research study used the theory of pedagogical content knowledge (Shulman, 1987) to examine the process that preservice teachers engaged in as they used backward design (Wiggins & McTighe, 2005) to plan a unit of instruction. The study also examined their experiences as they implemented and reflected on their instruction. Results from the mixed-methods study provided evidence that backward design (Wiggins & McTighe, 2005) was an effective way for preservice teachers to plan instruction. Implementing and reflecting on unit plan lessons contributed to the pedagogical practices used in the classroom and resulted in a shift in how participants viewed themselves.

Opening Research



In many higher-education institutions in the United States, clinically based teacher preparation programs face intense scrutiny because of the apparent lack of preparation and skills that students possess on graduation. Leading scholars involved in higher-education teacher preparation programs decry the lack of preparation that students enrolled in teacher preparation programs receive (Cochran-Smith, 2004; Darling-Hammond, 2006; Duncan, 2010; Levine, 2005). Much of the critique surrounds a lack of knowledge regarding pedagogical practices such as classroom management and lesson planning. In a speech at Columbia University, U.S. Secretary of Education Arne Duncan (2010) remarked that teacher preparation programs must do a better job of preparing future teachers to educate our nation's children. Scholars and researchers in the field of teacher preparation call for reform in the way future teachers are educated and prepared for classroom experiences (Lewis, 1998). Henry, Bastian, and Fortner (2011) suggested adjustments to teacher preparation programs to raise prospective teachers'

effectiveness upon entry to the teaching profession. The *Blue Panel Report* (National Council for Accreditation of Teacher Education, 2010) identified clinical preparation as one of the three aspects of teacher preparation likely to have the greatest potential impact on student outcomes. Sustained and meaningful reform of teacher preparation programs requires an introspective examination of the practices that higher-education institutions implement to train future teachers. One such practice under scrutiny is preservice teachers' ability to effectively plan and deliver instruction (Darling-Hammond, 2006). Teacher preparation programs must begin to operate with a sense of urgency to develop preservice teachers as skillful planners.

This study observed how preservice teachers developed pedagogical content knowledge (PCK) as they planned and implemented instruction in their placement classrooms. Situated in their student teaching course, preservice teachers received instruction on unit planning using the backward design (Wiggins & McTighe, 2005) framework to develop their planning skills. Based on instruction, they developed one 2-week unit of instruction to deliver in the placement classroom. The study was conducted at a large public university in the southwestern United States with five preservice teachers.

Theoretical Framework

The theory of PCK (Shulman, 1987) guided this action research study. Shulman (1987) argued that the interconnectedness of content knowledge and PCK is essential for teachers, especially novice teachers. Content knowledge includes the "knowledge, understanding, skill, and dispositions that are to be learned by school children" (Shulman, 1987, pp. 8–9). Shulman's (1987) theory of PCK provides the framework and knowledge base teachers employ to ensure students attain content knowledge. PCK "represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (Shulman, 1987, p. 8). PCK seeks to determine "what teachers should know and know how to do" (Shulman, 1987, p. 19). Moreover, PCK helps teachers clarify challenges that students may have in learning content (Shulman, 1986).

PCK was an appropriate theory for the study, as the study examined how preservice teachers developed pedagogical practices related to backward design (Wiggins & McTighe, 2005). PCK provided a lens with which to view preservice teachers' development. Within PCK resides a model of pedagogical reasoning and action steps (Shulman, 1987). While not meant to be a prescribed list or mandatory steps, the model of pedagogical reasoning and action steps seeks to assist teachers as they develop teaching proficiency.

According to Shulman (1987), the model of pedagogical reasoning and action steps provides a framework for teachers to ponder and internalize content to effectively instruct students. Shulman (1987) outlines distinct characteristics of the model. They are (1) comprehension, (2) transformation, (3) instruction, (4) evaluation, and (5) reflection.

To foster PCK growth in teachers, the comprehension of content knowledge is essential. Teachers must understand and articulate the content knowledge they will teach to students. Once they have internalized the content, they must then carefully consider what the knowledge means. After they understand the knowledge, teachers are able to transform it in a teachable way. When transforming the knowledge, teachers consider the diverse needs of students and make adaptations as necessary.

Transformation allows a teacher to see and tailor instruction to meet the needs of each student. Transforming the knowledge into a presentable format for students is at the heart of instructional pedagogical practice and reasoning. Since teaching is a learned profession (Shulman, 1987), teachers must study their content to proficiently deliver instruction. After instruction, evaluation may begin.

Evaluation is characterized by the ongoing assessment of teaching and learning. During instruction, teachers should constantly check for student understanding to provide feedback and evaluate students' comprehension of the content being taught. Within this model, evaluation is not reserved for students but extends to the teacher (Shulman, 1987). The model urges teachers to evaluate their own instruction to help determine student understanding. Student understanding, in turn, allows the teacher to reflect on and make judgments about the pedagogical practices used.

Finally, Shulman (1987) stated that reflection helps encourage a teacher's continued development. During the reflection step, teachers examine practices used during instruction. Reflection on the teaching practices used should also consider a measurement of student learning outcomes. Engaging in this model, according to Shulman (1987), provides teachers a way to develop their PCK. The following studies highlight how PCK provided a basis for preservice teachers to develop their teaching skills.

A 2010 study conducted in an undergraduate English I/II course sought to provide preservice teachers with knowledge of teaching reading while also developing their pedagogical skills (Atay, Kaslioglu, & Kurt, 2010). Eighteen preservice teachers participated in the study. The study required each participant to read a text and prepare activities to teach to their peers before teaching to students. During peer teaching, each preservice teacher was tasked with keeping their peers' interest and assessing their understanding. After planning for and presenting instruction to peers, each preservice teacher prepared a written reflection and participated in an interview to describe the process and how it impacted their PCK. Comments from participants showed a degree of PCK development as a result of engaging in the study. One student wrote, "My content knowledge was already good but pedagogi-

cally I learned much through lesson preparation and presentation” (Atay et al., 2010, p. 1424). Another commented, “When I was preparing I thought of how I should give instruction, how much explanation I should do, and what to do if something goes wrong when I’m delivering my lesson. It had positive effects on my pedagogic awareness” (Atay et al., 2010, pp. 1423–1424). The students’ quotes suggest that their PCK increased as they prepared, reflected on, discussed, and taught lessons.

