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Utilizing Technology as a Means of Teacher Professionalism

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Abstract

A key component of professionalism in education lies in each teacher's personal commitment to professional development. Charlotte Danielson's Framework for Teaching acts as a guide for novice and seasoned teachers alike in this endeavor. A common theme seen throughout the framework is the need for teachers to meet students where they are. Today's children are growing up in a technology-driven world, and they need educators to rise to the challenge of integrating technology into the classroom in order to equip them for adulthood. Educational technology does not exist to replace teachers but instead to amplify and support them. Unfortunately, the world of educational technology is highly contested today. To determine if the tools brought into the classroom benefit students, educators must examine the variety of uses, the quality of the tool, and the potential equity gaps that could arise. Technology integration demonstrates teacher professionalism as a commitment to better serving students and the profession as a whole.

Utilizing Technology as a Means of Teacher Professionalism

American cultural anthropologist Margaret Mead coined a collection of words that guide a portion of my philosophy on teaching when she said, "If children do not learn the way we teach, we must teach the way they learn" (Wilson, 2012). Educators are responsible for making countless decisions each day, both in and outside of the classroom, that directly impact student learning. The separation between a standard teacher and one that is highly effective can be traced to the professional development he or she pursues. This can be measured using Charlotte Danielson's Framework for Teaching, which offers a common language between professionals and as a set of foundational skills to promote student learning. To remain knowledgeable and well-trained, teachers must have a deep understanding of the needs of their students and the resources available to fulfill those needs.

Teachers as Professionals

Many people perceive teaching as less prestigious than other professions. Attorneys and medical professionals often receive higher levels of cultural appreciate and compensation. With government oversight at a high degree, teaching is often regarded from those outside of the field as a job where teachers follow a "script" designed by someone with more expertise. Some might argue that teachers should not be considered "professionals." However, when we compare teaching with the defining characteristics of a profession, we see that teaching does meet the established standards. These standards include a shared body of knowledge among other professionals, applied professional knowledge through decisions, the theory and practice of teaching inform each other, teachers conduct themselves in accordance with high ethical standards, and privileges and obligations are conferred by professional status (Danielson, 2007).

Danielson's Framework for Teaching

Many fields use a central framework to hold their professionals to high standards of practice. These frameworks or standards offer shared understanding of the requirements for operating within a profession. Fields typically revered as exceedingly professional, such as medicine, accounting, or law, use guides that maximize professionalism in the eyes of both the public and colleagues. Charlotte Danielson, an internationally recognized expert in teacher effectiveness, has worked to fulfill the need for articulating the professional standards for educators in a tool called her Framework for Teaching. Danielson's conceptual approach does not endorse one particular teaching style but instead enables educators to engage in conversations about the appropriateness of different choices. Good and defensible choices are a mark of professionalism, emphasizes Danielson (2007). Teachers can put this into action through the decisions they make about pedagogy, classroom environment, and resources used.

American educator Madeline Hunter's research in cognitive science and numerous empirical studies serve as the basis for Danielson's Framework for Teaching (Danielson, 2007). Danielson believes teaching responsibilities can be organized into four domains: planning and preparation, classroom environment, instruction, and professional development. The domains outline twenty-two components that contribute to effective teaching. Taken together, these components prescribe the fundamental competencies needed to promote student learning. They can be further subdivided for a more detailed analysis. Danielson recognizes seventy-six elements, shown in *Figure 1* below.

Charlotte Danielson's FRAMEWORK FOR TEACHING

DOMAIN 1: Planning and Preparation

1a **Demonstrating Knowledge of Content and Pedagogy**
 • Content knowledge • Prerequisite relationships • Content pedagogy

1b **Demonstrating Knowledge of Students**
 • Child development • Learning process • Special needs
 • Student skills, knowledge, and proficiency
 • Interests and cultural heritage

1c **Setting Instructional Outcomes**
 • Value, sequence, and alignment • Clarity • Balance
 • Suitability for diverse learners

1d **Demonstrating Knowledge of Resources**
 • For classroom • To extend content knowledge • For students

1e **Designing Coherent Instruction**
 • Learning activities • Instructional materials and resources
 • Instructional groups • Lesson and unit structure

1f **Designing Student Assessments**
 • Congruence with outcomes • Criteria and standards
 • Formative assessments • Use for planning

DOMAIN 2: The Classroom Environment

2a **Creating an Environment of Respect and Rapport**
 • Teacher interaction with students • Student interaction with students

2b **Establishing a Culture for Learning**
 • Importance of content • Expectations for learning and achievement
 • Student pride in work

2c **Managing Classroom Procedures**
 • Instructional groups • Transitions
 • Materials and supplies • Non-instructional duties
 • Supervision of volunteers and paraprofessionals

2d **Managing Student Behavior**
 • Expectations • Monitoring behavior • Response to misbehavior

2e **Organizing Physical Space**
 • Safety and accessibility • Arrangement of furniture and resources

DOMAIN 4: Professional Responsibilities

4a **Reflecting on Teaching**
 • Accuracy • Use in future teaching

4b **Maintaining Accurate Records**
 • Student completion of assignments
 • Student progress in learning • Non-instructional records

4c **Communicating with Families**
 • About instructional program • About individual students
 • Engagement of families in instructional program

4d **Participating in a Professional Community**
 • Relationships with colleagues • Participation in school projects
 • Involvement in culture of professional inquiry • Service to school

4e **Growing and Developing Professionally**
 • Enhancement of content knowledge and pedagogical skill
 • Receptivity to feedback from colleagues • Service to the profession

4f **Showing Professionalism**
 • Integrity/ethical conduct • Service to students • Advocacy
 • Decision-making • Compliance with school/district regulations

DOMAIN 3: Instruction

3a **Communicating With Students**
 • Expectations for learning • Directions and procedures
 • Explanations of content • Use of oral and written language

3b **Using Questioning and Discussion Techniques**
 • Quality of questions • Discussion techniques • Student participation

3c **Engaging Students in Learning**
 • Activities and assignments • Student groups
 • Instructional materials and resources • Structure and pacing

3d **Using Assessment in Instruction**
 • Assessment criteria • Monitoring of student learning
 • Feedback to students • Student self-assessment and monitoring

3e **Demonstrating Flexibility and Responsiveness**
 • Lesson adjustment • Response to students • Persistence

www.danielsongroup.org

Figure 1: Charlotte Danielson's Framework for Teaching.

