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Perceptions of Technology in Dance Education: the Effect of Technology on Student Learning and Teaching Strategies of the Twenty-First Century Skills in Dance Education

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The Graduate School

PERCEPTIONS OF TECHNOLOGY IN DANCE EDUCATION:
THE EFFECT OF TECHNOLOGY ON STUDENT
LEARNING AND TEACHING STRATEGIES
OF THE TWENTY-FIRST CENTURY
SKILLS IN DANCE EDUCATION

A Thesis Submitted in Partial Fulfillment
Of the Requirements for the Degree
Of Master of Arts

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College of Performing and Visual Arts
School of Theater Arts and Dance
Dance Education

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This Thesis by: Anna Kristine Gradwohl

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has been approved as meeting the requirements for the Degree of Master of Arts in the College of Performing and Visual Arts, School of Theatre Arts and Dance, Program of Dance Education

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ABSTRACT

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The purpose of this study was to assist educators in understanding the advantages and disadvantages of using technology in a dance classroom to teach the twenty-first-century-skills of creativity, critical thinking, and collaboration. This research evaluated perceptions of technology integration through the lens of fifty-four current dance educators with a goal of discovering the effects technology has on teaching strategies and student learning in a dance classroom. The research instrument used in this study was an electronic survey that included both quantitative and qualitative questions to analyze the data. The data suggested that current dance educators supported the use of technology in dance education, yet shared mixed reviews on when and how technology should be integrated in the dance classroom.

ACKNOWLEDGMENTS

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INTRODUCTION

Goal of Thesis

In the ever-growing age of technology, emerging methods for new teaching

strategies have become more common in the classroom. Some of these methods include

the use of tablet devices, smart boards, flipped classrooms, video collaboration, online

courses, interactive classroom games, and online educational platforms. Drs. Fatma

Hocanin and Ersun Iscioglu, professors from Eastern Mediterranean University in

Turkey, conducted a study in 2014 about the advantages and disadvantages of using

mobile devices in a university classroom. Their research showed "mobile tablets are

becoming so popular in classrooms around the globe that many teachers see them as

being a common accessory—as common as a pen or a pencil" (13). Despite this trend,

educators' opinions differ on the usefulness of these strategies in dance education. As a

result, dance education is one of the slowest artistic disciplines to implement new

technology strategies into teaching (Calvert et al. 6). According to Tom Calvert, Lars

Wilke, Rhonda Ryman, and Ilene Fox's article, "Applications of Computers to Dance,"

this is due to the following two reasons involving:

> …the unwillingness of dancers and dance choreographers to let any media stand
> between them and their live kinesthetic experience, and the low marketability of
> this branch, due to which the newly devised technological applications delay to
> develop and co-opt in the market place. (Dania et al. 3357)

Many educators and researchers agree that when used correctly, technology in the classroom could benefit teaching strategies and student growth. Technology, in this research, broadly refers to the use of audio equipment, Internet and video use, recording devices, tablets, smart phones, educational apps, online learning platforms or any other electronic technological device used in an educational setting. According to Kwok-Wing Lai, "Technology can offer opportunities for personalized instruction, cooperation, communication, and feedback" (Dania et al. 3356). Jennifer Gruno and Sandra L. Gibbons, educators from the University of Victoria, also supported technology use for teaching dance and stated:

> When used effectively, technology may be utilized to enhance physically active engagement in learning rather than detract from it. Using technology to support the teaching of dance may aid in the formation of student-centered discovery lessons where the students are active (physically, cognitively, and socially) for the majority of the lesson. (Gruno and Gibbons 34)

According to the "Teacher's Dream Classroom Survey," sponsored by Edgenuity in March of 2016, 70% of the 400 middle and high school teachers surveyed felt that technology enriched the classroom experience (Soulas 5). This study reported that the majority of teachers thought educational technology "creates more opportunities for research projects and enables students to learn better through a combination of direct instruction from teachers and learning on their own via online resources" (Soulas 5). They also felt that technology could be used effectively to diversify learning and make lessons more engaging.

Although the majority of teachers in the 2016 Teacher's Dream Classroom Survey supported the use of technology in their classrooms, "less than half of the teachers felt the technology available in their classrooms was definitely helping them achieve their

teaching objectives." Many also reported frustrations with the lack of time to implement technology in the classroom, not enough tech support, lack of access to technology, and distractions caused by technology use (15). According to the same study, 58% of the teachers surveyed were only somewhat satisfied with the role technology plays in the classroom (13). Although most educators agreed that some technology in the classroom can benefit the classroom experience, they also made mention about how technology's not necessarily being used to help students achieve lesson objectives. The results of the Teacher's Dream Classroom Survey were significant; however, present dance classes are designed differently from traditional classrooms and require additional research. Furthermore, current dance classes are more kinesthetic in design and require hands-on teaching strategies and student participation for learning. Although certain technology strategies may be better suited for the everyday classroom, there may be technology that benefits dance educators and students more than other classroom settings.

Other educators and researchers agreed that technology may not be as beneficial as it appears on the surface. For example, Todd Oppenheimer argued in his book *The Flickering Mind: Saving Education from the False Promise of Technology* that the excessive use of the Internet and computers in schools was detrimental to students' growth and wellbeing. He claimed that children were showing signs of decreased attention spans and their capability to "reason, listen, to feel empathy, among many other things, is quite literally flickering" (xx). Despite this occasional resistance from the dance community, incorporating technology into dance classes with the proper intention and careful planning may change this outcome.

The goal of this study was to discover the effects technology has on student learning and teaching strategies in a dance classroom through the lens of current classroom educators. This study analyzed responses from an electronic survey taken by dance educators in both academic and studio settings across the country in hopes of identifying what technological methods current dance educators are using in the classroom.

This study addressed how technology affects a teacher's ability to disseminate new information and how it affects student growth of the twenty-first-century skills. These skills, as defined by the Glossary of Educational Reform, are a "broad set of knowledge, skills, work habits, and character traits that are believed—by educators, school reformers, college professors, employers, and others—to be critically important to success in today's world" (*Glossary of Education Reform*, par. 1). Although the exact list of twenty-first-century skills may be defined differently in a variety of contexts, there is a general consensus that these essential skills can be categorized into "4 Cs", critical thinking, communication, collaboration, and creativity (P21 4).

Purpose of Study

The purpose of this study was to assist readers in understanding the advantages and disadvantages of using educational technology methods in a dance classroom. Technology is a broadly used term that refers to the "application of scientific knowledge for practical purposes" (Oxford). Since this terminology can be used in a variety of contexts, this research focused specifically on educational technology: "digital technology used to facilitate learning" (Oxford). Educational technology can incorporate anything from computers and projectors to educational applications, also known as apps, and tablet devices. This research was not focused on one type of educational technology in particular;

rather it was aimed to determine which forms of technology current educators found most and least successful in the dance classroom. In order to reach this goal, the following essential research questions were used to guide the electronic survey:

Q1 In what ways does technology enhance teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

Q2 In what ways does technology inhibit teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

Significance of Study

As new technology continues to emerge, it is essential that dance educators are well versed in these strategies and have the data needed to support or deny the use of new technology in the classroom. Since teaching strategies are continually evolving, this study aimed to assist current educators in finding best practices for their teaching based on responses from other dance teachers across the country. According to the *Teacher's Dream Classroom Survey*, 61% of the 400 surveyed teachers agreed that a key element needed to achieve their dream classroom was "more time in the school day to plan, research resources, and collaborative time with colleagues" (Soulas 11). Adjusting lesson plans and implementing new technology into the classroom takes time and energy that many teachers are unable to find. The significance of this study focused on offering current and future dance educators time saving strategies for lesson planning by informing the public about the advantages and disadvantages of technology integration in the dance classroom. The discussion of technology integration is more complicated than simply supporting or denying its influence; rather, it is crucial to note the type of technology, the age of students, the classroom setting, the style of dance class, and the

proposed lesson to be taught. This study aimed to unravel the confusion around technology integration in a way that ultimately assists educator teaching strategies and academic student growth in the dance classroom.

Some limitations to this study included the survey questions, number of participants and the survey demographics. This survey was created by the researcher but was not tested for further validity and reliability. The sample size of fifty-four participants limited the number and type of responses as most educators were affiliated with the same organizations. Lastly, the demographics of this study lacked diversity of gender, age, ethnicity, and teaching setting. Further detail of the study's limitations is found in the conclusion chapter of this thesis. Although some limitations existed in this research, new perspectives of current educators provided beneficial insight to the discussion of technology use in a dance classroom.

In addition to the current requirements for integrating emerging technology into all classrooms, educational leaders and organizations initiated that twenty-first-century skills are incorporated into education to ensure that students are prepared for the challenges and jobs of the twenty-first century. *The Partnership for 21st Century Learning*, also known as P21, collaborated in 2015 with policymakers, and businesses and education leaders to promote the teaching of practical skills in K–12 schools. The vision for implementing creativity into the classroom is that students will be able to think more creatively, work creatively with others, and implement innovations by making advantageous contributions to their field. The goal of increasing critical thinking in classrooms is that students will "reason more effectively, make judgments and decisions, and solve different kinds of non-familiar problems" (P21 4). Lastly, communication and

collaboration are promoted so students will be able to communicate their thoughts and ideas clearly and collaborate effectively and respectfully with diverse groups of people (4). Dance has the ability to seamlessly incorporate the skills of creativity, critical thinking, and communication in production and classroom settings. This study assessed technology integration strategies through the framework of creativity, critical thinking, and communication to determine if and how technology integration affects teaching strategies and student learning of twenty-first-century skills in dance education.

    The present study dove deeper into perspectives of dance educators to determine current uses of educational technology, benefits of these methods, possible hindrances, and overall best practices for future readers' benefit. This study also provided more authentic perspectives and usable strategies for current dance educators, in order to inform students of all ages how technology is impacting their learning environment. This study attempted to provide the dance field at large with a broader understanding of how technology could be implemented and how it may be affecting the future of dance as an art form.

CHAPTER II

REVIEW OF LITERATURE

Educational philosophy and current trends are constantly evolving to create the most effective educational system for students of all ages. In the past two decades, a significant push to integrate technology has swept the country and schools have made new strides in innovative teaching methods. Current teaching philosophy uses twenty-first-century skills to prepare students for future success in an ever-changing world. This chapter will discuss a brief history of the American education system, the current educational philosophy of twenty-first-century skills, and the current use, advantages, and disadvantages of technology integration in education. Additionally, this chapter will examine current trends and uses for technology in dance education and provide insight on teacher and student perspectives on this topic.

The American Education System

In 1635, the first American public school was established in the colony of Massachusetts. After the establishment of the Boston Latin School, educational laws passed to form additional schools. Once schools began to spread through the colonies, educational curricula began to develop. The central and southern colonies focused their education on apprenticeships in farming, household skills and other trade skills that correlated to the commercial demands of the time. This trend led to the development of the American Academy in the mid-eighteenth century, which replaced the Latin grammar

school system previously used (Cubberley 244). These new schools focused on subjects

of practical value such as English and science, and commonly welcomed both girls and

boys through the doors. Later, more segregation of gender and race entered the school

system as the American public schools were established. At this time, many towns would

not hire a teacher to manage the school, so a majority of education was left for the home.

The Law of 1647 changed this when it stated:

> 1. That every town having fifty householders should at once appoint a teacher of reading and writing, and provide for his wages in such manner as the town might determine; and 2. That every town having one hundred householders must provide a grammar school to fit youths for the university, under a penalty of £5 (afterwards increased to £20) for failure to do so. (Cubberley 191)

This law changed history by putting a priority on education and the hiring of teachers to

administer successful schools.

By the end of the eighteenth century, the Pennsylvania constitution called for free

public education for families who were unable to afford school. Section 1 of a 1790 law

stated, "The legislature shall, as soon as conveniently may be, provide, by law, for the

establishment of schools throughout the state, in such manner that the poor may be taught

gratis" (Cubberley 238). A family's financial situation no longer determined whether a

child was able to attend school in America. This law continues to influence students

today as many parents are unable to afford private education and the growing costs

associated with it.

In addition to new laws that provided more opportunity to students, it soon

became law for every child to attend school between the ages of eight and fourteen years

old. In 1852, Massachusetts became the first U.S. state to enact a compulsory education

law that required every city and town to offer primary school, focusing on grammar and

basic arithmetic. Parents who refused to send their children to school for at least 12 weeks were fined $20 for truancy (Hardenbergh 1). By 1918, Mississippi passed the last compulsory attendance law, making school attendance mandatory in all U.S. states. Education has grown and changed significantly in the past century, but the values and roots of early education can still be seen in current public education. Schools across the United States still ensure that all students have access to education and are required to attend. Schools still teach similar practical subjects, and teachers ensure that each student is prepared for success outside the classroom.