Nilsson and Loughram (2011) conducted a study in an undergraduate science methods course. The study used CoRe (Content Representation) to examine preservice teachers’ development of PCK. CoRe is a way to portray a teacher’s PCK in a specified science topic. Within CoRe, participants considered the what, why, and how of the big ideas when planning and delivering science instruction. After planning and delivering instruction, preservice teachers reflected on their PCK development. Participants in the study reported changes in their PCK related to how they planned for and delivered science instruction. One participant stated, “I can really see how much I have changed and developed during only a few months. I can see that I have learnt a lot, but I can also see that I have changed my thinking and the way I experience the world around me” (Nilsson & Loughram, 2011, p. 717). Results of the study showed that self-assessment and knowledge of science content helped enhance each preservice teacher’s PCK.

While the two previously mentioned studies (Atay et al., 2010; Nilsson & Loughram, 2011) discussed PCK development in specific undergraduate methods courses, little research exists regarding ways in which preservice teachers develop PCK in their student teaching course that is connected to their field placement. Moreover, much of the research on PCK discusses implications for in-service, not preservice, teachers. Nilsson and Loughram (2011) asserted that PCK tends to focus on experienced in-service teachers because preservice teachers’ PCK “tends to be framed around a search for something for which there is little meaningful conceptualization” (p. 700). Often this search proves difficult, as preservice teachers have little context for teaching. Nilsson and Loughram (2011) asserted that preservice teachers need an opportunity to define, identify, and explicitly develop their PCK.

This study observed how preservice teachers developed PCK as they planned and implemented instruction in their placement classrooms. To expand on the limitations of the existing literature, this study focused on how preservice teachers developed pedagogical skills related to backward design (Wiggins & McTighe, 2005) in their student teaching course. Based on instruction, they developed one 2-week unit of instruction to deliver in the placement classroom.

Literature Review

Scholars call for change in teacher preparation programs. As Harrington and Enochs (2009) stated, internal reflection of teacher preparation programs is

an essential component to improving programs and curriculum for preservice teachers. The Interstate New Teacher Assessment and Support Consortium, a group that operates within the reform of education, outlined 10 initial teacher preparation competencies to guide teacher preparation programs (Council of Chief State School Officers, 2011). Among the 10 standards, content knowledge and pedagogy and instructional strategies were especially critical to the research study as it sought to help preservice teachers develop planning competencies.

Cochran-Smith (2004) examined the factors that cause teachers to stay or exit the classroom. To encourage teachers to stay in the classroom beyond 5 years, Cochran-Smith (2004) asserted that systemic change has to occur in the entry requirements and preparation done in teacher preparation programs. Additionally, the National Council on Teacher Quality surveyed recent graduates of higher-education teacher preparation programs and concluded that teachers suggest that the most important part of their training experience lies within the student teaching experience (Greenberg, Pomerance, & Walsh, 2011). Higher-education institutions can raise the bar for teacher preparation programs by implementing reformed course work and clinical experiences.

The Blue Ribbon Panel Report, commissioned by the National Council for Accreditation of Teacher Education (2010), described 10 guiding principles to improve clinically based teacher preparation programs. Particularly relevant to this study was principle 2:

- Clinical preparation is integrated throughout every facet of teacher education in a dynamic way. Content and pedagogy are woven around clinical experiences throughout preparation and in course work. (p. 5)

Levine (2005) posited a nine-point template to successfully prepare students in teacher preparation programs. Of the nine points, point 3, curricular balance, was of interest. Levine (2005) suggested balancing curriculum taught in course work with what is practiced in the placement classroom setting. Allsopp, DeMarie, Alvarez-McHatton, and Doone (2006) asserted that the close proximity of the college courses to real classrooms allows preservice teachers to move from theory to practice in real time rather than abstractly, as is usually the case with traditional courses. As supported by the literature, explicit connections between course work and clinically embedded practice support the closing of the theory-to-practice divide (Allsopp et al., 2006; Levine, 2005; Moore, 2003). Although significant attention has been devoted to integrate theory and practice, Moore (2003) concluded that the merging of theory and practice in teacher preparation programs will not be successful if key stakeholders, preservice teachers, mentors, and course instructors do not build trust among themselves to confront differing conceptions of practice. According to Merrill (2002), learning is promoted when knowledge is applied and integrated in the real world, hence the push to develop preservice

teachers' ability to take what is learned in course work and apply to classroom situations (Moore, 2003). However, additional methods of how to effectively merge theory and practice must be considered to develop preservice teachers' knowledge of instructional planning and delivery. Preservice teachers must possess an awareness of curriculum development when planning for instruction.

Curriculum Development

Curriculum development is more than a bulleted list or prescribed format mandated by textbook publishers or curriculum maps published by school districts. It is more than words in theory with little practical application. It cannot be succinctly defined, developed, and packaged. Instead, curriculum development is an intricate process that requires deep thought and consideration. Macdonald and Purpel (1987) suggested that curriculum considers the "visions of humanity, the universe, human potential, and relationships to the cosmos" (p. 192). According to Henderson and Gornik (2007), curriculum development resulted from employing "problem-solving processes" with a critical and reflective eye. Bobbitt (2004) defined curriculum as a "series of things which children and youth must do and experience by way of developing abilities to do things well that make up the affairs of adult life; and to be in all respects what adults should be" (p. 11).