Teaching is a complex profession, which is evidenced by the lengthy list of qualities Danielson believes to be the necessary skills of an effective educator. The dynamic nature of education and the variety of backgrounds of the students within the system make it nearly impossible to pin-point one definite method of success. No approach is one size fits all. In its simplest form, any education framework is only meant to provide a general guide to learning. Danielson's Framework for Teaching avoids embracing particular teaching methodologies. It is a combination of a teacher's responsibilities that have been documented to promote student

learning (Danielson, 2007). Additionally, it works to support the needs of novice teachers and can also help refine the skills of experienced teachers.

   Domain One: Planning and Preparation. In the first domain, Planning and Preparation, educators are called to demonstrate a knowledge of the content, pedagogy, students, outcomes, resources, instruction, and assessments they work with (Danielson, 2007). The children in the classroom today come from a culture of heavy technology use. Teachers must take this into account when designing coherent instruction and student assessments. A critical skill to meet this newfound need is in demonstrating a knowledge of resources. Professionalism in the following three domains is not possible without the foundation domain one builds.

   Domain Two: The Classroom Environment. The environment of a classroom sets the scene for student learning and teacher professionalism. In this domain, Danielson (2007) lists the following focuses: creating an environment of respect and rapport, establishing a culture for learning, managing classroom procedures, managing student behavior, and organizing physical space. Many education technology companies create products to equip teachers for successful classroom management. Integrating educational technology can also shift the classroom environment to be more progressive. Students may feel a higher sense of respect and rapport if they know their teachers are working to prepare them for real-world environments that are flooded with technology.

   Domain Three: Instruction. With instruction serving as the bulk of a teacher's day, it comes as no surprise that Danielson considers it to be one of the four overall focuses of the professional educator. Instruction relates to an educator's communication with students, questioning and discussion techniques, ability to engage students in learning, use of assessment, and demonstration of flexibility and responsiveness (Danielson, 2007). Each child brings a

unique set of strengths, weaknesses, and background information to class with them. It is an understandably daunting task for teachers to plan instruction that caters to all of their students. Educational technology, in combination with a strong knowledge of students, helps educators navigate the instructional decisions that must be made. It tailors the rigor of instruction, promote student engagement, and fills in gaps of background knowledge.

Domain Four: Professional Responsibilities. The fourth and final domain consists of a wide range of professional responsibilities. The responsibilities encompass roles assumed outside of and in addition to those in the classroom with students. Students rarely observe these. Parents and members of the community observe them only intermittently. Nevertheless, they are critical to preserving and enhancing the profession. Examples listed within the framework include self-reflection, professional growth, participation in a professional community, and contributions made to the profession as a whole. The framework also suggests that an effective educator holds the professional responsibilities of interacting with the family of students, establishing connections with the larger community, maintaining records and other paperwork, and advocating for all students (Danielson, 2007).

Educators utilize technology to fulfill their copious responsibilities. It can open the doors of conversation with those outside of the classroom and boost a teacher's efficiency in organizing information about his or her students. Likewise, the difference in the students' access to technology provides an additional need for teacher advocacy. While the fourth domain of the Framework for Teaching examines the relation between educators and the profession as a whole, one can argue that growth in the preceding domains also support the endeavor to develop professionally. Taking the initiative to implement educational technologies directly supports many of these aspects.

"Teaching is a holistic endeavor; all the different aspects are entangled in multiple ways," writes Danielson (2007). It is a reasonable assumption to make that a teacher must have a foundational knowledge of the various aspects of his or her field in order to be considered both effective and professional. With copious responsibilities outlined in the Framework for Teaching and the ever-evolving nature of education, it's natural that an educator's strengths and weaknesses will shift over time. Professionalism is shown through the act of working to grow in areas of weakness while staying current in knowledge in areas of strength.

Educational Technology

The Urgency for Change

In 2013, an exam administered by the National Assessment of Educational Progress, or NAEP, revealed that only twenty-six percent of our nation's seniors were scoring at or above proficient in math while thirty-five percent were failing (Bertram, 2014). Simply put, almost forty percent of Americans students entering adulthood do so unable to perform basic mathematics. In his book *One Nation Under Taught: Solving America's Science, Technology, Engineering, and Math Crisis*, Vince Bertram (2014) writes, "Given the resources we have at our disposal today, given all the money we pour into school systems (over $600 billion a year in America in elementary and secondary education funding alone) and into studies on how to educate, it is tragic that a majority of our nation's students score below proficient, or a level of competence (p. 3). It is imperative for educators to work to fill in these academic gaps while also serving students in their areas of strength.

Bertram found that summer learning loss plays a detrimental role in the overall academic success of a child. The National Summer Learning Association reports that students often lose an equivalent of their grade-level computational math skills over the summer, and students from

families of low socioeconomic status lose nearly the same measure in reading achievement (Bertram, 2014). As a result, teachers must spend valuable instructional time at the beginning of each school year reviewing concepts to ensure a strong foundation of background knowledge for their students. For educators already working to teach a multitude of standards in a short time frame, any instructional time lost can be critical. Educational technology, while not the only answer to this struggle, can be a valuable tool in improving the situation.