Even before modern advancements, technology has been deeply connected to the American education system. One of the first major technological advancements in education, the magic lantern, was introduced in 1870 as an early version of a slide projector. Soon to follow were the chalkboard in 1890 and the pencil in 1900 (Purdue, par. 1). Students were eager for more developments that continued to arrive in the early nineteen hundreds. The overhead projector entered the scene in 1930, followed closely by the ballpoint pen in 1940, and headphones in 1950 (Purdue, par. 3). New possibilities in educational instruction continued to develop when videotapes were created in 1951 and the photocopier was created in 1959 (Purdue, par. 5). In 1972, handheld calculators and the Scantron, a testing method that allows for quicker grading, entered the classroom (Purdue, par. 7). This emerging technology allowed teachers and students to be more efficient and productive with instructional time. These older technologies eventually became ubiquitous classroom necessities when evolving electronic developments entered the scene.

A whole new wave of technology growth started when IBM developed the first portable computer in 1982 (Purdue, par. 9). The Internet became the main source of research and information when the World Wide Web was launched in in 1990, and commercial Internet use was available in 1993 (Purdue, par. 11). Once computers and the Internet were established, school systems quickly began incorporating this technology into schools across the country. This changed the way students could learn and communicate and how teachers could plan, organize, and present lessons. Technology is still quickly developing today, and what used to be wooden paddles and hornbooks have become touchscreen devices, interactive whiteboards, smartphones, and laptops. As new waves of technology continue to develop, it is possible that newer devices and innovative classroom technology will replace smartphones, iPads, laptops, and other electronic devices used in schools today. Regardless of the equipment used in classrooms, the intent of emerging technology has always been to improve instructional strategies and student learning.

Current Educational Theory:
Twenty-First-Century Skills

In a society of growth and a highly competitive workplace, graduating from a university is no longer enough to ensure success in a career or citizenship in the twenty-first century. So how do educators prepare their students for success beyond the classroom, and at what age can this preparation begin? The National Education Association (NEA) articulates how the American education system that used to be fueled by the "3 R's" (reading, writing, and "rithmetic") was "built for an economy and society that no longer exits" (Van Roekel 5). For the past decade, the NEA and other educational organizations have been promoting a shift in focus to include skills that will set students

up for success. The Partnership for 21st Century Learning (established in 2002 by the NEA) outlined a framework for defining and organizing the skills that are agreed to be beneficial for the success of all twenty-first-century learners. These essential skills have been narrowed down over the years to become the 4 Cs (P21 1). These four skills are slowly being integrated into the education system, as their importance is becoming more widely understood in both educational and economic settings.

Many CEOs and organizations have begun to speak about the need for a revised system that meets the needs of the current workplace. According to Ken Kay, CEO of EdLeader21, "today's students need critical thinking and problem-solving skills not just to solve the problems of their current jobs, but to meet the challenges of adapting to our constantly changing workforce" (Van Roekel 6). In addition to an evolving workplace, most people can expect to have numerous jobs in a wide variety of fields during their careers. Gone are the days when employees work one job for their whole career. The U.S. Bureau of Labor Statistics claimed "the average person born in the latter years of the baby boom held eleven jobs between ages eighteen and forty-four" (Van Roekel 6). Many people not only work numerous jobs throughout their prime working years, they do so simultaneously and maintain work in a wide variety of fields. As the workplace continues to evolve, it has become a necessity to understand emerging technology. What was once considered blue-collar work still requires an understanding of technology integration. This fluctuating system and work environment requires employees to be technology proficient, creative people who think critically, communicate effectively, and collaborate well with others. As Franklin D. Roosevelt once said, "We cannot build the future for our youth—but we can build our youth for the future" (Van Roekel 2). Dennis

Van Roekel, president of the National Education Association agreed when he said, "It is

clear that our school systems need to respond better to a changing world" (Van Roekel 2).

Critical Thinking

Critical thinking is essential for all students and is necessary for anyone in today's

workforce. According to Dennis Van Roekel, president of the NEA, honing this skill can

lead to better concentration, "deeper analytical abilities, and improved thought

processing" (8). The Partnership for 21st Century Learning (P21) defines critical thinking

as the ability to "reason effectively, make judgments and decisions, reflect critically on

learning experiences, and solve unfamiliar problems in both conventional and innovative

ways" (1). This type of problem solving is used in all areas of life, thus must be taught

and instilled in students from a young age. A study performed by Darra Wheeler Happ in

2013 concluded that teachers with more than seventeen years of teaching experience are

offering critical thinking opportunities more regularly than those who have taught for less

time (vi). Although this is only one survey and sample of teachers, it begs the question:

Are teachers getting the training they need to effectively integrate the 4 Cs into their

curriculum? If less experienced teachers are using fewer critical thinking exercises in

their classrooms, something needs to change for the benefit of the student. The need for

critical thinking skills is evident both in and out of the classroom and will continue to be

a necessary twenty-first-century skill. Perhaps Laura Hummell said it best in her review

of critical thinking skills as they relate to the twenty-first-century skills in education:

> Critical thinking allows people to live rational, productive, reasonable, and
> empathetic lives. Without the crucial skills of conceptualization, application,
> analysis, synthesis, and evaluation, human beings would fail to thrive and would
> focus on survival only. In essence, critical thinking allows us to become better
> citizens of the world around us. By learning how to think critically, students
> understand how their thoughts and actions can impact and affect others. (6)

Communication

Communication, another one of the 4 Cs, is an equally important part of student development. The ability to communicate with others drives business, education, and interpersonal relationships. Although communication is often thought of as a verbal skill, the ability to correspond with written word and non-verbal skill is equally as essential. P21 defines communication as the ability to clearly articulate thoughts (orally, written, and non-verbally), and the ability to listen effectively and understand meaning (1). Active listening is another major component to this essential skill. Since communication happens consistently throughout the day and is taught regularly in school, one may assume that this is not an area of weakness in society, but, employers think otherwise.

In a report titled "Are They Really Ready to Work?" employers from across the country felt that college graduates lacked the essential skills of both written and oral communication (Van Roekel 13). Business leaders found similar results in Tony Wagner's book, *The Global Achievement Gap*, as they also noted deficits in these skills (Wheeler Happ 15). Additional research is needed on how to bridge this communication gap, but perhaps a more intentional use of verbal presentations and purposeful discussions could foster communication skills in students.

Collaboration

The essential twenty-first-century skill of collaboration is often closely connected with the ability to communicate, yet these skills have been separated through the Partnership for 21st Century Learning to indicate their individual importance. Collaboration refers to the ability to "work effectively and respectively with diverse teams, exercise flexibility and willingness to make compromises to reach a common goal,

and value the individual contributions made by each team member" (P21 1).

Collaboration is an essential part of daily life and can be seen in education, the

workplace, and beyond. Due to an increased integration of technology in society, students

and employees are now connected on many levels that require collaborative work. This

integration extends beyond the local level, as many people are also part of global projects

and teams. One such program is the Global Learning and Observations to Benefit the

Environment (GLOBE), which is a worldwide educational program where students

collaborate with each other and partner with organizations such as NASA, the National

Oceanic and Atmospheric Association (NOAA), and the National Science Foundation

(NSF) to create change and investigate the environment (Van Roekel 19). This type of

program promotes working with diverse groups to accomplish a common goal.

Current best practice in education incorporates using project-based learning

(PBLs) to foster collaboration with students. This allows students to work in groups on a

project and rely on others to achieve academic goals. These current strategies may show

an increased level of effective collaboration among individuals beyond the classroom

setting. Some subjects lend themselves better to collaborative work as seen through a

2013 study by Darra Wheeler Happ. She concluded "art, music, and physical education

teachers are more likely to provide opportunities for students to work effectively within a

team environment, whereas math and science teachers tend to not provide students

opportunities for peer collaboration" (vii). Teachers of core academic subjects may need

to be more intentional about incorporating collaborative projects and teaching strategies

into their lessons to shift the outcome of these findings and to better prepare young

people for their future.

Creativity

Creativity, the final essential twenty-first-century skill, is often thought of as only relating to the arts, when in actuality it simply means "to make something new" (Piirto 1). The importance of teaching creativity in school goes beyond artistic classes and should be seen throughout all disciplines. Reason and knowledge used to be valued at the highest level, but creativity is now seen as equal if not a more important part of the learning process. Daniel Pink, author of *A Whole New Mind*, stated, "The future belongs to a very different kind of person with a very different kind of mind-creators and empathizers, pattern recognizers and meaning makers. These people…will now reap society's richest rewards and share in its greatest joys" (Pink 280). If Pink is correct, creativity and innovative thinking must permeate all areas of the education field, from the board of education, to faculty, facility, and beyond. Other executives agree with this theory and believe that creativity is a crucial part of navigating the world and functioning in society. A survey of more than 1,500 IBM chief executive officers from around the world concluded in 2010 that executives believe "successfully navigating an increasing complex world will require creativity" (IBM 1).

Although there is clearly an expressed need for creative people and thinkers, many students lack these skills and are not adequately taught how to be creative in school. Kyung Hee Kim, Associate Professor of The College of William and Mary, performed a study on changes in creative thinking in young students between the years of 1990–2011 as measured by results of the Torrance Tests of Creative Thinking (TTCT). This test, created by Ellis Paul Torrance in 1966, measures creativity and problem solving skills on the scales of fluency, flexibility, originality, and elaboration. The results

showed that although the average IQ scores are increasing in the United States, "creative thinking is declining over time among Americans of all ages, especially in kindergarten through third grade" (Kim 293). His study shows that opportunities for problem solving and intentional collaboration between students must be present to improve this decline. According to Kim, "to reverse the decline in creative thinking, the United States should reclaim opportunities for its students and teachers to think flexibly, critically, and creatively" (294).

Creativity is often linked to the concept of personal expression, and many schools still focus solely on concrete knowledge rather than the process of teaching the whole person. Jane Piirto, author of *Creativity for 21st Century Skills* and advocate for creative thinking, has aimed to mend this problem with a shift in educational focus. In her book she separates the idea of creativity into three categories: the ability to think creatively, work creatively with others, and implement innovations (1). She goes on to explain that creativity always stems from a "thorn" or something that drives the artist to create. This motivation is what fuels the creative spirit as "the most enriching rewards for creative endeavors are intrinsic; that is, the reward is in the pleasure the creator takes in doing the work itself, and in achieving the result, and not from the pay or the prize" (Piirto 8). In order to change the way creativity is taught, teachers must transform as individuals and be willing to focus each lesson to reach the physical reality of each child. Rather than teaching creativity as it used to be taught, Piirto believes that new skills should be based on what "real creators do while they create" (11).

So how do teachers help their students master the twenty-first-century skills of critical thinking, communication, collaboration, and creativity? Piirto suggests teaching

students five core attitudes to instill these traits: "self-discipline, openness to experience, an attitude of risk taking, an attitude of tolerance, and an attitude of group trust" (13). She describes teaching self-discipline by discussing goal setting, visualizing the future, and breaking down large assignments into smaller components. Openness to new experiences can be taught through creating an understanding of mindfulness, teaching the concept of acceptance, and providing experiences rather than examples (20). Risk taking can be achieved in the classroom by having students do self-assessments, being clear on designed rubrics, organizing trust exercises, and giving the permission to be silly (27). Creating a classroom of tolerant thinkers begins with building a "climate that allows for opposing viewpoints," and by seeing value in opposing viewpoints rather than dissention (33).

Lastly, Piirto describes using the core attitude of group trust to inspire a class of creative thinkers. She recommends modeling the behavior in the classroom by using positive feedback, addressing only group concerns with the whole class, and by using student names to individualize sincere praise (39). These simple strategies could transform a classroom of any age and begin to create creative people who think critically, communicate effectively, and collaborate intentionally. As twenty-first-century skills continue to become a larger part of education and society, it is increasingly important to understand them and how they affect best practices in the classroom.

Technology in Education:
Current Trends and Uses

New innovations of both technology and educational practice have created a recent push for technology integration in the classroom setting. Over the past two decades, technology has grown in remarkable ways and has changed the way people view

the world. As a result, technology and Internet use have become a key part of our growing culture. A 2015 Pew Research Center Report concluded that 92% of 12–17 year-olds use the Internet daily (Wartella 13). This percentage has only increased over the past three years. Educational institutions have seen and responded to this growth by incorporating emerging technology into the classroom experience. By 2013, Apple sold more than 4.5 million iPads to educational institutions in the United States (Etherington par 3). In addition to iPad use in schools, other current trends include tablet devices, computer-assisted instruction (CAI), 3D printing, and even virtual reality gaming (Vogel 114).

Another educational technology trend involves using YouTube to present or search for information. Teachers are able to upload videos they create or search from other video resources to enhance classroom learning and engage students visually. Mike Christiansen, Social Studies teacher at Kent-Meridian High School reports that YouTube and video integration is one of the main ways he engages students and flips the classroom structure to be more student centered (0:05–0:27). Technology is constantly evolving, has permeated all levels of education, and is in need of continued research to support the use of these emerging trends. Regardless of the technology offered at a particular school, the responsibility lies with the teachers to manage and implement beneficial strategies in the classroom. According to Greg Waddoups, previous associate director of Brigham Young University's Center for Instructional Design:

> Teachers, not technology, are the key to unlocking student potential and fostering achievement. A teacher's training in, knowledge of, and attitude toward technology and related skills are central to effective technology integration. Technology is the tool whose master greatly shapes the outcome. In the hands of a poorly trained master, technology is ineffectual, a blunt instrument or worse. (Risner and Anderson, 122)

The current growth of technology has left educators to "evaluate the merits and limitations of using new technology" (Rossing et al. 1). Teachers must determine the validity of emerging technological claims and decide whether or not these new devices and methods will improve student learning or simply be a distraction.