Furthermore, akin to Macdonald and Purpel (1987), Pinar (2006) argued that curriculum development helps teachers understand the task at hand. To achieve this understanding, teachers must comprehend the world around them, the ideas that shape knowledge, and the ongoing commitment to one another. The curriculum must be a lived experience, shared between teachers and students. Teachers must consider their students' lives, interests, dislikes, and cultural heritage when developing curriculum (Pinar, 2006). Moreover, curriculum is characterized by constant "re-examination, research, and re-evaluation" (Macdonald & Purpel, 1987, p. 189). Created through a critical and thoughtful lens, curriculum development is an arduous and ongoing process. Therefore, it is vital that teachers develop sound pedagogical knowledge regarding ways to plan and implement curriculum (Graff, 2011).

More important, today, a new paradigm encompasses a shift toward a more scientific and transformative curriculum (Bobbitt, 2004; Henderson & Gornik, 2007). Within this stance, curriculum development carefully considers the multifaceted nature of student needs to thrive in an evolving world (Schwab, 1969). During this time of modern curriculum development, the task lies not in simply repeating the old curriculum but rather in embracing the "now" (Pinar, 2006, p. 12). The "now" consists of complexities that characterize students socially and intellectually. Transformative curriculum repurposes education to develop a student's conceptual understanding that lasts beyond a standardized assessment (Danielson, 1996). However, before

any curriculum work commences, Pinar (2006) stated that the empowerment of teachers to make decisions that change the face of curriculum is paramount to the new shift in curriculum development.

Unit Planning

Student understanding is at the heart of effective unit planning. Unit planning must consider the educational goals to be achieved, student performance, and ways to judge the quality of student performance and understanding of the prescribed goals (Wiggins & McTighe, 2005). See Table 1 for a description of the unit plan components. Shifting attention from teaching students to pass standardized assessments to teaching that caters to the human experience frames the planning process. Henderson and Gornik (2007) argued that teachers should constantly “engage in clarifying what is to be done with and for students in the classroom” (p. 106). Wiggins and McTighe (2005) defined unit plans as a “unit of study that represent a coherent chunk of work in courses or strands, across days or weeks” (p. 353). Unit plans should be a collaborative process between teachers and students and responsive to students’ needs and consider the daily lessons that students need in order to comprehend the overall unit (Henderson & Gornik, 2007). Furthermore, teachers should develop units that create new complexities and raise new questions to deepen student understanding and engagement (Pinar, 2006).

In light of the criticism of teacher preparation programs, unit planning is one way to address the lack of preparation that preservice teachers possess regarding planning for student instruction. Unit planning is a means by which teachers can begin to develop a sophisticated understanding of curriculum development that consider their students’ needs (Holm & Horn, 2003). To become skillful planners, teachers must take into account the knowledge of their learners and their development in social contexts, knowledge of subject matter and curriculum goals, and knowledge of teaching (Darling-Hammond, 2006). Teacher preparation programs can help preservice teach-

Table 1. Unit Planning Components

<i>Who</i>	<i>What</i>	<i>Why</i>	<i>How</i>
Teachers and students	Units/lessons in the course. Two to 4 weeks in length. Holistic standards, performances of 3S understanding, judgment criteria, and generative learning experiences.	Outlines the specific units/lessons and experiences that support the course plan. Serves as a planning tool for 3S journey of understanding.	Deliberations in supportive learning community integrating seven reflective inquiries. Describe and analyze curriculum as it is currently expressed (currere).

ers develop the previously mentioned competencies by practicing the art and skill of planning during course work and field experiences.

Backward Design

Wiggins and McTighe (2005) encouraged teachers to use a backward approach to curriculum design to fully assess student understanding and experience with the curriculum. They encouraged teachers to recognize and embrace the diversity of the human experience when planning instruction. Backward design (Wiggins & McTighe, 2005) aims to assist teachers as designers:

Teachers are designers. An essential act of our profession is the crafting of curriculum and learning experiences to meet specified purposes. We are also designers of assessments to diagnose student needs to guide our teaching and to enable us, our students, and others (parents and administrators) to determine whether we have achieved our goals. (Wiggins & McTighe, 2005, p. 13)

According to Wiggins and McTighe (2005), backward design helps teachers “aim for specific results and design backward from them accordingly” (p. 56). They contended that backward design assists a teacher in laying out a plan to teach content connected to specific learning goals. High-quality backward design (Wiggins & McTighe, 2005) encompasses the following:

- Content standards
- Considering desired real-world applications
- Key resource or favorite activity
- An important skill
- A key assessment
- An existing unit

Backward design (Wiggins & McTighe, 2005) consists of three stages.

Stage 1: Identify Desired Results

In stage 1, teachers ask themselves an essential question: “At the end of this unit of instruction, what should students know and be able to do?” Focusing design on the result is at the heart of backward design (Wiggins & McTighe, 2005). Stage 1 helps the teacher focus instruction on the big ideas, or targeted content, of the unit. Remaining cognizant of the unit’s big ideas minimizes the potential to incorporate nonessential information into the unit. Tailoring instruction to teach the big ideas of the unit also helps the teacher achieve the desired results.

Stage 2: Determine Acceptable Evidence

During stage 2, teachers ask themselves, “How will I know that students have achieved the desired results of the unit?” An assessment characterizes stage 2. Before planning the daily instruction, teachers must first consider how they

will assess student learning of specific standards. Therefore, assessments may come in various forms: authentic performance tasks, appropriate criterion-based tools, formative feedback from students, and student self-assessments (Wiggins & McTighe, 2005). Stage 2 of the process helps teachers identify whether students have met the desired results of the unit.

Stage 3: Plan Learning Experiences and Instruction

Once the teacher identifies desired results and evidence of mastery, appropriate standards-based planning commences. During stage 3, teachers ask themselves an essential question: “In what ways will instruction lead to students achieving the desired results of the unit?” To answer the question, teachers consider how their daily instruction engages and motivates students toward achievement of the desired results of the unit. Creating and implementing learning experiences is one of the greatest challenges that teachers face (Holm & Horn, 2003). Although challenging, the most effective learning experiences are those that allow students to build on and apply their existing knowledge in their lives (Vartuli & Rohs, 2008). Furthermore, always considering the end goal helps the teacher plan in a focused and purposeful manner. Several studies conducted in undergraduate education courses demonstrated the efficacy of using backward design (Wiggins & McTighe, 2005).