A Weak Foundation. One component contributing to the challenges surrounding technology integration is the way teachers are prepared. Teacher preparation programs across the country often focus on shared goals of maximizing student learning and producing educators that seek continual professional development. Technology use, dissimilarly, is discussed at differing levels of importance. Teresa S. Foulger, an associate professor at Arizona State University, specializes in educational technology and serves as the school's program coordinator for educational studies (Borthwick, 2020). She has used her experience in education and desire to improve the education profession through researching technology integration over the past decade.

Foulger found that the difference in how teacher preparation programs address technology is likely contributing to uneven views on technology integration. Typically, education programs address teaching with technology through a stand-alone, isolated course taught by a professor or faculty member whose focus is technology (Borthwick, 2020). This responsibility is often assigned to the person in the department who is presumed to have the most knowledge about or experience with technology. Foulger advocates instead for the restructure of preservice teacher programs toward a programmatic approach. "We should ensure preservice

teachers' experiences with educational technology are program-deep and program-wide rather than one-off courses separate from their methods courses," she writes (Borthwick, 2020).

Learning to integrate technology effectively is not a simple endeavor. It requires thinking about technological choices, pedagogical opportunities, and curriculum goals simultaneously. The US Department of Education's Office of Educational Technology's National Educational Technology Plan, or NETP, reported in 2017 that a majority of preservice teacher education graduates do not feel prepared to use technology effectively to support learning (Office, 2017). Education professors and faculty guide preservice teachers by modeling the various components of teaching. Scaffolding technology usage into lessons at the collegiate level of teacher preparation will support novice teachers in building the confidence to use educational technology in the classroom.

The Services of Educational Technology

Educational technology should complement learning, not replace it. It has proven to be a beneficial tool to improve current pedagogies. Not all educational technology is created the same or meant to serve the same purpose, however. Digital tools can serve a variety of uses including promoting student engagement, developing background knowledge, tailoring education to meet individual needs, differentiating instruction, and maximizing instructional time. These uses share a common trait of helping teachers work toward professional development.

Teachers place heavy focus on student engagement. Educational technology tools are designed to make engaged learning easier to initiate and differentiate (Hamilton, 2015). Students are given tools to create original productions and share them with the world through the integration of technology. When students are inspired by the content they are learning, they can begin to experience higher depth of knowledge levels.

"The key to education – especially in critical STEM fields – is activity-based learning that makes concepts relevant in real-world, meaningful ways," writes Bertram (2014). Educational technology fills in gaps of background knowledge for students and can open the door for resources schools may not have. For example, technologies such as Skype have opened doors for students to learn about people and places thousands of miles away. Deeper learning occurs when students encounter things through multiple modalities, a feat technology can help us with (Stachowiak, 2020).

Teachers can utilize educational technology to offer students opportunities to take control of their learning. Artificial intelligence, or AI, adjusts to increase or decrease rigor depending on student response, preventing children from getting bored or frustrated. The key for deep learning is to keep every child in their zone of proximal development. AI promotes this by analyzing the amount of time students take to choose an answer and the patterns of what types of questions they miss often (Cassidy, 2019). Such a tool empowers students to identify their strengths and weaknesses. When learning is student-centered, children can begin to develop a sense of intrinsic motivation for gaining knowledge and overcoming obstacles.

Educational technology can help maximize instructional time. Many educators hesitate to integrate technology into the classroom because they feel they may use it for the wrong reasons. Educational technology creator Rupa Chandra Gupta shares that she believes it is okay if technology is used for efficiency but suggests that users be open about using it for that need (Gonzalez, 2018). Though the primary focus in a majority of studies on the benefits of educational technology relates to how students use it, it can also serve teachers by making grading or assessments quicker. The teachers can then use the instructional time saved to offer individual guidance and to continue providing their students with meaningful experiences with

content. Additionally, AI serves as a round-the-clock service for students when the teacher may not be readily available for one-on-one intervention, such as after school or during small group instruction (Cassidy, 2019). Quick and frequent assessment also equips educators to provide more personalized lessons.

Checking the Quality of Technology

Teachers are at the frontline of education; few people know students and their educational needs better than their teachers. All tools seem ideal in a sense, and with educational technology companies using marketing techniques to sell their products, it can be challenging for educators to decipher which technologies will be the most beneficial for their students. It is important to deeply assess the technology brought into the classroom. Instead of tossing out effective teaching strategies when using technology tools, teachers who use technology effectively are able to combine their strengths with digital tools to leverage better learning (Kolb, 2020). When used incorrectly or brought in for the wrong reasons, some tools can decrease the rate of student learning (Gonzalez, 2018). Likewise, simply boosting the amount of technology does not automatically increase student learning.

Rupa Chandra Gupta, founder and CEO of market-leading educational tool Sown to Grow, explains "Technology amplifies whatever is happening. If we're widening a gap, it can be amplified by technology, and it happens faster and under the radar because teachers and students might not be having every interaction in person anymore" (Gonzalez, 2018). In her study involving middle school students, she examined the data collected and saw a significant growth of students overall. A closer look, however, showed that that students on or above grade level were soaring while students behind or on grade level were falling further behind. This is a common issue found within studies surrounding the effectiveness of educational technology.

In an interview on *The Cult of Pedagogy* podcast, Gupta suggests six strategies to examine the quality of tools used within the classroom, starting with looking closely at the data. Even when there are good results on the surface, a deeper look into other angles can reveal weaknesses for some technologies. She suggests that educators break down the results by different student populations. This is key for bringing unintentional widening of equity gaps to light.

Gupta advises teachers to use several guiding questions to assess technologies both in current and future use: Are we spending a lot of money on the tool? Is it going to replace other learning experiences? Will it be time-consuming to adopt? Are we expecting it to close gaps and provide remediation? (Gonzalez, 2018). Though vague, the questions provide teachers with a way to quickly check the effort used in implementing the tool versus its potential results.