Advantages of Technology Integration

After reviewing a wide variety of studies, surveys, and sources on educational technology integration, common themes are evident. Major advantages to technology use in the classroom include engagement and motivation for students, access to information, ease of collaborative projects, and the ability to reach more learning styles. Newer technology integration, such as educational video games, "are excellent ways to engage students on their terms" (Richtel 1). When students feel connected to their learning, they may be able to engage in the content for longer periods of time and in turn understand the material.

Student engagement and motivation is an important part of the learning process and can be enhanced by technology use even at the early education level. Leslie Couse and Dora Chen, from the University of New Hampshire, researched 3–6 year-olds using tablet devices in the classroom and concluded, "the motivation and engagement of kindergarten and primary-aged children in learning increased through the use of computers compared with non-computer related learning activities" (76). The children in this study used tablets for drawing a self-portrait. Those who used tablets for artistic lessons were more motivated and interested in the project than those using traditional media (Couse and Chen 93). Abigail Garthwait and Herman G. Weller, of the University of Maine, also noticed increased motivation for students after a one-to-one laptop use

study (366). One teacher in the study noted that students were able to work more independently without stopping to ask for questions and they complained less about their learning. Another teacher concluded, "many of the students were more creative when using computers as learning tools than they had been before computer technology was available" (Garthwait and Weller 368). Both teachers did note that the use of tablets or laptops in schools must be able to do more than what teachers are already doing. Replacing old techniques with a new device will not always reach the desired result, plus teachers of this study and others noted the challenges of technical issues while using the devices. Still, in the midst of technical difficulty, students were able to step up and take ownership of their learning by working alongside the teacher to solve technical problems in the classroom (370). A year-long study about 3D printing use in schools concluded that the process of incorporating new technology shifted the teacher-student relationship in a way that empowered students to truly understand their learning and take ownership of a new topic (Trust 54).

Incorporating new technology into education could also reach a wider range of learning styles in the classroom. For example, using eBooks or an iPad rather than traditional textbooks could help students who are audio learners connect with the reading content. Other online books provide interactive material to engage all students beyond what is possible with traditional textbooks (Trust 55). As technology continues to develop, new techniques will bridge the gap of teaching to students of all learning styles.

Although most technology studies focus on the intrinsic motivation of students to learn, some have found that technology can improve student learning and test scores. Jennifer Vogel, of the University of Central Florida and Florida State University, studied

the use of game-based CAI and virtual reality gaming to see the effects on motivation and student outcomes. After conducting a study with forty-seven elementary students, she concluded that math scores dynamically improved in the control group who participated in CAI. She also included a separate control group of deaf students in this study who mirrored similar results: increased math scores through the use of gaming (114). Another controlled study, performed by Kimberle Koile and David Singer in MIT's computer science course in 2007, measured the outcomes of PC tablet device integration in class. Out of the 236 students enrolled in this study, the greatest significance was found in students who had scored in the bottom percentage of the class. After incorporating tablet devices into a larger portion of the semester, scores on these students' exams increased significantly (Koile and Singer 1).

Although many teachers believe that technology integration has numerous benefits for student learning, motivation, and outcomes, there is an understanding that these advantages only come when technology is used correctly. "For technology to have a powerful impact on the learning environment, it needs to engage students in the learning process, encourage higher-order thinking skills and be meaningful to the students" (Gruno and Gibbons 34). In her article "Why Do We Need Technology in Education*?"* Torry Trust outlines that technology is beneficial in a classroom setting only when it can "afford new teaching and learning experiences that are not possible without the technology. She notes, "the most powerful use of technology in education is when it opens up opportunities for all students" (54). There are many advantages to educational technology integration and new trends are consistently emerging. Therefore, it is

important for teachers to assess the technology, train appropriately, and implement new strategies in a way that benefits all students in the classroom.

Disadvantages of Technology Integration

As some teachers strongly agree that technology integration is providing benefits to the classroom, others see major limitations and disadvantages to incorporating these new strategies. Some common limitations and themes from the reviewed studies include reduced attention span, limited creativity, and detraction from other more interactive forms of instruction. There is also concern that teachers are not being trained appropriately on new technology, and that the expense of these devices could lead to dropping other programs. Rather than using technology to transform learning, most teachers use it to fill a school requirement, manage a difficult class, or to fill time during a lesson (Trust 55).

Colleen Cordes and Edward Miller, of the Alliance for Childhood, expressed significant concerns about computer use in schools for young children. They suggest that computers can be hazardous to children and risks may include "repetitive stress injuries, eyestrain, obesity, social isolation, and intellectual developmental damage" (3). Their belief is that it is more important for children to have active, physical interactions that are hands on which may not be conducive to technology integration. They also fear that funding new technology may lead to many schools dropping their arts programs.

Another disadvantage to technology integration in young children is that it may interrupt their natural creative process that happens through imagination and hands-on activity (Cordes and Miller 96). Children often learn through play and experience, so the question arises whether technology is becoming an expensive distraction. Newer

technology advances, such as interactive gaming, attempt to bridge this experience gap, but many teachers still think these methods should not take the place of traditional teaching approaches.

In response to national surveys by the Pew Internet Project and Common Sense Media, teachers spoke up about their perceptions of technology use in the classroom. Of the 2,462 teachers surveyed, nearly 90% said "digital technologies are creating an easily distracted generation with short attention spans" (Richtel, par. 13). This prevalent belief that technology is affecting the attention spans of students has left teachers to feel like entertainers in the classroom who have to work exceptionally hard to maintain their students' attention (Richtel, par. 14). As concluded in the Common Sense Media study, 71% of the teachers surveyed said "Technology was hurting attention spans 'somewhat' or 'a lot', about 60% said it hindered students' ability to write and communicate face to face, and almost half said it hurt critical thinking and their ability to do homework" (Richtel, par. 15). The Pew Internet Project survey found that 76% of teachers believed "students have been conditioned by the Internet to find quick answers" (par. 17). This "Wikipedia Problem" has left students frustrated and unmotivated when they are unable to find immediate answers online (par. 17). The primary concerns from these national surveys are that technology is making students more distracted, unable to communicate and think critically, and less motivated when faced with difficult problems.

Another major concern for technology integration is that the cost does not justify the benefits. The U.S. National Science Board agrees and concludes that there is no evidence to prove that the cost effectiveness of educational technology is more beneficial than "smaller class sizes, self-paced learning, peer teaching, small group learning,

innovative curricula, and in-class tutors" (Cordes and Miller 95). This begs the question, if expensive technology integration is taking the place of other more personalized instruction, where does the benefit lie? As all options of educational models are costly, it is imperative to ensure that methods for new instructional techniques are worth the investment and will meet the needs of the students in each class.

Lastly, a major disadvantage to educational technology integration is that teachers are not receiving the professional development they need to implement new strategies into the classroom. Many schools are implementing new systems or programs and expecting teachers to make it work for their class. Without the necessary training and tools, teachers are struggling to find appropriate technology integration strategies (Parrish 1393).

In the midst of strongly opinionated reports of the benefits and drawbacks to technology use in education, many educators can see both sides to the issue. Certainly there are some advantages to using new technology for educational purposes, but these methods also are met with certain limitations. One specific study that balanced the technology argument was a yearlong Indiana University iPad inclusion program. University faculty studied student perceptions and learning outcomes of 209 students in nine different courses, and the research team identified opportunities and limitations of iPad use in the classroom (Rossing et al. 8). Advantages they identified were access and availability to research, collaborative learning and group work, and a dynamic learning environment. They also noted that iPads could reach more learning styles, were easy to use, and were a convenient way to engage in class. Limitations to this technology included students' feeling distracted by the devices, confusion over a lack of training with

specific applications, size of keyboard and app availability, and Internet connectivity

problems that affected the learning environment (Rossing et al. 11).

Another study with similar balanced results comes from an extensive Quebec

survey of 6,057 students and 302 teachers in 2013. The report presents uses, benefits, and

challenges of iPad use in education (Karsenti and Fievez 1). The students in this study

perceived the benefits as portability, access to information, increased quality of

presentations, better creativity, and motivation to learn (25). Teachers saw the largest

benefits to be information access, portability, greater ability to collaborate in class, and

the opportunity to work at one's own pace (27). The students and teachers agreed that the

greatest challenges to daily iPad use in the classroom were distraction, difficulty writing,

difficulty organizing work, and unsuitable textbooks (30). The results of these studies are

consistent with other research to show that although there are numerous advantages to

technology integration, limitations still exist in implementing these new strategies into

the classroom.

Dance Education and Technology:
Current Trends and Uses

While advanced technology continues to sweep the nation and the American

education system, dance education is often one of the slowest disciplines to incorporate

emerging technology integration. Doug Risner and Jon Anderson, faculty members of

Wayne State University, explain that although dance is continuing to develop in

documentation, presentation, and creativity, the educational technology "remains

peripheral" (113). They comment "the pedagogy of technology drags slowly behind the

technology itself" and dance educators may resist this change even more due to the

historical and kinesthetic nature of the art (119). The district, school, and teachers must

accept technology integration before it can be implemented into pedagogical practice. This can often cause a lengthy delay for many artistic disciplines, particularly those with little funding available to implement current technology trends.

Despite the setbacks of implementing technology into dance education, many educators are excited to try the latest methods and are actively pursuing new teaching strategies. Physical education teachers Jennifer Gruno and Sandra Gibbons express that "technology provides useful visual and audio support for physical education teachers and students during their teaching and learning of dance" (34). Many schools do not offer traditional dance classes, thus physical education is often the only class to incorporate dance. These teachers may find support and training from video and media to support their lessons, giving students a more well-rounded and sound dance experience.

More traditional dance classes also incorporate the use of computers, smartphones, tablet devices, video feedback, and online educational platforms. Animoto, Coaches Eye, Evernote, and Acclaim are a few specific smartphone applications that dance educators are currently using in classrooms. (Parrish). These apps allow students to connect images and music into video, record and review technique, journal and self-reflect, and communicate with intentional online class discussions.

Dance Magazine discusses three additional new technology tools that could transform the dance world. First, digitized dance notation can create digital dance for documentation and could be a replacement to Labanotation (Bernhard, par. 4). Secondly, "GoPros and drones can film hard-to-reach angles-and can create virtual reality experiences using 360-degree video technology" (Bernhard, par. 5). This is an exciting new advancement, yet artists worry that this could discourage an audience from coming

to see live performance. Lastly, new "E-Traces" are pointe shoes with a small device that can notate a dancer's steps, movement, and pressure on her feet. This allows for virtual feedback and correction with placement and balance (Bernhard, par. 6).

Dance is now more accessible than ever as anyone can view and learn from online YouTube videos. Everything from informal instructional videos to full-length ballets are now available for classroom and public viewing uses. Companies such as CLI Studios, an online dance class sharing platform, has made it possible to work with professional dancers from the comfort of your own studio (*CLI Studios*). This company works to train teachers, inspire choreography, and teach students through live streaming video dance classes. These evolving technologies have the potential to dramatically shift how dance is learned, taught, performed, and viewed.

Teacher Perceptions of Technology Use

When Gruno and Gibbons examined teachers' perceptions of technology use in a 2013 study of British Colombian educators, they found mixed reviews. Csaba Buday and Evan Jones reported similar results during a 2014 study of Queensland University of Technology educators. Comparable to the findings of technology use in general education classes, the research presented in these two articles indicated that dance educators could see the benefits and limitations to technology use.

One benefit to technology integration is the use of video recording for instant visual feedback (Gruno and Gibbons 34). Whether or not students have a physical dance studio or mirrors for self-correction, video can provide a more accurate assessment for students as they can watch the movements in slow motion or close up on repeat. Other teachers express that although verbal correction is a useful tool, smartphone technology

and recording "has produced rapid positive results in the technical development of

students' dancing" (Buday and Jones 1). Lastly, technology use in dance education could

enhance student-centered lessons that inspire active engagement in the learning, leading

to continued exploration outside of the classroom (Gruno and Gibbons 35).

Current teachers equally express limitations of technology use in dance education.

First, teachers identify a "lack of resources, limited teacher experience, and budgetary

constraints" (Gruno and Gibbons 35). Without the resources or experiences to implement

technology properly, it can easily become a distraction or inaccessible to certain schools.