Studies conducted in undergraduate education methods courses (Graff, 2011; Kelting-Gibson, 2005; Stiler, 2009) showed the efficacy of using backward design (Wiggins & McTighe, 2005) when teaching preservice teachers to plan for instruction. The use of backward design (Wiggins & McTighe, 2005) helped teachers develop curriculum with the end goal in mind and to focus instruction on specific information to teach. Beginning with the end in mind helped teachers focus on the curriculum outcomes, not activities of the unit (Shumway & Berrett, 2004). Moreover, it helped them focus instruction on the content taught and provided an avenue to ensure alignment between the desired results, assessments, and instructional activities. They were able to plan more standards-based instruction as opposed to activity-based instruction. By focusing on the standards, teachers created more purposeful instruction for students.

Methods

To produce preservice teachers who are skilled in instructional planning, attention must be given to how they develop sound curricular and pedagogical knowledge (Macdonald & Purpel, 1987; Schwab, 1969; Shulman, 1986, 1987). Designing a responsive curriculum, focused on real students’ needs (Chesley & Jordan, 2012), is critical to new teachers’ PCK. Backward design (Wiggins & McTighe, 2005) is one avenue through which preservice teachers can begin to effectively plan and deliver instruction. To address the previously

mentioned deficiencies and concerns with teacher preparation programs, this study examined how instructional planning and pedagogical teaching practices related to backward design (Wiggins & McTighe, 2005) developed in preservice teachers. The research questions included the following:

1. How and to what extent are the unit planning practices of teacher candidates developed as they plan one 2-week unit of instruction in math, reading, social studies, science, or writing?
2. How and to what extent does unit planning inform instructional practices in the elementary classroom?

Context

The study, situated within a teachers college at a large university in the southwestern United States, intended to address a growing concern among educational experts that teacher preparation programs inadequately prepare preservice teachers in areas such as planning (Cochran-Smith, 2004; Darling-Hammond, 2006; Duncan, 2010; Levine, 2005). For example, Moore (2003) argued that teacher preparation programs have shifted to teaching more “procedural concerns and routine tasks” (p. 31) as opposed to a focus on teaching.

The teachers college at the university where the study occurred was not exempt from the criticism on teacher preparation programs. However, they have taken steps to increase the level of planning and preparation that preservice teachers have on graduation from the program. Ongoing redesign of the student teaching course by the study’s author was one step being taken to address the lack of preparation that preservice teachers possess in instructional planning. Students took the student teaching course during the final two semesters of the student teaching experience. The course focused on helping them develop critical teaching pedagogies in the areas of lesson and unit plan design, reflecting on classroom instruction to make decisions about future instruction, and incorporating student feedback into ongoing lesson design.

The research study was conducted in a 15-week undergraduate student teaching course during the fall 2013 semester with preservice teachers in their first semester of the yearlong residency program. Prior to the research study, participants’ course work included little pedagogical knowledge regarding the use of backward design (Wiggins & McTighe, 2005) to plan for instruction. As part of the study, preservice teachers used backward design (Wiggins & McTighe, 2005) to create instructional unit plans.

Instruments

A concurrent mixed-methods approach to data collection that combined quantitative and qualitative data was used in the study. Concurrent mixed

methods was the chosen design because the quantitative and qualitative data were implemented at the same time during the research study and analyzed separately (Creswell & Plano Clark, 2011). Greene (2007) asserted that a mixed-methods design allows the researcher to use multiple methods to increase the validity and credibility of findings while respecting multiple methods of understanding what was being studied. Mixed methods allowed the researcher an “attempt to legitimate the use of multiple approaches in answering research questions” (Johnson & Onwuegbuzie, 2004, p. 17). Additionally, this mixed methods study focused on complementarity. In a mixed methods study, “results from the different methods serve to elaborate, enhance, deepen, and broaden the overall interpretations and inferences from the study” (Greene, 2007, p. 101). Results from the qualitative and quantitative data collection tools were used to help understand the complex and multifaceted nature of the research phenomenon (Greene, 2007).

Participants

Participants in the study were enrolled seniors in the undergraduate teacher preparation program. Five students participated in the study. Students in this cohort received dual certification in early childhood and early childhood special education, where they completed two full semesters of student teaching alongside a mentor teacher. One semester was spent in a special education preschool classroom and the other in a K–3 classroom. During the study, participants were in the first semester of the senior year of residency, where they had spent 3 months in the school prior to the research study. They were all enrolled in “Student Teaching in the K–3 Classroom,” the first of two required courses during student teaching. Participants planned and implemented one unit of study for 10 school days in their placement classroom. Although they were solely responsible for planning and implementing the unit plan, each consulted the mentor teacher and received prior approval. Mentor teachers and the researcher provided ongoing support and coaching as each preservice teacher planned and implemented the unit.

Data Sources

The study included qualitative and quantitative data sources to document the planning process. A brief description of each source and analysis procedures is described. Data collected as part of the study came from unit plan drafts and final submissions, classroom observations, postlesson written reflections, semistructured interviews, and the System for Teacher and Student Advancement (TAP) (National Institute for Excellence in Teaching, 2012) rubric.

Unit Plan: Initial and Final Drafts

Each participant completed one unit plan to implement in the placement classroom. On completing the initial draft, participants e-mailed the draft to the researcher. The researcher provided one round of feedback per participant on the unit plan. Feedback was provided within 1 week's time of receiving the draft. Participants were expected to incorporate the feedback they received into the final draft. Once participants received feedback, they submitted a final draft before beginning instruction in the placement classroom.