Further, Gupta recommends examining the quality of the tools used within the classroom. She believes considering actual use to be essential. She notes that using the tools in ways that mirror student use can address a variety of aspects not easily seen on the surface. Many programs have vastly different points of access between the teacher side and what the students see. "Teachers should sign in as a student to go through all the core elements of a tool," she suggests, "Put yourself in the shoes of one of your higher performing students and one of your lower performing students" (Gonzalez, 2018). Doing so will give educators insight into how the tool responds when students make mistakes, the level of engagement students will have, and how quickly the program progresses. For example, if the technology prompts twenty math problems, the student being assessed might solve each one incorrectly and have no idea until the end when his or her screen is lit with twenty red x's. Taking the time to use the program from the perspective of a student allows an educator to notice responses that may hurt a student's

confidence or force them to build habits with incorrect methods. Technologies that offer

immediate feedback, an immensely beneficial factor in education, are available. It simply takes

the effort of the educator to uncover if this is lacking or not.

Another method for checking the quality of educational technology tools is to launch a

pilot group. Jennifer Gonzalez (2018), host of *The Cult of Pedagogy* podcast, recommends using

a pilot group consisting of diverse students. The pilot need not be school-wide, but still include

enough students from varied backgrounds to gain a true sense of how the tool serves students.

This practice works to identify and avoid the issues of digital equity.

A Responsibility as Educators

There is an ethical responsibility upon teachers to ensure that students learn, to design

and adapt learning activities, and to equip students with the skills needed to succeed in

adulthood. "Schools are, first of all, environments to promote the learning of students," writes

Danielson (2007). Children spend a majority of their day at school with their teacher, meaning

what takes place can have a colossal impact. Jessie Woolley-Wilson, President and CEO of

DreamBox Learning, underscores the disconnect of technology use for students:

> Kids every day are living with technology-infused lives. The average child doesn't have
>
> that opportunity in learning, so there's a gap between the way kids are living every day
>
> and the way they're learning every day. Kids are ready for more, so we need to get out of
>
> their way, frankly. We need to create a safe environment that we know is going to result
>
> in student progression but that's also going to engage them and encourage them to persist
>
> through challenge. And when kids persist through challenge, they progress, and when
>
> they progress it's their best chance at proficiency (Weber, 2013).

Regardless of an educator's philosophy on education, he or she wants success for students. For the current generation, technology cannot be ignored as an important factor.

An additional responsibility teachers assume is the need for communication with families of students. "A teacher's effort to communicate with families conveys the teacher's essential caring, valued by families of students of all ages," notes Danielson (2007). Educational technology makes this professional pursuit a bit easier than in the earlier days of education. This brings an additional aspect that must be taken into consideration, though. If a teacher is truly called to ensure their students' needs are taken care of, he or she must extend that thoughtfulness to their families as well. An example would be that a family might not have the same skills their digitally-competent children do. While technologies like Class Dojo can be phenomenal tools to engage families in the learning process, some families may not be able to access it or have trouble doing so. This may result in the family missing important communication and in turn causing the student to miss out on the added support given in a strong parent-teacher relationship. Professionalism is seen in the effort the teacher places to fulfill his or her responsibilities.

A Connected Childhood

Technology and education have been in a race since the printing press. Children spend copious amounts of time in front of screens, meaning they will enter adult with a completely different set of experiences than those of their teachers, parents, and caregivers. Jordan Shapiro, author of *The New Childhood*, suggests ways to support children growing up in a technology-driven world. Parents, teachers, and caregivers all need to think critically and intentionally about how they can and should adjust their habits, expectations, and customs accordingly. Shapiro found that when you look at the changes under the lens of preparing children for adulthood, it

isn't too different. Instead, it's about taking an open mindset and working with the tools kids will be using regardless. "The new toys are more engaging because they involve a different way of interacting with the world, a different way of thinking, and a different way of living, learning, and loving. They are preparing kids for a connected world," he writes (Shapiro, 2018). If the goal for educators is to guide students to be capable of living productive and fulfilled lives, they must take the current technological context into consideration.

Skepticism Surrounding Integration

Technology in education is highly contested, with good reason. Scott Widman, a teacher at the Baldwin School of Puerto Rico, argues that technology is a minefield we must be careful with (2019). Bringing technology into the classroom can be dangerous. It can usher problems outside of the classroom into the classroom, such as academic dishonesty and cyberbullying. It can also be infinitely valuable, however. It can advance student learning in a way that teachers and schools cannot replicate without additional staff or personalized curriculums. It acts as a reservoir of knowledge students can now access even outside of the traditional school setting.

The skepticism teachers have around technology is understandable. At the same time, technology in the classroom is not going anywhere. It is not a fad, and instead it is speeding up. All members of our student population were born after the year 2000, making them members of Generation Z, often referred to as "digital natives." Generation Z's defining quality is that they have never experienced the world without the internet, cell phones, and access to the world through it. "It's less of a device that they possess and more of an environment that they inhabit," comments Widman (2019), "So if a school is experiencing cyber bullying, they may decide to ban technology. No technology equals no problem, but it's temporary. The bell will ring eventually, now with students inexperienced and under prepared."

Is technology more beneficial or harmful to our students? In a sense, it does not matter. As educators, our role is to do what is best for our students. They have a device in their pocket that is both infinitely valuable and infinitely dangerous. We must not ignore it, but instead teach them to navigate the new normal. Utilizing technology in the classroom is less of a choice and more of a responsibility because as educators we have an obligation to prepare students for the challenges of being digital natives. This supports them to become lifelong, independent learners.