Other teachers show concern that technology will hinder the kinesthetic experience by

replacing it with "sitting, clicking, observing, and typing" (Parrish 1394). Dr. Mila

Parrish voices apprehensions that technology use for dance education could remove the

experiential part of the art and turn it into a "spectator sport" (1395). If improvisation and

experimental movement is removed from the creative process, this may lead to less

physical expression in dance. In response to the advantages and limitations of new

technology, Dr. Parrish concludes thoroughly by saying:

> Therefore, we – as dance educators and researchers – must remember that technology is merely a tool to improve dance and dance instruction, and that it is meant to *enhance* real, physical movement, not *replace* it. When given its proper place in dance education, technology has much to offer. It maximizes the variety of possible dances that students can create. It enables students not only to execute others' dances online but also to create their own dances, thereby showing that they have a vital place in dance as choreographers, critics, analysts, and performers. With regard to the dance education profession, technology can offer a bigger picture of what teaching is all about: not only instructing and transmitting knowledge and skills, but evoking within each student what he or she is capable of doing, being, and becoming as a future dance professional. (1395)

Student Perceptions of Technology Use

Student perceptions of technology use in dance education are primarily positive, especially when referring to the use of smartphones and video feedback. Students expressed that they preferred video feedback to verbal or peer reviews due to the "rapid positive results" it produced (Buday and Jones 9–10). Not only did students prefer the use of video feedback and technology integration, they were more motivated to improve technique when they had the use of immediate visual feedback (10). As part of Buday and Jones' 2014 study on student engagement with technology integration, students claimed that technology allowed them to "achieve a greater sense of kinesthetic awareness about their dancing" (10). Researchers observed this to be true while noting that physical movement and quality of the dance improved after video review, observation, and feedback. Although more in depth research needs to be done on both teacher and student perceptions of technology use in dance education, it is clear that both advantages and limitations exist in new integration methods.

CHAPTER III

METHODOLOGY

The purpose of this study was to assist readers in understanding the advantages and disadvantages of using educational technology methods in a dance classroom. The researcher used the following essential question to guide the study: In what ways does technology enhance or inhibit teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom? The following chapter explains the methodology used to conduct the study and collect data. The researcher used an electronic survey with both quantitative and qualitative sections to measure the perceptions of current dance educators on technology use in the classroom.

Prior to conducting the study, the researcher required approval from the Institutional Review Board (IRB). A formal narrative that included the purpose, methods, data procedures, risks, and benefits of the study was submitted to the board for approval. A sample consent form and the developed survey were also submitted for review. Within a week of submitting the application, IRB approved the study. A copy of the IRB approval document and consent form can be viewed in appendix A.

Instrumentation

The researcher collected data using an electronic survey that measured teacher's perceptions of technology use in a dance classroom. The research was completed online through the use of the survey (listed in appendix B), and the researcher did not contact

participants outside of the initial electronic correspondence. The electronic survey was designed by the researcher through Qualtrics, an online software used for collecting and analyzing data, and emailed through research forums of the National Dance Education Organization (NDEO) to current dance educators across the country. It aimed to use both quantitative and qualitative methods to answer following research questions:

Q1   In what ways does technology enhance teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

Q2   In what ways does technology inhibit teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

The survey included thirty-one questions that ranged from multiple-choice format to short answer responses. The quantitative portion of the survey consisted of a demographics section, a technology in the classroom section, and a set of seven statements that gathered teacher perceptions of technology use as evaluated on a five-point scale ranging from "strongly disagree" to "strongly agree". The qualitative portion of the survey used sixteen short answer questions to focus on teacher and student engagement of technology use in a dance classroom. Responses to the electronic survey were collected from March 9, 2018 to April 3, 2018. A copy of the electronic teacher survey questions can be viewed in appendix B.

Research Participants

The participants in this study were current dance educators teaching in academic or studio settings and were recruited through an email sent to members of the National Dance Education Organization (NDEO) and the University of Northern Colorado's (UNCO) Master's of Dance Education program. Potential participants were sent an email

with an explanation of the study and a link to a consent form to electronically sign before

beginning the survey. A copy of the consent form is present in appendix A. Participation

in the study was voluntary and did not include compensation for those involved.

Participants submitted all survey results and consent forms online through Qualtrics and

the researcher kept the responses secure. Approximately fifty-six participants attempted

the survey and thirty-eight participants completed 100% of the questions. An additional

sixteen participants completed over 50% of the survey for a total of fifty-four participants

analyzed in this research.

Survey Demographics

The sample of the present study was overwhelmingly female, with fifty-two

females (96.3%) and two males (3.7%). The race and ethnicity of the participants

included forty-six Caucasians (85.2%), two Black/African Americans (3.7%), two

Hispanic/Latinos (3.7%), one Asian/Pacific Islander (1.9%), and three participants with

mixed races (5.6%). The research sample was also very well educated, with an average

education of 17.41 years. The ages of the participants ranged from eighteen to sixty-nine

years and were fairly well distributed, with over 60% being between the ages of thirty

and forty-nine years old. Table 1 shows the precise breakdown of participants by age

group.

Table 1. Age of Particpants

	N	Percent
18—24	1	1.9
25—29	9	16.7
30—39	19	35.2
40—49	15	27.8
50—59	6	11.1
60—69	4	7.4

Notes. $N = 54$

Teaching Demographics

The teaching demographics section of the survey asked participants to identify the number of years they have been teaching, which grade levels they currently teach, the setting of their classes, and the dance styles included in their curriculum.

Years of Teaching

Teaching experience ranged from one to forty years with over 80% of the sample having more than ten years of experience. Table 2 shows the specific number of participants who fell into each category.

Table 2. Years of Teaching Experience

	N	Percent
1—2 years	2	3.7
3—4 years	1	1.9
5—9 years	9	16.7
10—14 years	11	20.4
15—19 years	7	13.0
20—29 years	14	25.9
30—39 years	9	16.7
40+ years	1	1.9

Notes. *N* = 54

Setting

The majority of participants, forty-six, were teaching in academic settings, while another eighteen participants were teaching in studio settings. There were four additional participants teaching in either non-profit or community dance programs. The overlap of numbers in this data exits because several participants reported multiple teaching settings.

Table 3. Teaching Settings

	N	Percent
Academic	46	85.2
Studio	18	33.3
Other: Non-profit/Community	4	7.4

Notes. *N* = 54

Grade Levels

The participants were evenly dispersed in grade levels taught from pre-kindergarten through college, and over 60% were teaching high school students. Most people taught numerous grade levels, even some ranging from pre-kindergarten to graduate levels. Similar to the teaching settings, a significant overlap exists because several participants reported teaching multiple grade levels.

Table 4. Grade Levels

	N	Percent
Pre-Kindergarten	11	20.4
Kindergarten	15	27.8
1st grade	16	29.6
2nd grade	16	29.6
3rd grade	18	33.3
4th grade	14	25.9
5th grade	14	25.9
6th grade	15	27.8
7th grade	22	40.7
8th grade	23	42.6
High School	33	61.1
College	22	40.7
Graduate	5	9.3
Professional	5	9.3

Notes. $N = 54$

Dance Styles

The teachers in this study were well-rounded and taught a wide variety of dance styles in their classes. The most popular dance styles taught were choreography, modern, and ballet. None of the categories listed in the survey were under 25%, because the participants of this study averaged teaching nearly five different styles each. Of the styles listed, hip hop and musical theater were the least taught styles with dance production close behind. Table 5 shows the specific number of participants who reported teaching each dance style in one of their current classes.

Table 5. Teaching Styles

	N	Percent
Ballet	34	63.0
Modern	41	75.9
Jazz	29	53.7
Tap	14	25.9
Hip Hop	17	31.5
Musical Theater	17	31.5
Creative Movement/ Choreography	45	83.3
Dance History	28	51.9
Dance Production	21	38.9

Notes. *N* = 54; Overlap exists because several participants
reported multiple teaching styles.

Data Collection and Analysis

For this study, both qualitative and quantitative methods were used to analyze

data. The participants answered thirty-one questions in the electronic survey resulting in

the data used for this research. Quantitative data was analyzed through Qualtrics,

exported in Excel, and organized into tables that can be viewed above and in the

discussion portion of this thesis. Qualitative data was analyzed by reading all free

response questions and identifying common themes found in participant responses.

Quantitative Data

In addition to the demographics portion of the survey, reported above,

quantitative data can be analyzed through the *technology in the classroom* section of the

survey. This section included six multiple choice questions that asked teachers what types

of technology they currently have access to, which of these available types they currently

use in the classroom, what technology their students currently use in class, who provides

the technology resources, and which types of technology they find most and least

valuable for teaching dance. The other quantitative data can be seen in a question

analyzing seven statements about teacher perceptions of technology use. Participants

rated their answers on a five-point scale from "strongly disagree" to "strongly agree." The statements can be viewed in the electronic survey in appendix B. The results of this data are reported in the discussion chapter of this thesis.

Qualitative Data

The second half of the electronic survey included sixteen free response questions that will be analyzed as qualitative data. These questions focused on both teacher and student engagement with technology in the classroom and correlated with teaching strategies and student learning of the twenty-first-century skills of creativity, critical thinking, and communication. The researcher designed the questions without bias in hopes of gathering honest perspectives from current dance educators on how technology could benefit or hinder the classroom experience. The qualitative questions from the survey are located in appendix B, and the results of this data are reported in the discussion chapter of this thesis.

Summary

This chapter discusses the context of this study and identifies the methods used to gather and analyze the data. The present study used an electronic survey to identify teacher's perceptions of technology use in dance education. The researcher included both quantitative and qualitative questions to determine how technology may benefit or hinder teaching strategies and student growth of creativity, critical thinking, and communication and collaboration. Detailed findings and analysis of both quantitative and qualitative data are presented in the discussion chapter.

CHAPTER IV

DISCUSSION

As stated in the introductory chapter, this study examined the benefits and

hindrances of technology use in a dance classroom. The survey used for this study aimed

to identify how technology affected both teaching strategies and student engagement as it

relates to the twenty-first-century skills of creativity, critical thinking, collaboration, and

communication. The present chapter discusses detailed responses to the quantitative and

qualitative questions used in the electronic survey. This chapter is organized to examine

the results of the quantitative data followed by the findings of the qualitative data. The

following data is organized in survey question form as it was administered to the

participants (appendix B).

Quantitative Data

The quantitative data collected from this survey identifies what types of

technology are available to teachers and what is presently being used in the classroom. It

also notes who provides the technology for dance educators and which types of

technology are viewed as most or least valuable for teaching dance. Lastly, this section

discusses the perceptions that current educators have of their own technology use.

Available Technology vs. Technology
Currently Used

According to the fifty-four teachers surveyed in this study, participants reported

having an average of eight types of available technologies in the classroom, yet only

reported using an average of seven types of technology for teaching. Although seemingly a small difference, this data is significant enough to demonstrate that many teachers are not utilizing available technology in the dance classroom. As seen below in table seven, 100% of the teachers surveyed have access to audio equipment and currently use this technology while teaching dance. The other most available technology was Internet (94.4%), video recording with a camera or iPad (92.6%), video use through YouTube or Vimeo (90%), and smart phones (81.5%). The least available technology recorded in this survey was interactive whiteboards/smart boards (16.7%) and desktop computers (25.9%).

With the exception of audio equipment, all other technology listed in this survey was used less by teachers compared to its availability in the classroom. Some technology presented a small change percentage from available technology to technology used while others were significantly larger. The smallest discrepancy was the use of Internet, video recording, video use, and interactive whiteboards. Of the teachers who reported having these technologies available to them, only two teachers reported not utilizing them currently in the classroom. The largest discrepancy in available technology vs. technology currently used can be seen in educational apps where 53.7% of participants reported having access to this technology, but only 31.5% are currently using them to teach dance. This may be due to a lack of developed dance education apps or a lack of training on how to find and utilize available dance apps. The other types of technology with the greatest change percentage from available technology to current use were laptops (-14.8%), projectors (-14.8%), and online educational platforms (-14.8%), such as Google Classroom, Edmodo, and Schoology. Although more research is needed to

identify why these types of technology are not being used as often as they are available, it

may be due to insufficient technology training on how to incorporate these specifically

into a dance education classroom or lack of interest from the teachers. Table six shows

greater detail of the available technology, technology used, and the change percent for

each category listed on the survey.

Table 6. Available Technology Versus Technology Current Used

| | Available Tech | | Tech Used | | Change |
	N	Percent	N	Percent	Percent
Audio Equipment	54	100.0	54	100.0	0
Internet/Websites	51	94.4	49	90.7	-3.7
Video Recording (Camera/iPad)	50	92.6	48	88.9	-3.7
Video Use (YouTube/Vimeo)	49	90.7	47	87.0	-3.7
Desktop Computers	14	25.9	11	20.4	-5.6
Laptops	40	74.1	32	59.3	-14.8
Tablet Devices	29	53.7	23	42.6	-11.1
Smart Phones	44	81.5	38	70.4	-11.1
Educational Apps	29	53.7	17	31.5	-22.2
Online Educational Platforms	34	63.0	26	48.1	-14.8
Interactive Whitboard/Smartboard	9	16.7	7	13.0	-3.7
Projector	37	68.5	29	53.7	-14.8

Notes. $N = 54$; Overlap exists because several participants reported having multiple available technologies.