Classroom Observations

Gelo, Braakmann, and Benetka (2008) described observations as a means for the researcher to see events occurring in a real-world setting. Conducting classroom observations allowed the researcher to determine if pedagogical practices related to backward design (Wiggins & McTighe, 2005) were implemented in the classroom. Each participant received two classroom observations during the instruction of lessons from the unit plan. Observations lasted no more than 30 minutes. An observation protocol documented the pedagogical practices used by participants during instruction. Prior to using the observation protocol, the researcher discussed it with the co-observer to ensure familiarity, comfort, and interrater reliability.

During the observation, specific phrases and instructional practices used during the lesson were recorded in a reflective notes section of the observation protocol. After the first observation, the researcher and co-observer conferred for at least 15 minutes to discuss and compare observation notes. Once interrater reliability was established, the researcher conducted the second classroom observation alone. All observations, with the exception of one, were done in person. The observation that was not conducted in person occurred via video.

Postlesson Written Reflections

Each participant completed a postlesson written reflection after each classroom observation. The researcher examined responses on the reflections to help establish themes. In addition to overall reflections, participants used the "Standards and Objectives" and "Presenting Instructional Content" indicators of the TAP rubric to evaluate each lesson. These indicators were used because they fell under the "Instruction" domain of the TAP rubric. Moreover, these two indicators were appropriate, as the research study examined how teacher candidates developed and used pedagogical teaching practices as they implemented lessons from their unit plan into their classroom instruction.

Participants documented an area of reinforcement and refinement regarding their instructional practices based on the TAP indicators. Participants

cited specific examples from their classroom instruction and used student work samples to substantiate the area of reinforcement and refinement.

Semistructured Interview

Each participant received one semistructured interview at the conclusion of the unit plan. According to Gelo et al. (2008), semistructured interviews allowed the researcher to further investigate the participant's perspective regarding the phenomenon studied. Interviews consisted of five predetermined questions developed by the researcher as well as questions developed during classroom observations. A sample of the semistructured interview questions are the following:

1. Tell me about the process you went through to plan your unit plan.
2. Describe any changes in your pedagogical knowledge of backward design as you have planned and implemented your unit plan.
3. Were there any challenges you had as you planned your unit? If so, please explain what they were and at least one action you took to overcome this challenge.

TAP Indicators

Each classroom observation was scored on seven TAP indicators. The first classroom observation lesson was co-observed and coscored by the researcher and co-observer, with the exception of one participant. Both the researcher and the co-observer were TAP-certified evaluators, ensuring interrater reliability. Scores on each indicator ranged from 1 to 5: 1 = unsatisfactory, 2 = approaching proficient, 3 = proficient, 4 = highly proficient, and 5 = exemplary. Participants' scores were calculated on the basis of specific descriptors observed during the lesson. Data were examined to see if changes in scores occurred over time. The second classroom observation lesson was scored solely by the researcher.

To code for the qualitative data, data were analyzed for distinct patterns and themes. Additionally, axial coding was used to determine overarching themes to help explain the qualitative data results. Descriptive statistics were used to analyze and compare quantitative data scores for participants (Plano Clark & Creswell, 2010). SPSS was used to determine the mean and standard deviation of each indicator per participant and for the group. Additionally, a paired-sample *t* test was run to determine the presence of statistical difference between observations 1 and 2.

Data Analysis

Unit Plan: Draft and Final

Analysis of the final unit plan began once all data had been collected. To analyze the final unit plan, all final plans were read, and field notes were used

to document common mistakes made by each participant. Initial or open coding was used to break down the data into smaller, discrete parts. Next, the researcher conducted a side-by-side comparison of feedback on each participant's unit plan draft and final submission. After finding similarities and differences for participants individually and then as a group, the researcher used axial coding to create codes to describe similarities and differences between the draft and final unit plans.

Classroom Observations

Classroom observations were analyzed to document observed pedagogical teaching practices used by participants. In vivo coding was employed to write down verbatim phrases and key words, and pedagogical teaching practices were observed during lessons. Initial or open coding was used to break down the data into smaller, discrete parts in order to examine and compare them for similarities and differences. A side-by-side comparison of the group's pedagogical teaching practices from the first and second classroom observations was conducted. The researcher created codes for commonly observed pedagogical teaching practices and then listed the frequency of the most commonly observed pedagogical teaching practices that participants used in both observations.

Postlesson Written Reflections

After reading each reflection, in vivo coding was used to write down verbatim phrases and key words from each participant's reflection. Next, initial or open coding was used to break down data into smaller, discrete parts. Data were closely examined and compared for similarities and differences. The researcher then conducted a side-by-side comparison of the reflection, area of reinforcement, and refinement for each TAP indicator, specifically "Standards and Objectives" and "Presenting Instructional Content." Patterns and themes were identified and then used to create codes.

Semistructured Interviews

The researcher completed transcription of each semistructured interview. Fifty-six pages of interview transcriptions were analyzed. After reading each interview, in vivo coding was used to write down verbatim phrases and key words from each participant's response to the interview questions that were turned into codes.

TAP Indicators

Descriptive statistics were used to analyze and compare quantitative data scores for participants (Plano Clark & Creswell, 2010). TAP scores, for seven indicators ranging from 1 to 5, were analyzed by the researcher. SPSS was

used to determine the mean and standard deviation of each indicator per participant and for the group from each observed lesson. Additionally, a paired-sample *t* test was run to determine the presence of statistical difference between observations 1 and 2.

This section described the first-level process of coding information. Once all data were initially coded, axial coding was used to conduct second-level coding. Axial coding was used to code data from the unit plans, classroom observations, postlesson written reflections, and semistructured interviews. Through axial coding, three overarching categories emerged: (1) planning, (2) implementation, and (3) reflection. Data will be discussed using the three themes.