Data does not replace teachers or depersonalize education, but instead helps teachers make informed decisions for each student. "It's similar to a teaching assistant for each child, something schools can't afford right now," suggests Jennifer Gonzalez (2017) of *The Cult of Pedagogy* podcast. Blended learning through educational technology combines the traditional classroom experiences with new digital technologies. These new technologies empower educators to generate their own data. They don't have to guess or take more risks than they're already taking.

Digital Equity

Schools have access to varying levels of technology. This issue has a name: digital equity. Similar to the nature of books, science equipment, extracurricular activities, and food quality in the cafeteria, technology is another resource that is often abundant in well-funded schools and sometimes lacking in underfunded schools. This works to create yet another way students from families of low socioeconomic status may fall behind their more affluent peers. When advocating for students, one component is to examine is the students' access to technology tools.

Teachers and schools must also be aware that the private resources available to students are extremely uneven as well. Childrens' familiarity with technology is diverse and reflected by how they can use technological tools in their academic work. Themes mentioned in the

Framework for Teaching in relation to this service to students include equity, cultural competence, high expectations, developmental appropriateness, attention to individual students, appropriate use of technology, and student assumption of responsibilities (Danielson, 2007).

A Personal Exploration of Educational Technology

As a nearing graduate of a teacher preparation program, I am in an exemplary time to begin implementing technology into my instruction. My professors use Danielson's Framework for Teaching to discuss the effectiveness of my teaching. The frameworks serve as a guide to gauge my progress, which I use when reflecting on my lessons. Included at the end of this paper is a selection of five lesson plans I have taught in the past. They range from kindergarten to sixth grade and address science, math, English language, and social studies concepts. The lessons are also from varying points of time in my college education; the kindergarten lesson was written during my first semester in Ouachita Baptist University's teacher education program, while the third-grade lesson was written in my final semester during student teaching. As I reflect over these lessons, there are revisions and adjustments I would make before teaching them again. No edits have been made for the sake of transparency and growth. In accordance with Danielson's push for professionalism through reflection on teaching, I will use the following paragraphs to examine additional ways I would incorporate educational technology.

Lesson Plan One

Greater Than, Less Than, or Equal To was one of the first lesson plans I wrote. As my educational philosophy and knowledge of pedagogy has deepened, the decisions I would make when writing this lesson today would be very different. For example, there is very little use of educational technology. I used a PowerPoint to cater to visual learners and included a GoNoodle video for the purpose of repetition and student engagement. Now that I have a stronger

understanding of how educational technology can be used, I would provide students with an

opportunity to practice comparing numbers individually with one-to-one devices, such as an iPad

or Chromebook. My reasoning behind incorporating an additional activity is to provide the

students with an additional modality is to emphasize student-centered learning. If I were to use

this lesson in my future classrooms, I would use the recommendations Gupta provided on

checking the quality of technology in my search for a tool that offers immediate feedback. This

would allow me to provide individual instruction where needed and give the students a chance to

rehearse their new skill.

Lesson Plan Two

In my second-grade lesson titled *Discovering Arkansas State Symbols*, I believe I utilized

technology well in engaging my students and allowing them to take control of their learning.

The lesson exemplifies the characteristics of student-centered learning. I would change the

lesson a bit through my planning and preparation, however. This lesson is the first in a unit. My

increased understanding of child development and experience in classrooms helps me to realize

that children in second grade would need modeling before releasing them to conduct research. I

could better prepare them for the unit and as learners if I took the time to demonstrate how to

yield the best results based on the phrases they use and how to examine websites for reliability.

As digital natives, the students likely know the process for searching the internet for information,

but it would be unethical to make such an assumption. I would include a day of teaching the

basics of internet research toward the beginning of this unit if given the opportunity to teach it

again. Additionally, I would change the language I used when setting procedures for the use of

technology. While being clear in my expectations for the students' behavior is necessary, I

would avoid using phrases like "technology is a privilege, not a right" and instead emphasize how educational technology helps to complement what the students have already learned.

Lesson Plan Three

Fraction Bootcamp! was written as review of fractions for a third-grade class's upcoming ACT Aspire exam. As a review, I allowed minimal time to teach the concepts of fractions and instead opted for examples to challenge the students. An educational technology, such as an AI-based program, could support my teaching through offering the students example problems and then increase or decrease rigor as a result of their mastery. In whole-class instruction, the teacher runs a risk of frustrating students who do not yet grasp the concept or boring the students that do. With the efficiency the technology provides, I could then work individually with students who may need intervention on the basics surrounding the concept.

Lesson Plan Four

As one of my most recent lessons, *Restating Information from Research Mini-Lesson* was written as a way to keep students engaged in learning after a long morning of ACT Aspire testing. I utilized technology to give students ways of practicing the new concept at their own pace. I taught a brief lecture on plagiarism and note-taking before allowing the students to engage with the material on their own. The students then edited the example sentences I gave them on a google document page. The technology used was particularly beneficial because it gave me a detailed and time-stamped list of any edits the students made. I was able to see first attempts instead of answers shared by the students' peers. The data this tool provided shaped my lesson as I reviewed questions the students struggled with. Educational technology provided me with the means to issue nearly immediate feedback. Without it, I would not have seen my students' responses until when I had time to physically grade each of their papers.

Lesson Plan Five

Oil Spills and their Impact on the Environment is a great example of a lesson that could be elevated by technology. In this lesson, I began a unit with sixth-graders on the science standard of understanding human impact on the environment. My primary goal for this day was to help the students establish background knowledge to which we would build upon during the rest of the week. At the time I wrote this lesson, I believed a printed article would suffice. The article still serves as information for students to learn from, but I missed the opportunity to take it to a personal level. Educational technology can provide students a chance to gain background knowledge, especially with a niche topic like oil spills. At the upper elementary level, I could also allow students to conduct their own research based on the questions they formed in their discovery. A student will likely be more engaged and committed to learning if it is based out of his or her own curiosity. If I were to revise this lesson, I would use technology to provide my students with access to answers of the questions they have through activities such as a skype interview with an environment specialist or a digital tour of an oil rig.