Technology Provision

The researcher asked participants to identify who provides the technology

currently being used in the classroom or studio. The most common response was that

technology is either provided by the school (64.8%) or by the teacher (42.6%). Numerous

teachers reported receiving technology from multiple sources, while thirteen teachers

expressed that they must provide all of their own technology for teaching. Twenty-two

received all technology from their school. Funding could affect technology use since

many teachers in this study needed to provide their own resources. Those who receive

technology from the school or district still have to work under the financial conditions of

their area or rely on scholarships and grants to provide new resources. Table seven shows

a more detailed look at the survey responses to this question.

Table 7. Who Provides Majority of Technology

	N	Percent
School	35	64.8
Personal	23	42.6
District	8	14.8
Other: Local Ballet	1	1.9
Other: Scholarship	1	1.9

Notes. *N* = 54; Overlap exists because several participants reported receiving technology
from multiple sources.

Most Valuable Technology

In addition to identifying the available technology and what was currently used in

the dance classroom, participants of this study selected the most valuable technology for

teaching dance. Overlap existed in this question because several participants reported

multiple technologies as most valuable. Similar to the findings from the previous table,

the teachers rated audio equipment as most valuable with 94.4% of educators selecting

this answer. The next two most valuable technology types for teaching dance were video

recording (81.5%) and video use through YouTube or Vimeo (75.9%).

One comment from table six is that although 90% of participants recorded using

Internet and websites for teaching dance, only 57% recorded this as being a valuable way

to teach dance as seen in table eight. Another discrepancy is that while 63% of educators

have access to online educational platforms and 48% currently use them to teach dance,

only 35.5% of participants selected this as a valuable addition to dance pedagogy. Lastly,

70% of educators in this study currently use smart phones to teach dance, yet only 38.9%

identified this as a valuable technology addition to the classroom. Table nine shows more

detail of the most valuable technology selected in this study.

Table 8. Most Valuable Available Technology

	N	Percent
Audio Equipment	51	94.4
Internet/Websites	31	57.4
Video Recording	44	81.5
Video Use (YouTube/Vimeo)	41	75.9
Desktop Computers	4	7.4
Laptops	21	38.9
Tablet Devices	14	25.9
Smart Phones	21	38.9
Educational Apps	6	11.1
Online Educational Platforms	17	35.5
Interactive Whitboard/Smartboard	6	11.1
Projector	23	42.6

Notes. *N* = 54.

Least Valuable Technology

Results of the least valuable technology for teaching dance are consistent with the

data presented in table eight. Half of the participants labeled desktop computers and

educational apps as the least valuable available technology for teaching dance. This may

be because many teachers do not have desktop computers in their studios or classrooms,

and are not finding beneficial educational apps to assist with dance. Although participants

were allowed to select any methods of technology that they considered least valuable for

teaching dance, only 154 selections were made by the 54 participants, while 279

selections were made in table nine for most valuable technology. This shows that most

teachers do find some value in using technology to enhance dance teaching. No

participant of the study selected audio equipment, Internet, video recording, and video

use, demonstrating that all teachers surveyed found value in these methods of technology.

Some educators (13%) selected a separate box to say that all of the listed technologies were valuable methods to teach dance in the classroom. Table nine shows the numbers and percentages associated with each method of technology.

Table 9. Least Valuable Available Technology

	N	Percent
Audio Equipment	0	0.0
Internet/Websites	0	0.0
Video Recording	0	0.0
Video Use (YouTube/Vimeo)	0	0.0
Desktop Computers	27	50.0
Laptops	5	9.3
Tablet Devices	5	9.3
Smart Phones	5	9.3
Educational Apps	27	50.0
Online Educational Platforms	10	18.5
Interactive Whitboard/Smartboard	18	33.3
Projector	5	9.3
None	7	13.0

Notes. N = 54.

Perceptions of Technology Use

The researcher asked participants of this study to rate seven statements on a scale of "strongly disagree" to "strongly agree" to determine the perceptions of their own technology use and its effectiveness in the classroom. The average responses to all statements resulted in positive outcomes. As seen in table ten, the statement averaging the highest scores states, "Overall, the technology I currently use is up to date." Only four of the fifty-four participants disagreed with this statement and only three rated this as neither agree or disagree.

The other statement with most positive participant feedback was, "Overall, I feel extremely capable incorporating technology into my classroom/studio." Only seven participants disagreed with this statement and four were on the fence. The present data

indicates that this sample of teachers has access to and uses current technology in the classroom and feels extremely capable in incorporating it into lessons. This data is somewhat surprising since this researcher's prior assumptions indicated that lack of training or access was keeping dance teachers from using emerging technology.

Although all statements in this section averaged out to a range closer to "agree," two statements stand out as being lower than the rest. The lowest scoring statement (.39) was "I would use technology to teach dance if more resources were available to me." Over half the participants disagreed or were neutral on this statement with seven selecting either disagree or strongly disagree and twenty-two neither agreed nor disagreed. This may be due to teachers having sufficient resources and not seeing a need for more, or there is a low desire to increase the amount of technology used in dance education.

The other statement with lower results was, "My students are more engaged when I incorporate technology in the classroom/studio." Only three participants disagreed with this statement, while eighteen participants were neutral in their response giving this an average of 0.65 (see table 10) and showing that many participants were uncertain of the affect technology has on student engagement. This may be due to dance being a more kinesthetic art form.

Teachers of this study agreed that technology improves their ability to teach dance (0.94) and improves the student's ability to learn in the classroom (0.85). Despite some negative or neutral responses to technology use in the dance classroom, the current educators in this survey were satisfied with the technology they currently use, felt capable incorporating their technology in the classroom, and perceived technology as a way to improve teaching strategies and student learning in dance education.

Table 10. Perceptions of Technology Use

	M	SD
1. Overall, the technology I currently use is up to date.	1.06	0.79
2. I feel satisfied with the technology I currently use to teach dace.	0.94	0.88
3. My students are more engaged when I incorporate technology in the classroom/studio.	0.65	0.76
4. Overall, technology improves my ability to effectively teach information to my students.	0.94	0.83
5. Overall, technology improves my student's ability to learn in my classroom.	0.85	0.94
6. I would use technology to teach dance if more resources were available to me.	0.39	0.94
7. Overall, I feel extremely capable incorporating technology into my classroom/studio.	0.98	0.90

Notes. N = 54. *M=Mean Score. SD=Standard Deviation.* Scores range from -2 to 2. Variables were coded as follows: "Strongly Disagree" = -2; "Disagree" = -1; "Neither Agree or Disagree" = 0; "Agree" = 1; "Strongly Agree" = 2.

Qualitative Data

The researcher collected qualitative data through sixteen free-response questions at the end of the electronic survey (appendix B). These questions were designed to identify in what ways technology affects teacher engagement and student engagement in the classroom. Each section included questions about the ways technology could benefit or hinder teaching strategies and student learning of the twenty-first-century skills of critical thinking, creativity, collaboration, and communication. The data is organized by section and question to provide a brief insight into common themes and feedback from the participants of this study.

Teacher Engagement

Participants answered five free-response questions that focused on how technology affects their teaching strategies in the classroom. The first question asked educators to identify all the ways in which they use technology to teach, while the

following questions focused on how technology affects specific areas of dance pedagogy. Specifically, the other questions in this section asked current educators how technology enhances or inhibits the ability to teach choreography and technical skill, how it affects the teaching of historical content, and how it affects collaboration, communication, and creativity in the classroom.

Technology as a Teaching Strategy

Educators in this survey responded to the question, "In what ways and when do you use technology to teach your classes?" with an overwhelming number of innovative ideas and strategies. Common responses and themes were the use of audio equipment, video recording, sharing dance videos, and online learning platforms. Almost all educators of this study noted the importance and use of audio equipment in the classroom or studio. Most commonly this related to stereos or speakers, but numerous teachers also noted their use of monthly music subscriptions through Spotify and Apple music to create music playlists. Two participants expressed that they prefer the use of live accompaniment in the studio or classroom rather than being tied to electronic music or systems.

The other most common methods to teach dance mentioned in this section \ were video recording and video viewing. Participants reported using cameras, iPads, and smartphones to record their students for technical feedback and choreography retention. They identified the benefits of this as a visual method for self-evaluation for technique development and performance feedback. Many teachers mentioned using video for class choreography projects while others used it mostly for posting combinations and choreography learned in class. The recording for class projects could serve as

documentation of student work or feedback during the assignment for reflection and discussion of the student's choreographic process. The benefits of recording choreography or combinations in class were communicated as a valuable way to help students review outside of class and as a way for absent students to learn material they missed. The majority of participants mentioned video viewing use to enhance the learning environment and project visual examples of choreography, dance history, or technical skills. Specific technology used for this was laptops and projectors in order to access YouTube, Vimeo, or DVDs.

Another common response to this question included using online platforms and Google drive to share Google documents and create quizzes or polls. A few of the online learning platforms used by the educators in this study were Google Classroom, Canvas, Blackboard, Moodle, OnCourse, and eClass. Each of these learning management systems serve a similar purpose to present information, facilitate online discussion, and accept student work. Participants stated that they most commonly use these platforms for viewing or sharing videos, research, assignment submission, online discussion, forums, homework, announcements, and for creating online portfolios.

Other notable technology strategies expressed by educators in this study included the use of interactive whiteboards for terminology or to show videos, GarageBand for cutting music, smartphones for managing educational and artistic social media accounts, and Skype for video calling with guest choreographers or teachers. Although educational apps were rated low in earlier data from this study, a few teachers mentioned using an anatomy app for learning muscles and bones, iMovie for video projects, Coaches Eye for viewing technique in slow motion, and the Dance Maker app for teaching composition

and choreography. If used properly within the classroom or studio setting, these technology resources and teaching strategies could dynamically affect the learning environment for dance educators.

Choreography and Technical
Dance Skills

The next two free-response questions asked participants to express how technology enhances and inhibits the ability to teach choreography and technical dance skills. The majority of dance educators in this study expanded on the benefits of using technology to teach both choreography and technical skills in the dance classroom or studio. Others showed mixed reviews and noted numerous downfalls to this type of technology integration. The primary types of technology used for choreography and technical skill building by educators in this study were video recording for feedback, video viewing for inspiration, smartphones, iPads, and iMovie for creating choreography, and GarageBand for editing music.

Video recording was the most common technology used by the participants in this study and the responses were positive. Teachers saw that video recording for technical skill could enhance the self-evaluation and peer evaluation process and help students make instant corrections. One teacher stated, "Cameras and playback allow for students to evaluate and critique their own work and progress as dancers and rehearse on their own at home." Another teacher agreed and said, "In dance technique, I videotape the students and use class time to view the video so they can better understand what they are doing effectively or inefficiently with their bodies. Self-reflection and self-correction come naturally when students get to see themselves dancing in a video." A similar

response to video recording for technique and choreography noted that this type of technology benefits a student's ability to self-correct. This educator stated:

> When students are videotaped and given the chance to view themselves performing exercises or choreography, I find they will self-correct and commit to absorbing those corrections more so than if I just give them a verbal correction without any visual aid or evidence.

One participant also mentioned the ability to use video recording to create a "flipped classroom" where students learn the choreography at home then correct and clarify the material in class. This method could be a way to save time in the studio and classroom. Another helpful technology tool for teaching terminology and technique mentioned by participants included online resources such as the American Ballet Theater online ballet dictionary. One teacher expressed that the visual aid of seeing the step performed by professionals and the audio aid of hearing the term spoken helped her students understand the movement and gave them something to strive for.

Educators in this study equally agreed that video recording for teaching and retaining choreography was a beneficial tool in the dance classroom. Participants noted that this helped their students remember choreography, learn combinations that were taught while they were absent from class, and help with overall group corrections, formations, and self-reflection. Another teacher mentioned how video recording could enhance student choreography projects by stating, "videotaping the students' choreography on themselves and then giving them a chance to view their choreographic choices allows for reflection and analysis." Other teachers used video viewing for choreography lessons and to show students how to visually perform a lift or skill prior to practicing kinesthetically in class.

Although many teachers expressed that technology only enhances their ability to teach choreography and technical skills, others identified ways that technology could hinder the learning process. Most notably, teachers in this study expressed that technology could distract from the process of choreographing, further associating that video could be difficult for insecure dancers or could lead to unrealistic expectations of skills or tricks seen in popular dance videos online.

In response to dancers' losing sight of the choreographic process, one teacher expressed, "students have less patience for process, which I believe is due to the instant gratification that is ubiquitous from using the Internet." Teachers who conveyed concerns about video recording stated, "Students don't often love watching themselves on film and some respond negatively to it." Another teacher said, "Students can get locked into what they look like in a video and they miss the deeper body connections and kinesthetic sense of dancing." This disconnection of body awareness could cause dancers to replicate movement without purpose or expression since a major focus for many dancers is the visual image of their movement.

The other major concern among educators surveyed in this study is the unrealistic expectations that come from watching dancers on YouTube or other video platforms. Students want instant gratification and expect to perform tricks and unsafe flexibility movements regardless of their own skill level or body. Students tend to rely more on a video than practicing choreography to commit it to memory, and often copy choreography seen online rather than creating something new. This sense of dancing for the steps and outcome rather than the kinesthetic process was also a concern for numerous teachers. One educator indicated, "The quick access to online class videos has

begun to privilege students' perception of the "combination" as the utmost important thing in a class. Often if there is not a flashy, lengthy combination, students feel like the class was wasted when in reality they actually learned more valuable technical fundamentals."