Results

Results from the qualitative data collection tools produced three distinct themes and will be presented in the following order: (1) planning, (2) implementation, and (3) reflection. Data from unit plan draft and final submissions and semistructured interviews support the planning theme. Data collected from classroom observations and semistructured interviews substantiate results from the implementation theme. Finally, postlesson written reflections support the reflection themes that emerged.

Planning

Data results from the unit plan draft showed common planning errors made by each of the study's participants. The most commonly found mistakes made by all five participants included (1) activity-driven daily lesson objectives, (2) unclear daily lesson objectives, and (3) missing daily lesson objectives to the identified standard.

Activity-driven daily lesson objectives are those that are more product driven than academic focused. Instead of focusing on acquiring a specific skill, activity-driven objectives give priority to the product or activity that students will create in the lesson. Examples of activity-driven daily lesson objectives observed in unit plan drafts were the following:

- SWBAT extend understanding of air transportation by completing writing activities related to air transportation.
- Cut and paste the picture in the correct season and label some of the pieces.

In addition to creating activity-driven daily lesson objectives, data analysis showed that each of the five participants created unclear daily lesson objectives. Unclear daily lesson objectives were classified as those lacking detail about the exact student outcomes participants attempted to reach through their instruction. Examples of unclear daily lesson objectives were the following:

- I can tell you about fall and winter worksheet.
- SWBAT gain experience with wood.

Finally, participants included standards in the unit plan but failed to include objectives on how or when the standards would be taught during the unit plan on instruction.

Examination of the final unit plan submission showed that the three most common changes made from the unit plan draft to the final were that participants (1) clarified the big goal/desired results, (2) clarified daily lesson objectives, and (3) eliminated irrelevant standards that did not align to the big goal. However, results showed that after participants received feedback from the researcher, four common trends emerged regarding a lack of changes. The common trends were (1) activity-driven daily lesson objectives, (2) no unit plan summative assessment, (3) unclear daily lesson objectives, and (4) misalignment between daily lesson objectives and identified standards.

When discussing the process of planning, during semistructured interviews, participants recounted the time and effort it took to plan the unit. Overall, results showed that participants thought that using backward design (Wiggins & McTighe, 2005) to plan a unit of instruction was a helpful process once they became more familiar with the framework. Prior to the experience, participants discussed the time it took to learn to plan with a new process. However, once they became more familiar with planning in a backward manner, planning became a little easier. As discussed during the interview, one participant stated,

Just knowing, having the goals in front of me first so I know what to do, helped. Like if you're just planning aimlessly, you may be like, "Oh, I'm going to have them color today. I don't really know what standard that goes with or what goal for them to reach with that, but the markers are out, so I'm going to have them color." If you just see the goal in front of you, it's easier to plan something, and they'll enjoy it more when there's a meaning behind it. Just knowing what I'm doing, just like being prepared. Knowing I want them to hit this now so I'm going to do this. When you're up there in front of all those kids, even though they're three and four . . . I should probably know what I'm doing. It's still a big deal. (Rebecca, personal communication, November 25, 2013)

As Jessica discussed, "You can't just take a topic and then it's done. I really had to think about my kids and does this relate to them. Planning a unit isn't really scary. It's more helpful than scary." (Jessica, personal communication, December 2, 2013)

Furthermore, while planning the unit, participants discussed the importance of support from peers, mentor teachers, and university faculty. Having someone with whom to go through the process helped participants, specifically Casey, bounce ideas off other participants to help her determine whether she was on the right track when planning lessons in the unit plan.

Implementation

Instruction is the third step in the model of pedagogical reasoning and action steps (Shulman, 1987). During this step of the process, information is transformed and presented to students and displays “what teachers should know and know how to do” (Shulman, 1987, p. 19).

Data analysis showed 17 different pedagogical teaching practices, such as use of questions and visuals, clear behavior expectations, modeling, student interaction, and stated objectives, used by participants during observations 1 and 2. Figure 1 displays the results.

During semistructured interviews, participants also discussed the process of implementing the unit plan in their placement classrooms. From the interviews, they discussed challenges, control, and pedagogical teaching practices used. Of the discussed challenges, they stated the issue of ensuring that their instruction was always geared toward the unit’s end goal.

Another theme-related component during the implementation that emerged in the interviews was the feeling of control experienced by participants. Prior to teaching the unit, participants had never assumed full responsibility for classroom instruction. As told during their interviews, four of the five participants used the phrases “decision maker,” “independency,” “empowered,” “made it my own,” and “actual teacher” to describe their feelings toward assuming responsibility for instruction:

I got to take over the class a lot, which hadn’t happened until I planned my unit. I was in control of it. . . . I was the decision maker, which hadn’t happened in my teaching yet. When you’re student teaching, the teacher is there teaching you

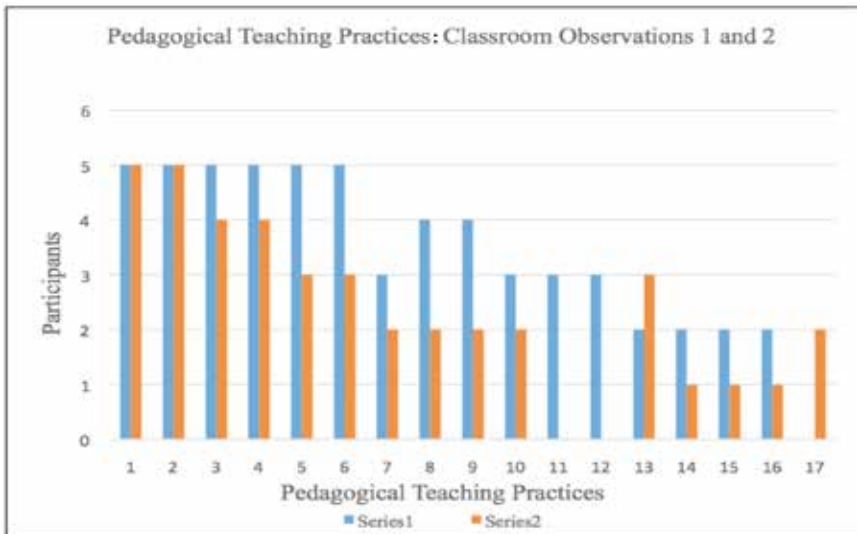


Figure 1. Pedagogical teaching practices for classroom observations 1 and 2.