Each of my lessons examined could be improved using educational technology regardless of how effective it was originally. Educational technology offers chances for students to connect with what they are learning, fill gaps in background knowledge, and learn at the needed pace. The technologies I would integrate do not replace my needed role in the classroom, but instead act as a tool to optimize the current practices happening. Working with technology empowers educators to be effective in their instruction and to fulfill their additional responsibilities.

Conclusion

Professionalism for educators is found in their service both to students and to the profession. Teaching at monumental effectiveness is characterized by being student-focused despite long-held assumptions about emerging procedures. Educators display professionalism in a number of ways, as outlined in the fourth domain of Charlotte Danielson's Framework for Teaching. The framework serves as a common language between those in the profession to discuss and reflect on current teaching practices.

Accomplished teachers have an obligation to provide a quality education for their students and are guided by what is in the best interest of each individual student. Furthermore, they know their students' needs and can readily access resources to provide help that may extend beyond the classroom in order to prepare them for adulthood in a technology-driven world. Expert teachers advocate for their students in ways that might challenge their own comfort. "Change is scary, but also inevitable. Don't cling to what's customary, because kids need grown-ups to help them make sense of an unfamiliar world," urges Jordan Shapiro (2018). Exploring and working to integrate educational technology serves as a means for educators to continue developing professionally while serving their students to the best of their ability.

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Figures

Charlotte Danielson's FRAMEWORK FOR TEACHING

DOMAIN 1: Planning and Preparation

1a Demonstrating Knowledge of Content and Pedagogy
• Content knowledge • Prerequisite relationships • Content pedagogy

1b Demonstrating Knowledge of Students
• Child development • Learning process • Special needs
• Student skills, knowledge, and proficiency
• Interests and cultural heritage

1c Setting Instructional Outcomes
• Value, sequence, and alignment • Clarity • Balance
• Suitability for diverse learners

1d Demonstrating Knowledge of Resources
• For classroom • To extend content knowledge • For students

1e Designing Coherent Instruction
• Learning activities • Instructional materials and resources
• Instructional groups • Lesson and unit structure

1f Designing Student Assessments
• Congruence with outcomes • Criteria and standards
• Formative assessments • Use for planning

DOMAIN 2: The Classroom Environment

2a Creating an Environment of Respect and Rapport
• Teacher interaction with students • Student interaction with students

2b Establishing a Culture for Learning
• Importance of content • Expectations for learning and achievement
• Student pride in work

2c Managing Classroom Procedures
• Instructional groups • Transitions
• Materials and supplies • Non-instructional duties
• Supervision of volunteers and paraprofessionals

2d Managing Student Behavior
• Expectations • Monitoring behavior • Response to misbehavior

2e Organizing Physical Space
• Safety and accessibility • Arrangement of furniture and resources

DOMAIN 4: Professional Responsibilities

4a Reflecting on Teaching
• Accuracy • Use in future teaching

4b Maintaining Accurate Records
• Student completion of assignments
• Student progress in learning • Non-instructional records

4c Communicating with Families
• About instructional program • About individual students
• Engagement of families in instructional program

4d Participating in a Professional Community
• Relationships with colleagues • Participation in school projects
• Involvement in culture of professional inquiry • Service to school

4e Growing and Developing Professionally
• Enhancement of content knowledge and pedagogical skill
• Receptivity to feedback from colleagues • Service to the profession

4f Showing Professionalism
• Integrity/ethical conduct • Service to students • Advocacy
• Decision-making • Compliance with school/district regulations

DOMAIN 3: Instruction

3a Communicating With Students
• Expectations for learning • Directions and procedures
• Explanations of content • Use of oral and written language

3b Using Questioning and Discussion Techniques
• Quality of questions • Discussion techniques • Student participation

3c Engaging Students in Learning
• Activities and assignments • Student groups
• Instructional materials and resources • Structure and pacing

3d Using Assessment in Instruction
• Assessment criteria • Monitoring of student learning
• Feedback to students • Student self-assessment and monitoring

3e Demonstrating Flexibility and Responsiveness
• Lesson adjustment • Response to students • Persistence

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Figure 1. Charlotte Danielson's Framework for Teaching.

Lesson Plans

Greater Than, Less Than, or Equal To
Kindergarten Math
Fall 2018

Arkansas Curriculum Standards
- **AR.Math.Content.K.CC.C.6** Identify whether the number of objects in one group from 0-10 is greater than (more, most), less than (less, fewer, least), or equal to (same as) the number of objects in another group of 0-10.

Objective
- The students will distinguish the relationship between two groups of objects between the numbers zero and ten through an interactive activity and be able to individually solve four problems correctly.

Arkansas Teaching Standards
- Standard #4 - Content Knowledge
- Standard #5 - Application of Content

Materials/Technology
- "Greater than / Less than" alligators (20) and "equal to" alligators (20)
  - Popsicle sticks (120)
  - Googly eyes (80)
  - Teeth printable (40)
- Glue sticks (20)
- Scissors (20)
- Markers
- Worksheet (20)
- Smartboard

Introduction
The teacher will:
- Say, "Good morning, kindergarten! Can anyone remind us of what we've been learning about this week?"
  - Answer: the numbers 0-10
- Introduce today's topic.
  - Say, "Today we will be learning how to know if numbers are greater than, less than, or equal to each other with the help of our friend Al the alligator."