Lastly, participants in this study expressed frustration of technical difficulties and connection issues when using the Internet and saw it as a potential distraction during choreography projects or class assignments. Teachers stated that some dancers spent more time watching dance videos, listening to music, or messaging their friends rather than using class time wisely for choreography work.

Historical Content

In this section, the researcher asked the participants, "In what ways does technology affect your ability to teach historical content in your dance classroom or studio?" Almost every teacher in this study stated that technology was a beneficial tool in teaching historical content lessons in a dance classroom, and they identified a wide variety of technology methods as useful for teaching these lessons. Most participants noted that PowerPoint or Prezi presentations were helpful for historical lectures and that dance videos accessed through YouTube, Netflix, Apple TV, DVDs, or VHS were beneficial ways to engage students and allow them to visually connect with historical dance. One participant stated, "Access to videos of historical dances is immensely helpful. The wealth of resources online is incredible and viewing famous dancers and choreographic works brings history to life."

Educators of this study also commented that video could be used to facilitate discussion, analyze movement, and share history. Other resources used by numerous

participants in this study were live streaming programs and online interactive video

materials through Jacob's Pillow Interactive, the Kennedy Center's Arts Edge, and

Colorado Ballet. Another participant stated, "I am able to access much more material and

show students what the texts are referring to. The wealth of information on the web, in

video, and other resources is tremendous for historical content teaching."

Additional responses included, "Technology has allowed me to focus on historical

frameworks rather than superficial historical information, allowing students to understand

how they engage with and interpret dance across a variety of cultures." Overall, educators

agreed that technology integration benefits the teaching of historical content in a dance

classroom.

Lastly, numerous educators mentioned how viewing historical dance videos was a

crucial part of their dance pedagogy due to location of the school and financial restraints

of going to see live dance concerts. One teacher responded, "Where I live it is impossible

to take kids to see these things in person. Without video etc. they would only know dance

history from pictures and my words."

The only argument against technology use for teaching historical dance content

was that students could get easily distracted with technology while using it for historical

dance research and begin watching unrelated videos, checking social media, or

messaging friends. Within a controlled and monitored environment, this qualitative data

indicates that technology use for dance history lessons is a beneficial teaching tool.

Collaborate, Communicate, and Choreograph

The next question of the electronic survey asked participants, "Is technology

helpful or hurtful in teaching students to collaborate, communicate, and choreograph

together? Technology in this context broadly referred to any technological resources or methods used in a dance classroom or studio. The responses to this question were fairly mixed with many educators finding technology a helpful tool for teaching the twenty-first-century skills of collaboration, communication, and creativity through choreography, while also many educators identified ways that technology could hinder the learning process for dance education.

Common themes for how technology could be a helpful tool for teaching collaboration, communication, and choreography was the use of technology for group projects, research, and choreography documentation, reflection, and review. One educator in this study stated, "Communication tools allow students to keep in touch throughout the process of group projects. They can share videos and give feedback to one another. They can also share inspiration of music and videos they find online." Another similar response was:

> Technology can be helpful in terms of allowing students to research and giving them the ability to connect with academic information, dance videos, performances, companies, etc. It opens up a wider way to organize, collaborate and communicate their ideas when it comes to choreography.

In response to technology use for group projects and teaching choreography, one teacher noted, "Students use technology to communicate for group projects and it is very helpful for scheduling rehearsals and sending out rehearsal videos. We also use it for learning/reviewing/revising choreography." Other participants responded that using video recording to teach choreographic skill could save time in the studio and benefit students who could review choreography easily outside of class. One educator commented on the use of dance for film and video. This teacher stated:

Dance is a collaborative art form and we tend to make dance for groups to be performed for live audiences. With technology, students are able to create works by themselves or with just a cameraperson and put the completed films on YouTube or enter them in dance film festivals. Technology allows the students to reach audiences beyond their local geography. It expands what they can do with their art form.

With a growth of online dance videos and film festivals, teaching students to present their work in video format could prepare them for artistic success. This type of online exposure could lead to auditions, scholarships, artistic connections, and possible job opportunities. Technology can also help both teachers and students communicate, collaborate, and choreograph through online networking groups or streaming programs. Large associations such as The National Dance Education Organization is just one of the many groups that connect dance educators and students across the country for discussion, collaboration, and educational growth.

Lastly, one educator in this study expressed the need for teachers to be responsible for educating students rather than relying too heavily on technology for teaching educational content. This educator noted numerous ways that technology was a beneficial tool for the classroom, but warned against relying too heavily on outside resources to teach the class as he commented, "Technology should not be expected to do the teaching." This teacher believed that educators are responsible for instructing students and creating a learning environment that uses technology in ways that benefit the classroom rather than assuming technology will do the work.

Several educators in this study noted ways that technology integration could hinder the teaching of communication, collaboration, and choreographic work. The most common themes found in the survey responses were that technology could distract from the creative process, hinder authentic communication and personal interaction, and lead

to "copy and paste" choreography from other sources. In response to the creative process, one participant commented, "Technology helps students choreograph during the researching, sourcing inspiration, or reflecting phases of their work. Outside of that, I see technology as a hindrance to the face to face creative process." Another educator agreed by saying:

> In terms of collaboration, communication, and learning to truly trust and work together, it's not always a good thing. If students are so wrapped up in "snapping" "tweeting" or capturing their experiences instead of connecting to the other humans in the room, technology can be devastating to the choreographic process of collaboration.

Dance is an art form that requires human interaction and time for creative process. If these are lacking, the authenticity of live dance performance could be lost.

The next possible hindrance of technology use in a dance classroom is the lack of authentic communication once technology is involved. One teacher commented on how communication can suffer if only done through text or online rather than in-person collaboration. In their responses, several other educators echoed this and noted the dangers of electronic communication rather than face-to-face interactions for artistic creation. One participant said it best as she stated, "When live communication and collaboration are being replaced by technology, human connection is lost." This is a danger that is faced with growing technology integration in the vast majority of educational mediums. Educators must distinguish which resources benefit the classroom and which ones could alter the integrity of the artistic process and live performance.

Lastly, participants in this study commented on how technology is changing the way students view and learn dance. Several educators agreed that online dance videos could hinder authentic creativity and lead to artistic plagiarism. Specifically, they

mentioned that there is a risk of being stuck choreographically, which often leads to students copying material from YouTube or other sources. In addition to this being plagiarism, it detracts from the creative process and allows students to take quick ideas from other artists rather than fostering creative problem solving.

Technology could also affect the way students learn or view dance. Dance videos are easily accessible and the most enticing choreography is often what includes skills or technique that students are not prepared for. One participant commented on this by saying, "Technology isn't always the best medium to look at artistry as it doesn't always translate through the camera. Tricks are what wow the kids. I think students are more open to technology, but screens seem to inhibit personal interaction." Many online dance videos are structured to be for the camera rather than the stage, so this shift of focus affects the way dance is viewed and interpreted. Attempting to translate choreography from camera to stage or from stage to camera will change the intent, focus, and audience response.

The insights made by the participants in this study demonstrate that, depending on how it is implemented into the classroom, technology has the potential to be an equally beneficial or hindering tool for teaching communication, collaboration, or choreographic process in a dance classroom. As technology integration continues to evolve, it is important for current educators to continually assess their pedagogy and ensure that they intentionally use technology for its benefits rather than for its distractions and downfalls.

Student Engagement

The final section of the electronic survey asked, participants eleven free-response questions about how technology affects student engagement and learning in the dance

classroom. The first question asked, "In what ways and when do students use technology in your classroom?" The goal of this question and section was to distinguish how technology may be used differently for students in the classroom than for teachers as a pedagogy tool. The following questions asked educators how technology could affect a student's ability to learn improvisation, critical thinking and class discussion, and stage presence and expression. This section also asked how technology could benefit or hinder a student's ability to write about dance, give peer feedback, and present verbally and physically in the dance classroom.

Technology as a Learning Tool

When asked in what ways and when do students use technology in the dance classroom, teachers responded with similar answers to how it was used for teaching a dance class. Most of the technology methods mentioned previously were identified as beneficial for both teaching and student learning in the classroom. A few technology methods mentioned as the most beneficial to student learning were: laptops for note taking, video recording with smartphones, iPads, and cameras, and PowerPoint or Prezi for class presentations. Many teachers in this study mentioned that they allow their students to look up dance videos or record themselves for movement analysis or collaborative choreography projects. Other teachers ask students to use smartphones, laptops, or iPads to upload written assignments to Canvas, Google Classroom or other online classroom management systems. One participant mentioned, "Technology is also used to help students study for quizzes, tests, and learn visually about dance history." Another educator stated that she had students use their technology devices to track fitness

during dance conditioning. Many teachers agreed that technology could be equally beneficial for student learning as it is for teachers to plan and implement lessons.

Several other participants disagreed and stated that they leave technology outside of the classroom in order to maintain the kinesthetic experience of a traditional dance class. Most of these teachers agreed that technology integration in the dance classroom has its place, but classroom time should be reserved for movement and artistic process. In response to this thought, one participant stated:

> Technology is only a tool to help in research, inspiration, studying, sharing of ideas, rehearsing, documenting, assessing, and archiving. Technology is only sometimes the final product as in a typed report/critique/paper, edited dance film, edited music for dance, typed dance program, or a digital image.

It is the educator's job to use technology as a valuable tool rather than assuming it will do all the work or instantly make students into more experienced dancers. Ensuring that students are using devices and technology to support a lesson rather than distract from it will take careful time and research.

Improvisation, Creative Movement, and Choreography

Another free-response question asked participants to identify how technology affects a student's ability to learn improvisation, creative movement, and dance composition. Several teachers in this study reported that they do not use technology for this purpose in their classroom, while others expressed mixed feedback. A few negative responses expressed that video use for improvisation could make students feel insecure about how they look or it could keep them closed off to exploring new movements. Another educator noted, "I find that students are not as able to express themselves through creative movement, improvisation, etc., because of the amount of videos out

there from other dancers. I think that they feel intimidated from time-to-time because of the quality of choreography that is available."

Depending on the age of dancers, insecurity certainly plays a role in becoming comfortable with more abstract ideas explored in improvisational movement. Another participant explained that although technology and dance videos can expand the horizons of dancers by showing new styles and techniques, it could also "pigeonhole them" as they view dance in categories of genre rather than organic movement that could be expanded and explored. Many of the teachers in this survey agreed that improvisation and creative movement exploration is most effective when practiced kinesthetically in the classroom without the use of additional technology sources.

A few participants did express some benefits to technology use for teaching improvisation, creative movement, and composition. In contrast to the opinions of participants in the previous paragraph, several teachers in this survey articulated that viewing video could benefit improvisation and creative movement work. Specifically, they agreed that viewing dance videos of improvisational movement helps students see a wider range of dance styles that can be incorporated into classroom explorations.

Another educator articulated that video prepares her students for improvisation in class because it demonstrates visual examples and allows the students to understand the expectations of creative movement activities. Another similar response was, "Videos online inspire students to explore different ways of moving." As long as students can use videos to inspire movement rather than copy it, video can serve as a beneficial technology tool for the creative process.

Another benefit to using technology for improvisation was the use of music for stimulating creativity. Two different educators mentioned that, "Changing music in improvisation exercises gives students more range in improvisation and choreographic collaboration." Rather than moving without music or to one style, adapting the genre, speed, and style of music could stimulate new movement ideas. Although other teachers agreed that videotaping creative movement sessions in class led to students' feeling insecure and closed off to authentic exploration, others expressed that recording improvisational movement was beneficial to student discovery, self-examination, and for later choreography use.

Critical Thinking and Class Discussions

The next free-response question in the electronic survey asked teachers to identify how technology enhances or inhibits critical thinking and class discussion for students in a dance classroom. Responses to this question were polarizing, as teachers expressed numerous positive and negative outcomes to technology use for fostering class discussions.

Those in support of technology integration for teaching critical thinking and class discussion believed that online forums and media viewing were the most beneficial ways to include technology into dance. One teacher stated, "Technology has the propensity to enhance critical thinking and class discussion through online discussion forums where students are asked specific questions that they must answer thoughtfully. It also allows them to go back and review discussions in a way that are lost when simply speaking in class." Other teachers agreed and added that online discussions required students to demonstrate grammar skills, work on their writing, become accountable for the words

they add to a conversation, and prepare for more in-depth class discussions based on the online forums.

Viewing dance videos through YouTube or additional media outlets was the other beneficial technology method identified by participants in this study for fostering critical thinking and class discussion. Many teachers expressed that viewing dance videos as part of a lesson gave context to a discussion and allowed dancers to thinking critically about the content. Videos often lead to discussion of comparison, or provided practice how to accurately critique movement.