how to teach. Whereas, like my unit, I got to go over everything. So I was that person. (Jessica, personal communication, December 2, 2013)

As they implemented more lessons from the unit plan, participants also discussed how they had to adjust course when they realized their planned instruction was not working the way they planned. The following are excerpts from interviews illustrating the previously mentioned point:

I realized in the middle of my unit this isn't working, I need to try this. When something isn't working, you have to know how to change it and adapt it to your students. I learned that with the vocabulary for each section that we did, it was something that they needed to go over. . . . I showed them pictures . . . or videos. . . . I didn't have it [technology] like planned at all in the beginning, so that was another thing. (Jessica, personal communication, December 2, 2013)

Even though you usually have a unit plan, it never really goes the way you actually plan it. I've learned that with anything I'm doing in the classroom right now, sometimes I have to make like quick [snaps her fingers] adjustments. They weren't getting what I was trying to get out to them or try to get them to learn. So then a few days later, I'm like, you know what, I need to make a visual for them. And then that's when I made that poster, and I think from there it was just like success from then on. (Alexandra, personal communication, December 3, 2013)

Reflection

The final theme-related component that emerged during the study was reflection. Participants completed a postlesson written reflection using the TAP indicators “Presenting Instructional Content” and “Standards and Objectives” to evaluate each observed lesson. Written reflections were used for participants to reflect on areas of strength in their lessons, while areas of refinement were those areas participants wanted to improve on for future instruction. Table 2 displays common reflections among participants.

Table 2. Postlesson Written Reflections

<i>Presenting Instructional Content Lesson Reflections</i>	<i>Presenting Instructional Content Lesson Areas of Refinement</i>
<ul style="list-style-type: none"> • Monitored and adjusted instruction • Modeled performance expectations • Modeled the lesson sequence • Used visuals during the lesson • Connections to prior knowledge • Encouraged student-to-student interaction 	<ul style="list-style-type: none"> • Lesson pacing • Incorporate more visuals • Planning for student accommodations
<i>Standards and Objectives Lesson Reflections</i>	<i>Standards and Objectives Lesson Areas of Refinement</i>
<ul style="list-style-type: none"> • Connections to prior knowledge • Clear expectations for student performance • Communicated in student-friendly language • Students performed the objective 	<ul style="list-style-type: none"> • Communicate learning objective • Precise communication during instruction • Use more age-appropriate materials

In addition to the qualitative results, quantitative results were collected from classroom observations. Observations were scored using seven indicators from the TAP rubric. Descriptive statistics were used to report the mean and standard deviation scores of each indicator. Additionally, a paired-sample t test was run to determine change over time and across observations. Results from the paired-sample t test showed no statistical difference. Table 3 displays results from both classroom observations.

Discussion and Implications

The purpose of the research study was to examine the unit planning and pedagogical teaching practices of preservice teachers. Results led to three main implications, discussed next.

Backward Design Helps Planning

During semistructured interviews, participants discussed the usefulness of using backward design (Wiggins & McTighe, 2005) and how their planning practices evolved as they used it to create a unit of instruction. Backward design provided a framework for participants as they developed a unit plan. Through the process, participants articulated what students needed to know prior to planning instruction. After determining what students needed to know, they used backward design to create a unit goal, determine acceptable evidence in the form of formative and summative assessments, and plan learning experiences for students. Backward design helped each of the preservice teachers in the study develop their unit plans.

Student Learning

The blending of theory and practice during a clinical experience leads teacher candidates to gain a better understanding of how their students learn. Data analysis showed that implementing the unit plan helped participants tailor their instruction to meet the learning needs of their students. As scholars suggested, teachers must develop curriculum that considers students' needs (Bobbitt, 2004; Pinar, 2006; Schwab, 1969; Vartuli & Rohs, 2008). Shulman (1986) also suggested that PCK helps teachers clarify challenges that students may have in learning content. Postlesson written reflections and semistructured interviews demonstrated ways in which participants came to further understand how their students learned. They became reflective practitioners who modified their teaching to meet the needs of their students.

Leland and Murtadha (2011) argued that "teachers need to have experiences that help them to become reflective and analytical about their practice" (p. 903). To encourage their development as reflective practitioners, participants discussed how they planned for instruction one way but realized that

Table 3. Means (*M*) and Standard Deviations (*SD*) of TAP Scores for Classroom Observations 1 and 2

Variable	Observation 1		Observation 2		t Value	p Level
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Standards and objectives	2.6	0.548	2.6	0.548	0	1.000
Presenting instructional content	3.0	0.707	3.2	0.447	-.535	.621
Academic feedback	2.2	0.447	2.2	0.447	0	1.000
Activities and materials	2.4	0.548	2.6	0.548	-1.00	.374
Managing student behavior	2.8	0.477	3.0	0.000	-1.00	.374
Teacher content knowledge	3.0	1.000	3.2	0.447	-.535	.621
Teacher knowledge of students	2.4	0.548	2.2	0.447	-1.00	.374
Total mean score	2.6	0.606	2.7	0.412		

their plan did not always progress how they planned. They needed to adjust their teaching to meet the needs of their students.

Through the process, participants planned learning experiences and daily lesson objectives as part of the unit plan. Equipped with their prepared objectives, participants began instruction. Although they preplanned each lesson's objective with their students in mind, implementing the lesson in a real classroom, with real students, helped provide information on ways to tailor instruction to meet their students' learning needs. Implementing lessons from the unit plan also helped participants reflect on and facilitate learning for students to make abstract concepts more concrete. Additionally, teaching lessons from the unit helped shape their teaching practices. The previously mentioned evidence helps warrant the assertion that implementing the unit plan helped inform participants' instructional practices because they were able to see how their instruction did or did not lead to student learning and ways they needed to adjust their instruction.