Procedures
The teacher will:
- Lead student in the Al the alligator song – students sitting in a circle
  - Have the lyrics on the powerpoint
  - Sing through it once
  - Have the students repeat small segments

- o   Sing through it together
- Lecture
  - o   Powerpoint
  - o   Explain the meaning of <, >, and =
  - o   Have students practice solving problems with their alligators
- Turn on a GoNoodle
  - o   https://youtu.be/-Ldz0POzBoU
- Worksheet
  - o   Each student will cut out and clue the alligators in place

Culmination

The teacher will:
- Say, "Today, we learned about how to determine if groups of numbers are greater than, less than, or equal to each other."
- Connect the lesson to future learning.
  - o   Say, "Next time, we'll learn how to do the same with numbers up to 20."

Assessment
- The students will individually complete a worksheet with four problems on greater than, less than, or equal to.

Accommodations
- [Removed for student confidentiality]

Discovering Arkansas State Symbols
2nd Grade Social Studies
Spring 2020

Arkansas Curriculum Standards
- **C.2.2.1** - Explain the significance of state and national symbols, patriotic songs, and mottos.

Objective
- The students will discover the relation between national and state symbols through guided online research and be able to write three complete sentences about their findings.

Essential Question
- How do our state symbols represent the history of Arkansas?

Arkansas Teaching Standards
- Standard #4 - Content Knowledge
- Standard #5 - Application of Content

Materials/Technology
- iPad / chromebook (25)
- Sticky notes
- Smart board timer

Introduction
The teacher will:
- Greet students and gain their attention by asking them what the following on the board has in common: * ! # $ @ & : +
  - Answer: They're all symbols!
- Remind the students of earlier in the school year when they learned about national symbols in the United States.
- Ask the students if they can remember any national symbols.
  - Answers: Bald eagle, Mt. Rushmore, Liberty bell, Rose, etc.
- Say, "We are going to spend this week learning about more symbols! Today we will take what we already know about national symbols and what they stand for to do some research on their history."

Procedures
The teacher will:
- Remind students of the guidelines we use in the classroom when using technology.
  - "Remember, it's a privilege, not a right!"
- Instruct the students to pull out their iPad or chromebook and follow along with your example on the smart board.
  - Lead the students to open chrome. Have them practice typing the link posted on the board.

- o While students are working to type in the link, walk around the room giving each student three sticky notes and check for any students who need assistance.
- Ask the students to place their hands in their laps until you are ready for them to start researching. Show the students the website on the board, clicking on some of the features they can use.
- Explain that each student has three sticky notes and say, "Please write down something new you learned today on each of the sticky notes."
- Pace a timer on the smart board and allow the students 20 minutes to research.
   - o Monitor the room to make sure students are saying on task, not leaving the website, and to answer any questions.
- When the timer goes off, have students complete a three-sentence wrap up based on what they have learned.
- Have the students stick their sticky notes and the board and randomly select one to take back to their desks.
   - o Have each student read their anonymous note and see what the class found!
- Ask, "How does the history of the United States affect what has been our national symbols?"
- Ask, "What are some other big events in history that you think there should be a symbol representing it?"

Culmination
The teacher will:
- Say, "Great job today! We used the knowledge we already had on national symbols to see how history relates to them.
- Tell students that we will continue to use what we learned today throughout this week.
- Say, "Tomorrow we will take a look at the history of Arkansas to see how our state was founded!"

Assessment
The students will:
- Complete a three-sentence wrap up over things they have learned from their online research. This will be graded for overall understanding and completion instead of spelling, capitalization, punctuation, or handwriting.

Accommodations
- [Removed for student confidentiality]

Fraction Bootcamp!
3rd Grade Math
Spring 2021

Arkansas Curriculum Standards
- **AR.Math.Content.3.NF.A.1** - Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts.
- **AR.Math.Content.3.NF.A.2** - Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Objective
- The students will represent fractions in a variety of ways and apply their knowledge to independently represent their name as fractions with at least 80% accuracy.

Arkansas Teaching Standards
- Standard #4 - Content Knowledge
- Standard #5 - Application of Content

Materials/Technology
- Interactive whiteboard
- Fraction bootcamp slides
  - https://docs.google.com/presentation/d/1rtV-h6hWNHyWGtpKcMidx2CfvvC7Gy3EhOhjgCrbEiM/edit#slide=id.gcc1255e493_0_90
- Document camera - optional
- Construction paper (5 colors)
- "My name in fractions" template sheet (15)
- Crayons

Introduction
The teacher will:
- Gain the students' attention through a joke.
  - Have the students read the sentence on the board and find the error.
    - Answer: There can't be 5 out of 4 people!
- Introduce today's topic to the students.
  - Say, "Today we will be reviewing and practicing using fractions."
  - Communicate the importance of the content to the students.
    - The ACT Aspire the students will take soon contains questions about fractions. Brushing up on their prior knowledge will help them to answer the questions quickly and confidentially!

Procedures
The teacher will:
- Ask DOK Level 1: List the ways we can represent fractions.
  - Answer: Parts of a whole, parts of a set, strip diagram, and number line.

- Review fractions as a part of a whole.
  - Ask DOK Level 2: What information does a fraction tell us?
    - Answer: The numerator tells us how many parts of the whole are being counted, and the denominator tells us the total number of parts.
  - Separate the students into groups of three. Give each group a piece of construction paper and ask them to create a strip diagram (fraction bar) using the instruction that correlates to their color.
    - Orange = denominator of 2
    - Yellow = denominator of 3
    - Green = dominator of 4
    - Blue = denominator of 6
    - Purple = denominator of 8
  - Have the groups add the fractions they created to the board and review as a class.

Assessment
- The students will identify fractions in their own first name.
  - DOK Level 3: Construct fractions relating to your first name.
- Students are expected to complete this assessment independently with at least 80% accuracy, or 4 of the 5 following questions:
  - How many equal parts are in your name?
  - Each letter of your name represents what unit fraction?
  - What is the fraction of vowels in your name?
  - What is the fraction of consonants in your name?
  - Represent your name as a fraction on a number line.