Several participants expressed an opposing viewpoint on this question and agreed that technology integration could hinder the ability for students to think critically and have class discussions. In response to online forums for class discussion, one teacher stated:

> I think the use of online discussion platforms is an unnecessary attempt to utilize technology for education. It does not facilitate discussion. People are assigned to comment on readings-I don't think that promotes a deeper reading of the material. I prefer actual conversations and discussions. Critical thinking is best guided by a teacher and not just left for the students to do on their own following an online prompt.

Another teacher agreed and expressed that discussions should always be facilitated in class without the use of technology. This allows students to think individually and describe their opinions academically and verbally.

Technology could distract students from discussing video and content at a deeper level. One teacher noted that students often become so captivated by the quality of a dance video that they miss the context of the performance. Lastly, teachers expressed concern that technology was enabling students to get quick answers rather than learn how to think critically and individually. This concern was addressed in a response that stated,

"Having technology always there at the tips of your fingers to answer any fact can, in my opinion, diminish the student's ability to analyze and think critically. They're not accustomed to having to use their brain. They can usually just 'Google the answer' and that makes their thinking skills lazy." The fear is that with endless information available online, students are repeating what they find online rather than thinking for themselves.

Expression and Stage Presence

The researcher asked educators in this study, "What effect does technology have on your student's ability to learn/demonstrate expression and stage presence?" The most common responses for how technology could benefit the understanding and implementation of expression were through video examples and feedback.

Participants expressed that videotaping choreography in class was a helpful way to give instant feedback and allow for self-reflection, peer feedback, and teacher response to stage presence and expression of a dance. One participant stated, "With the use of video, students can witness the use of their own facial expression and the emotional impression they are making." Others agreed that it gives instant feedback so dancers can see what their face is really doing during a dance. Viewing professional dancers' expression and stage presence through video was another positive outcome of technology use as identified in this survey. When students are able to see an effective example of expression through dancers or companies they recognize, they are often inspired to perform with the same amount of energy, expression, and presence on stage.

In contrast to previous responses in this section, many teachers in this study reported that they do not currently use technology in this capacity or did not see any added value in using it to teach expression and stage presence. Many educators had not

considered any use for this type of technology integration, thus they had not incorporated it into the classroom. One participant noted, "Practicing in real life may be more effective." Another teacher stated, "Unless it is using video to show which expressions you are describing, technology does not play a role in teaching stage presence." Others agreed that unless it was used for self-reflection, this skill required kinesthetic practice and physical work in the studio.

Collaborative Projects

The next question in this electronic survey asked current dance educators, "What role does technology play in collaborative projects in your classroom or studio?" Many teachers reported using Google Drive, Slides, Docs, and Hangout for students to share videos and collaborate on papers, projects or other assignments. The ease of collaboration through programs such as Google Docs has made working on a group paper or written assignment significantly easier.

Another teacher mentioned using communication apps such as Slack and Group Me so students could contact each other easily outside of class without having to use standard texting methods. Other teachers noted that technology, in this context, was only used to introduce the initial idea or prompt before they asked students to create the project physically. Otherwise, they used it to record the final product of a collaborative assignment. One participant stated that technology was beneficial in collaborating with other teachers for cross-discipline assignments and work. Being able to view class calendars, units, and test schedules allowed this teacher to coordinate assignments in a way that benefited the students and incorporated information from other core subjects.

Other ways technology may be an effective tool for collaborative projects is through sharing choreography. One teacher stated, "Being able to share part of the choreography you are collaborating on through video is much easier than always scheduling time to meet. It's a quick way to learn something or add on to something without having to work around scheduling rehearsals."

Although most of the responses in this section reported positive feedback for technology use in collaborative projects, a few teachers reported concerns with digital communication. One participant stated, "Technology is helpful for communicating outside of class, but can also hinder the student's ability and desire to meet face to face, which for a collaborative project, I believe is essential." Several other teachers mentioned that this type of assignment did not apply to their current teaching situation. If utilized properly, technology through online discussions, communication, and video can serve as useful tools in collaborative dance projects. If used poorly, technology for collaboration could lead to miscommunication and lack of physical process for collaborative dance works. With a culture that is consistently growing in technology development and use, it is possible that physical dance collaboration and performance will become less common and dance will continue to shift away from the stage to the camera.

Writing About Dance

The next free-response question asked teachers to examine the ways in which technology affects their students' ability to write about dance. A common theme from the responses in this section was that technology is helpful for researching, typing, spell checking, and submitting dance research or critique papers. Online discussion boards and electronic journals are also ways that educators in this study noticed technology to be a

beneficial asset. Participants noted the importance of the Internet for online research and online video archives for viewing historical dance. One teacher stated, "Online video archives allow easy access to a variety of diverse movement styles and creative sensibilities to encourage a broader understanding of what dance is and can be."

Other teachers mentioned the benefits of using recorded video to view and write a dance critique paper. They noted that getting to pause and replay a section of choreography allowed the students to analyze the content in more depth rather than trying to remember a live performance. Expanding on this viewpoint, one participant stated, "It is certainly easier to write about something that can be replayed, analyzed closely as a movement text, rather than a one-time viewing of a live performance. That said, attending a performance allows us to contextualize with more authority as a viewer–participant rather than a passive viewer." Live performance is still a valuable part of dance education and should not be entirely replaced by YouTube and other recorded dance video. The current societal shift to dance TV shows and online videos may be due to the expense and inconvenience of attending live performance. If there is still value in viewing and presenting dance on the stage, educators must encourage younger dancers to invest in live artistic performances.

The other common technology problem noticed by educators in this study was the quality of formal papers being produced by dance students. Several teachers expressed that the current culture of technology, social media, and texting is affecting how students structure a paper and write about dance. Teachers noticed that students often write as if they are texting rather than using proper grammar and formatting. They insert abbreviations and informal language into formal critique and dance research papers. In

response to this problem, one teacher stated, "The current slang or lingo that is imbedded in the culture of our youth from instant messaging or social media has an impact on their overall grammar and ability to properly write about dance academically. Many students do not know how to spell most ballet terms so they struggle to even look up the word online." Writing about dance is an important part of the academic component of educational dance classes, but proper training and oversight must be present to ensure that students are using technology correctly and without plagiarism. Teachers of younger dancers and many studio teachers reported that they do not require written work in the dance class, thus this question did not relate to their current teaching situation.

Peer Critiques and Feedback

Another question in this survey asked participants to elaborate on how technology enhances or inhibits peer critiques and feedback in the dance classroom or studio. Similar to responses reported in the first question about technology and teaching strategies, opinions in this question primarily focused on the technology use of video or electronic feedback through Google Forms or other online learning management programs.

Numerous participants agreed that video could be a helpful tool for feedback on technique, choreography, or rehearsals. One educated stated:

> The ability to record and review work separate from the live moment is so helpful when working with teens who can be sensitive and vulnerable about sharing their work. We use smartphones and the class camera to record, Google Drive to post media, then share and respond to work through OnCourse Classroom. The writing and analytical process enhances our discussions as well as students' understanding and awareness of their own progress.

Several other teachers agreed that saving peer feedback for a separate online discussion could allow for more freedom, honesty, and thoughtfulness from students. One teacher commented, "It can be easier for students to be honest with their peers and tactful when

they can type their response rather than speaking on the spot." Another teacher agreed and said, "Commenting anonymously through Google Forms is beneficial and helps students speak without being scared or embarrassed."

Several participants expressed that it could be a helpful tool but they have never attempted to use technology for this purpose in their classroom. Other educators in this study expressed concerns about using electronic forums or discussions for peer feedback. One instructor noted, "Although technology can allow for quick and easy peer feedback, social media can inhibit them if the feedback is not guided well or inappropriate."

Numerous other participants shared the belief that dancers were often more critical through technology when it was anonymous or not face-to-face. One educator found a solution to this problem by filtering students' electronic feedback. She asked students to submit comments electronically, then presented only the useful comments and critiques to the choreographers.

The only other hindrance to using technology for peer feedback was that students can be self-conscious of what they look like on film and are afraid to share their videos with peers. It may be beneficial to introduce beginning-level dancers to choreography projects without video taping the product until they are more comfortable performing in front of their peers. Submitting electronic feedback could save class time and may be useful if feedback is controlled, monitored, and directed by the teacher.

Classroom Presentations

The final question of this survey asked current educators to comment on how technology affects their student's ability to present both verbally and physically in the classroom. For physical choreographic presentations, participants of this study noted that

video, used for self- and peer correction, improved students' future performances. One educator commented on the use of video as part of the choreographic process and stated, "It helps students see what they look like in choreography before they present a final product to the class." Using video in this way gives instant feedback to students without the fear of presenting an unfinished product to the class.

For verbal presentations, many teachers stated that the use of PowerPoint or Prezi were especially helpful for students in their dance classroom. They believe that technology helps students feel more prepared and comfortable to speak in class and that the addition of technology in presentations adds an exciting element that engages the class. One teacher explained, "My students are far more engaged thanks to technology, and are eager to share what they have learned or created using technology. Students are able to create PowerPoint presentations that allow them to outline and plan what they will share."

A few teachers mentioned that their students have a difficult time presenting verbally for a class and are much more open to discussing content online through discussion posts. Students are more likely to hide behind the safety of a phone or laptop screen since public speaking has become an anxiety-inducing event for many people. This same teacher examined that using online discussion rather than public speaking in class "allowed for the input of less vocal students to be heard more consistently." Although students may be more comfortable expressing their opinions through electronic sources, educators must decide if it's worth eliminating the use of public speaking from classes. Since public speaking is an essential part of the twenty-first-century skill of

communication, it is essential that students are refining this skill even in a dance classroom.

Several participants in this study did not see any value in using technology for verbal or physical class presentations, and others stated that it could be used as a tool but it was not necessary. One teacher commented on her student's problem with verbal presentation by addressing the fear of judgment many adolescents feel. She stated, "Most of my students have a fear of being judged for saying or doing the wrong thing because they are used to communicating who they are through a device that allows them to search or edit and present their best selves. Students struggle with confidence and this is a huge problem when a large part of dance is confidence." Building confidence in young dancers is a crucial part of dance education. Students must be able to confidently present both verbally and physically if they want to be prepared for life and work after school considering the present increase in technology use in a variety of workforce fields.

Summary

The data collected from the quantitative and qualitative questions of this survey indicate that the usefulness of technology in a dance classroom or studio setting is still widely debated. In the quantitative data received in this study, teachers concluded that they are satisfied with the technology they are currently using, feel capable incorporating technology in the classroom, and perceive technology as a way to improve teaching strategies and student learning in dance education. Participants noted that the most beneficial technology tools for a dance classroom are audio equipment, video recording, and video use through YouTube. The least valuable technologies used with educators in this study were educational apps, interactive whiteboards, and desktop computers.

Although teachers stated that technology improves teaching strategies and student learning in dance education, participants of this study reported using less technology in their classroom than what is made available to them. The free-response questions in this survey allowed educators to articulate which technology types are most beneficial and when they should be used to enhance student learning of creativity, critical thinking, and communication in a dance classroom.

In the qualitative portion of the study, many participants showed mixed reviews on technology benefits for dance education. Most educators in this study expressed numerous ways that technology enhances pedagogy strategies, student learning, and the classroom experience. Most notably, educators agreed that video use for documentation, reflection, and feedback benefits the dance classroom along with using online management programs and other collaborative sites to research, respond to discussions, and submit assignments. The most common downfalls of technology integration mentioned in this survey were the distractions caused by using devices in class, the interruption to the creative process, and the lack of kinesthetic experience when technology was involved.

In response to how dance education can benefit or hinder the teaching of the twenty-first-century skills of creativity, critical thinking, and collaboration, participants of this study provided feedback for both sides of the argument. For teaching creativity, educators concluded that online videos allow for more creative inspiration, music inspires movement in improvisation, and recording dances allows for more significant self-reflection and more creative choreography. In contrast, participants noted that online videos could "pigeonhole" dancers to only think of movements seen elsewhere and that

video recording for teaching creativity could intimidate dancers and close them off from exploring new movements.

For teaching critical thinking, many educators agreed that online forums and viewing dance videos for research and discussion led to deeper critical thinking for their dance students. Several other teachers saw discussion boards and video use as a distraction to traditional teacher-led classroom discussion and critical thinking in the dance classroom. The largest concern with using technology to teach critical thinking was that students are becoming lazy and technology is atrophying their ability to think for themselves rather than empowering them to problem solve.

Lastly, educators noted a few specific benefits and hindrances to using technology to teach the skill of collaboration in a dance classroom. Participants of this study stated that Google Drive and other collaborative online sites give students the ability work collaboratively on class projects in a more efficient way, and apps such as Slack and Group Me were useful collaboration apps for communicating with group members outside of the dance classroom. Other teachers noted that video provides a useful way to record, share, and collaborate on choreography projects. Although most educators saw benefits of using technology to teach collaboration, a few noted that it could limit the desire for students to interact in person and hinder the creative and collaborative process of any group work. These responses demonstrate that while technology can be a beneficial tool for teaching the twenty-first-century skills of creativity, critical thinking, and collaboration, teachers must use it properly in a dance class so it does not become a distraction or limitation to traditional kinesthetic experiences.