A Shift from Student to Teacher

A shift occurred during instruction of the unit plan where participants began to see themselves more as a teacher than as a student. Engaging in the implementation of the unit plan helped participants begin to view themselves as a teacher. As Merrill (2002) suggested, learning is promoted when knowledge is applied and integrated in the real world. In this research study, the real world was defined as the placement classroom where each participant student taught. Additionally, teaching the unit plan in the placement classroom helped participants determine what they "should know and know how to do" (Shulman, 1987, p. 19), as is required when developing one's PCK.

Data analysis of semistructured interviews reported instances where each participant began to experience the shift of moving from student to teacher as he or she planned and implemented lessons from the unit plan. Prior to implementing the unit plan, participants had not been responsible for leading instruction for a class of students. Planning and implementing the unit plan helped inform which instructional practices participants used as they developed a sense of themselves as teachers. As the teacher solely responsible for teaching lessons from the unit, participants assumed more control of the classroom and student learning; it was up to them to design and implement instruction that led their students to outcomes. As the evidence suggested, the unit planning process helped participants begin to view themselves as a teacher and not just as a student teacher.

Assuming the role of the teacher also created more responsibility for participants, thus influencing the instructional practices they used to ensure student learning. They discussed how they constantly refined their instructional practices as the teacher responsible for student learning. Their students' ability to comprehend the unit goal and lesson objectives rested on their instructional prowess. Therefore, the unit planning process helped inform their instructional

practices used in the classroom. Engaging in the planning and implementation of the unit plan helped participants assume more control of how they taught their students, thus leading to a better view of themselves as teachers.

Reliability and Validity

During the study, two main threats to validity existed: history and maturation. Following is a discussion of each threat as well as steps taken to combat it during the research study. The first threat to validity was history. It was a possibility that participants may have received instruction on backward design (Wiggins & McTighe, 2005) in previous course work, prior to the innovation. To combat the threat of history, the researcher asked students during course work instruction and created an interview question regarding their knowledge of backward design prior to receiving the study's innovation. Three of the five participants had little prior knowledge, and two participants had no preexisting knowledge of using backward design to plan a unit of instruction. History posed no major threat to validity during the research study. Therefore, it can be concluded that the study's innovation was helpful as participants used backward design to plan for and implement instruction in their placement classrooms.

The second threat to validity was maturation. Each of the five participants had been student teaching for three months prior to implementation of the unit plan. During the three months, participants observed mentor teacher practices and typically planned and implemented lessons for small groups or individual students. To combat this threat to validity, the researcher used field notes to document how participants changed over time. Furthermore, the researcher created an interview question asking participants to discuss any changes they experienced because of the research study. Each participant discussed how planning, implementing, and reflecting on their unit plan and teaching practices as part of the research study contributed to changes in his or her practices. Their responses helped combat the maturation threat to validity.

The quantitative measure, the TAP rubric, was a validated instrument in the study. Created in the 1990s by the Milken Family Foundation (National Institute for Excellence in Teaching, 2012), TAP seeks to help "teachers become the best they can be by giving them opportunities to learn better teaching strategies." According to the National Institute for Excellence in Training (2012), criteria for the TAP rubric "came from both experimental design studies and correlation studies that used valid and reliable achievement tests in classrooms." The "Standards and Objectives" and "Presenting Instructional Content" indicators were used because they fell under the "Instruction" domain of the TAP rubric. Moreover, these two indicators were appropriate, as the research study examined how teacher candidates developed and used pedagogical teaching practices as they implemented lessons from their unit plan into their classroom instruction.

Limitations

The research study's main limitation was the lack of varying grade levels represented among participants. There were two grade levels represented: preschool and kindergarten. A lack of variability prevented the researcher from determining what the implementation of a unit plan looked like at other grade levels. Additionally, the lack of variability in represented grade levels was a limitation because the researcher was unable to determine the pedagogical teaching practices that would have been implemented at different grades.

Conclusion

It has been said that teaching is an art form. Art is an expression of one's passion and desire to create work that is to be admired. As artists, teachers should be prepared to design, develop, and refine beautiful work. Proper preparation is required to use their creativity in a way that could potentially change students' lives.

The nation is counting on today's teachers to use their creativity and preparation to help develop students who are capable of excelling in a rapidly evolving world. Teacher preparation programs have a responsibility to equip preservice teachers with the knowledge, skills, and dispositions needed to successfully enter the teaching profession. Preservice teachers must enter the profession skillfully prepared to plan and deliver instruction to all students. Moreover, they need to know how to critically reflect on their practice to maximize student learning.

Through the innovation, this action research study sought to prepare preservice teachers for the complexities of planning, implementing, and reflecting on their practice during their student teaching experience. Participants created a unit plan of instruction using the backward design framework (Wiggins & McTighe, 2005). Initially, the process proved challenging to understand, but results showed that backward design assisted participants as they learned how to plan for instruction. They merged the theory of planning with practice and executed instruction inside of the placement classroom. Implementing the unit plan presented participants with the opportunity to vary their pedagogical teaching skills to meet the needs of learners. Moreover, they reflected on their practices. Reflection helped participants refine their instruction to better meet the needs of their students. Reflection was paramount as participants matured from student to teacher.

As revealed in the study, preservice teachers need opportunities to develop their planning and teaching practices during their teacher preparation program. They need a place to try, fail, succeed, and receive coaching. They need opportunities to see themselves shift from a student to a teacher who is ready to assume responsibility for his or her own classroom. This shift does not

occur suddenly; rather, it takes time. Teacher preparation programs must assume responsibility for nurturing the art form of teaching to ensure that preservice teachers are ready to enter the profession as skilled and reflective practitioners. **TEP**

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