Culmination
The teacher will:
- Restate the focus for the lesson.
  - Say, "Today we used the knowledge we already had on fractions to review and construct fractions of our own!"
- Connect the lesson to prior learning.
  - Say, "You will use the information we reviewed today to do awesome things on your ACT Aspire soon! You'll also use these skills as you grow as mathematicians."

Depth of Knowledge Questions
- Level 1: List the ways we can represent fractions.
- Level 2: What information does a fraction tell us?
- Level 3: Construct fractions relating to your first name.

Accommodations
- [Removed for student confidentiality]

Restating Information from Research Mini-Lesson
5th Grade Writing
Spring 2021

Arkansas Curriculum Standards
- **W.5.8** - Recall relevant information from experiences or gather relevant information from print and digital sources.
  - Summarize or paraphrase information in notes and finished work.
  - Provide a list of sources.

Objective
- The students will explore how notes are interpreted and translated into full sentences and be able to restate information while avoiding plagiarism and citing at least one source.

Arkansas Teaching Standards
- Standard #4 - Content Knowledge
- Standard #5 - Application of Content

Materials/Technology
- Google slides
- https://docs.google.com/presentation/d/1lXZCHFUgc4cs1ibc2bMuiguX_okPzu03Sc9Gw l8yAtQ/edit#slide=id.gba63fda848_0_1
- iSpy image
- Chromebooks (75)
- Empowering Writer's "Research/Notes/Composition/Citing Sources" Docs (75)
- Uploaded onto each student's google classroom.

Introduction
The teacher will:
- Gain the students' attention through a memory game.
  - Show the students a picture of many objects.
  - Give them 30 seconds to memorize the picture and then list as many items as they can from memory.
  - Ask the students how many objects they were able to list.
  - Give the students another 30 seconds to write down as many objects as they can.
  - Ask the students how many objects they were able to list.
  - Allow the students to work with partners to repeat the activity.
  - Ask the students how many objects they were able to list together.
- Relate the memory game to today's lesson.
  - Say, "Using notes can help us to remember information. Focusing on certain parts of information can also help us remember what we need to know. Today we will practice taking the information we learn through research and restating it into our own words!"

Procedures
The teacher will:

- Ask DOK question level 1: What is the purpose of notetaking?
  - Answers will vary, but the teacher should direct the answers to something along the lines of memorization, organizing thoughts, and having information to use.
- Review plagiarism and how to avoid it.
  - Define plagiarism: Plagiarism is the taking of someone else's ideas and using them as your own.
  - How can we avoid plagiarism?
  - Summarize – Tell the main idea of what you just read.
  - Paraphrase – Change the sentence into your own words.
  - Quotes – Use quotation marks to show when you're using someone else's words.
  - Bibliography – Be sure to cite any sources you use.
- Provide an example of plagiarism.
  - Tell the students you wrote a poem and then read the lyrics to a popular song.
    - I used Driver's License by Olivia Rodrigo, a song I know many of my students listen to.
  - Ask the students how to change your "poem" to make sure it's not plagiarized.
  - DOK Level 2: What do you notice about these two sentences?
    - Answer: They use different words, but they mean the same thing.
  - DOK Level 3: Revise the following sentence to avoid plagiarism.

Culmination
The teacher will:
- Remind students of what they learned today.
  - Say, "Today we explored the purpose of note-taking and how to maximize the information we gain from it. We also looked at how to restate information to avoid plagiarism."
- Connect this lesson to future lessons.
  - Say, "We will spend the next few weeks looking at expository writing, or informational writing. You'll use the research skills we practiced today for that and as you study the book "Fever" with Mrs. Keesee in reading."

Assessment
- Have the students complete the empowering writer's "Research/Notes/Composition/Citing Sources" assignment individually. The students should be able to paraphrase their notes with zero plagiarism and cite at least one source.

Depth of Knowledge Questions
- Level 1: What is the purpose of notetaking?
- Level 2: What do you notice about these two sentences?
- Level 3: Revise the following sentence to avoid plagiarism.

Accommodations
- [removed for confidentiality]

Oil Spills and their Impact on the Environment
6th Grade Science
Fall 2020

Arkansas Curriculum Standards
- **6-ESS3-3 -** Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

Objective
- The students will learn about the origins of an oil spill through reading an article and sharing with their peers and be able to construct a diagram explaining how oil spills happen.

Arkansas Teaching Standards
- Standard #4 - Content Knowledge
- Standard #5 - Application of Content

Materials/Technology
- Printed copies of an article about oil spills
  - https://www.sciencenewsforstudents.org/article/oily-gulf
- Index cards

Introduction
The teacher will:
- Greet the students and explain that this week we will be continuing to learn about how our actions affect the planet.
- Today we will review what we learned last week about the environment and see how humans can harm it. We will take a look at what causes oil to spill over into the ocean.
- Our guiding question for today is, "What causes oil spills to happen?"

Procedures
The teacher will:
- Give each student a printed copy of an article about oil spills.
  - https://www.sciencenewsforstudents.org/article/oily-gulf
- Have the students read the article, using their skills on understanding text features that they've learned earlier in the school year.
  - Students should highlight any information they find important.
- After students have finished reading, have them write on an index card one sentence about what they have learned.
- Have the students form two circles.
  - The outside circle should be facing inward.
  - The inside circle should be facing outward.
  - Each student should be standing in front of one other student, or a group of two if there's an uneven number of students.
- Instruct the students to use their index cards to discuss with their partner.
  - After conversation begins to die down, have one of the circles move.

- *"I would like the outside circle to shift to the right by one person."*
- *"Can the inside circle please shift to the left by three people?"*

<u>Assessment</u>
- Students will construct an image and diagram explaining how oil spills happen.

<u>Accommodations</u>
- [removed for student confidentiality]