Although more research is needed to identify the best practices of technology integration in a dance classroom, the responses in this survey revealed that the responsibility lies with the educator. Technology, as a teaching strategy or learning tool, not only has the ability to save time, document choreography, and connect students with historical dance, but also can become a crutch to teach with, a required addition to class, or a hindrance to the authenticity of dance as a kinesthetic art form. Dance educators must assess their current pedagogy and discern where technology is enhancing or hindering their teaching strategies and the learning environment for their students.

CHAPTER V

CONCLUSION

As previously mentioned, this study was conducted to assist readers in understanding the advantages and disadvantages of using educational technology methods in a dance classroom. The final chapter of the thesis restates the research question, reviews the methodology used, summarizes the findings, discusses limitations to the study, and provides recommendations for further research.

The Research Question and Methods

As stated throughout the chapters of this thesis, the intent of the study was to discover the effects technology has on student learning and teaching strategies in a dance classroom through the lens of current classroom educators. The following research questions were used to guide the study:

Q1   In what ways does technology enhance teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

Q2   In what ways does technology inhibit teaching strategies and student learning in the twenty-first-century skills of creativity, critical thinking, and communication in a dance classroom?

As explained in chapter three, the methodology used in the present study was an electronic survey used to measure the perceptions of current dance educators on technology use in a dance classroom. Participants were fifty-four current dance educators from the National Dance Education Organization and the University of Northern

Colorado. The participants were well educated, taught a wide variety of ages and dance

styles, and mostly consisted of academic dance teachers. The survey incorporated both

quantitative and qualitative sections: the quantitative portion of the study focused on

which types of technology were currently available and being used in classrooms and

studios, while the qualitative portion used open-ended response questions to identify

teachers' perceptions of technology use in their classroom.

Interpretation of the Findings

The analysis of the quantitative results of this study showed that dance educators

were satisfied with the technology they currently use and felt capable of incorporating

their technology into the classroom. Most teachers had technology provided for them in

their workplace, while others were asked to provide some or all of the technology used in

their classes. They rated audio equipment as the most valuable technology type for use in

a dance classroom with video recording and video use through YouTube rating slightly

below. They rated educational apps and desktop computers as the least valuable

technology tools for teaching a dance class. Despite a few negative or neutral responses

to technology use in the dance classroom, the educators in this survey responded

positively to technology use and agreed that technology can improve teaching strategies

and student learning in dance education.

The findings of the qualitative free response questions suggest that the usefulness

of technology in a dance classroom or studio setting is still widely debated. Despite

mixed feedback, many participants in this study agreed that video use for documentation,

reflection, and feedback benefits the dance classroom along with using online

management programs and other collaborative sites to research, respond to discussions,

and submit assignments. Educators in this study also identified that technology, as a teaching tool, has the ability to save time in class, document choreography, and connect students physically with dance history.

The most common downfalls of technology integration mentioned in this survey were distractions caused by using devices in class, interruption to the creative process, and the lack of kinesthetic experience when technology was involved. Participants of this study also noted that technology could become a crutch that limits creativity and leads to artistic plagiarism, unrealistic expectations for flexibility and tricks, and a lowered self-confidence from students viewing themselves on film.

Throughout the qualitative free response questions, educators provided both positive and negative feedback for using technology to teach the twenty-first-century skills of creativity, critical thinking, and collaboration in a dance classroom. Participants concluded that online videos, music, and video recording could benefit the teaching of creativity in a dance class, while others noted that online dance videos could also distract dancers from developing their own creative movement skills and could result in unrealistic expectations for tricks and skills. Educators in this study also concluded that online discussion forums and historical dance archives could instill critical thinking skills in dancers, while others feared that dance videos and the Internet are creating a lazy generation of dancers who are not able to think for themselves. Lastly, participants in this study agreed that Google Drive, video recording, and apps such as Group Me and Slack could help students collaborate and communicate more effectively in group projects, while others believed that technology limits the desire for students to collaborate in person which could lead to a limited choreographic process and a less connected

community. As educational technology continues to evolve, dance educators must frequently assess their pedagogy, identify what the current best practices are, and discern where technology is enhancing or hindering their teaching strategies and the learning environment for their students.

Limitations to the Study

Although the survey for this study was presented electronically without participant interaction, it is important to note several limitations to the study and findings in this report. Primary limitations include the survey questions, number of participants, and the survey demographics.

The first major limitation to this study was that the researcher wrote and designed the electronic survey; she designed questions to be without bias, but nobody tested the survey for validity and reliability. Some questions may have limited the responses of participants due to the provided selections in the survey. Only certain technology was listed and addressed in the quantitative portion of the survey, thus a variety of technology methods may have been overlooked in this report. The researcher also included a large number of qualitative free response questions that may have deterred some participants from answering every question and giving honest feedback.

The next limitation to the study was the sample size of participants. The present study included responses from fifty-four dance educators, but would be significantly more rigorous with a larger sample size. Most of the participants were either affiliated with the National Dance Education Organization or the Master's of Dance Education program through the University of Northern Colorado. The limited participant base created a survey demographic that lacked diversity.

The reader can find additional limitations of this research in the survey demographics of the study. For example, 96.3% of the participants were female and 85.2% were Caucasian. A more diverse population would have broadened the perspectives in the survey findings. The participants in this study were primarily teaching in academic dance settings (85.2%). This was most likely due to where the participants were recruited. It would have been valuable to include more perspectives from teachers in dance studios, professional companies, or artistic organizations.

Lastly, the age and experience of participants in the present study created a limitation to the data collected. Most participants in the study had been teaching between five to thirty-nine years. Only three participants reported having less than five years of dance teaching experience. It would be beneficial to include perspectives of new dance educators in discussions for further research. Most of the participants' ages ranged from twenty-five to forty-nine years old with only one participant being younger than twenty-five. Adding more input from both younger and older educators would bring new perspective to the discussion of technology use in a dance classroom.

Recommendations for Further Research

Verification of this study requires additional research. As technology continues to evolve, new methodologies and best practices will continue to emerge for incorporating technology into the dance classroom may change. A similar study with a larger sample size and greater diversity in participants' gender, ethnicity, age, experience, location, student demographics and teaching environment would provide additional support to the findings of this study.

Other topics that need more research are student's perceptions of technology use in a dance classroom and continued research of the effect technology has on learning objectives. This study focused solely on responses gathered from a teacher's perspective, but it would also be advantageous to identify how students view the integration of emerging technology methods in dance. It would also be useful to conduct a larger quantitative study on the outcomes of using technology to teach a variety of topics in dance education. Since technology is such a broad topic, it would be helpful to conduct studies that only focus on specific technology methods in dance education. It would also be beneficial to continue research on technology's influence on teaching the twenty-first-century skills of critical thinking, creativity, and collaboration in dance education. This study provided general feedback from current educators on how technology affects the teaching of twenty-first-century learning, but proving how technology can benefit or hinder the teaching of creativity, critical thinking, and collaboration in a dance classroom also calls for further study.

Conclusion

In conclusion, the researcher believes that this study shows there are both advantages and disadvantages to incorporating educational technology into a dance classroom. Through the use of an electronic survey, the researcher gathered that current dance educators support the use of technology in dance education, yet share mixed reviews on when and how technology should be integrated in the dance classroom. Participants in the present study agreed that technology could benefit teaching strategies and student learning of creativity, critical thinking, and collaboration when used for visual feedback, choreography documentation, technical growth, online discussions,

assignment submissions, research, and connecting students more closely to dance history. Educators also noted that technology could hinder the learning environment if the technology becomes a distraction to the kinesthetic experience or an avenue for choreographic plagiarism. Since technology can be used in endless ways to enhance or inhibit learning in a dance classroom, it is the role of the educator to assess current teaching strategies and determine best practices for technology integration. In response to the initial research question of this study, technology is able to enhance teaching strategies and student learning of the twenty-first-century skills of creativity, critical thinking, and communication through the use of video recording, audio equipment, online learning platforms, and other personal electronic devices; however, if used excessively, technology could become a distraction and a crutch that limits the choreographic process and kinesthetic experience.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD FORMS

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

DATE: October 16, 2017

TO: Anna Gradwohl
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1138621-1] Perceptions of Technology in Dance Education: The Effect of
                     Technology on Student Learning and Teaching Strategies of 21st Century
                     Skills in Dance Education
SUBMISSION TYPE: New Project

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE: October 16, 2017
EXPIRATION DATE: October 16, 2021

Thank you for your submission of New Project materials for this project. The University of Northern
Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB
regulations.

Anna -

**Thank you for a clear and thorough IRB application for your research. There are no requests for
additional materials or revisions.**

**Best wishes with your study and don't hesitate to contact me with any IRB-related questions or
concerns.**

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please
include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of
Northern Colorado (UNCO) IRB's records.

UNIVERSITY *of*
NORTHERN COLORADO

College of Performing and Visual Arts
School of Theatre Arts and Dance

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO
ELECTRONIC SURVEY PARTICIPANT

Thesis Title: Perceptions of Technology in Dance Education: The Effect of Technology on Student Learning and Teaching Strategies of 21st Century Skills in Dance Education

Researcher: Anna Gradwohl, Graduate Student at the University of Northern Colorado

Contact Information: (612) 310-0043, grad3752@bears.unco.edu

Research Advisor: Christy O'Connell-Black, University of Northern Colorado, christy.black@unco.edu

You are being asked to take part in a research study that will evaluate the effectiveness of technology use in dance education. This thesis will seek the perceptions and opinions of current dance educators on how technology enhances or inhibits teaching strategies and student learning of the 21st century skills of creativity, critical thinking, and communication. I am asking you to consent to being a participant because you are a current dance educator in an academic or studio setting. I am looking for honest opinions on how technology is affecting current educators in both positive and negative ways. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about: The aim of this research is to discover the effects that technology has on student learning and teaching strategies in a dance classroom. The present research will use an educator's perspective to answer the following questions: 1) In what ways does technology enhance teaching strategies and student learning in the 21st century skills of creativity, critical thinking, and communication in a dance classroom? 2) In what ways does technology inhibit teaching strategies and student learning in the 21st century skills of creativity, critical thinking, and communication in a dance classroom? This study will address how technology affects a teacher's ability to disseminate new information and how it affects student growth of the 21st century skills listed above. As part of a graduate thesis project, the goal of the present research will be to assist the researcher and future readers in understanding the advantages and disadvantages of incorporating new or existing technology into the dance classroom.

Risks: The risk for participation in this study is no more than those normally encountered while taking a survey or filling out a questionnaire. You will be asked to fill out a 31 question electronic survey that includes both multiple choice and free response questions. The estimated time needed
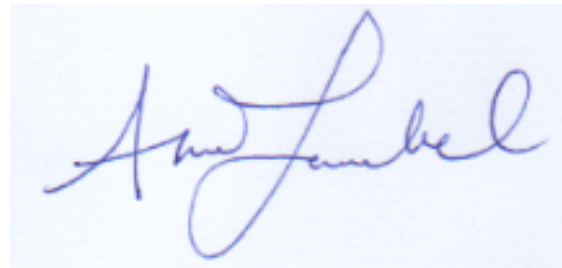
to complete this survey is 30 minutes. Other than possible fatigue, there are no foreseen risks involved.

Your answers will be confidential: Every effort will be made to protect your identity. The records of this study will be kept private. In any sort of report I make public, I will not include any information that will make it possible to identify you. A code system of pseudonyms will be used to identify all participant responses and no actual names will be used. The goal of this research is to simply document the responses of current dance educators on the topic of technology use in a classroom or studio setting. All documents pertaining to this study will be stored in a locked cabinet in Crabbe Hall, room 308, the office of Dance Education MA co-coordinator Christy O'Connell-Black. The notes will be destroyed after completion of the thesis.

Taking part is voluntary: Taking part in this survey is completely voluntary.

If you have questions: The researcher conducting this study is Anna Gradwohl. Please ask any questions you have now. If you have any questions later, you may contact me with the information listed above. Please retain one copy of this letter for your records.

Thank you for assisting me in my research. Sincerely,

APPENDIX B

RESEARCH INSTRUMENTATION

Perceptions of Technology in Dance Education: The Effect of Technology on Student Learning and Teaching Strategies of 21st Century Skills in Dance Education

Demographics

1. What is your age?
   a. 18-24
   b. 25-29
   c. 30-39
   d. 40-49
   e. 50-59
   f. 60-69
   g. 70+

2. What is your sex?
   a. Male
   b. Female

3. Which of the following best represents your ethnicity?
   a. Caucasian
   b. Hispanic/Latino
   c. Black/African American
   d. Native American/American Indian
   e. Asian/Pacific Islander
   f. Middle Eastern/Arab American
   g. Other (Please Specify)

4. What is the highest level of education you have currently completed?
   a. High School
   b. Associates Degree
   c. College
   d. Currently Enrolled in Graduate School
   e. Masters Degree
   f. Doctoral Degree

Teaching Demographics

5. How many years have you been teaching dance?
   a. 1-2
   b. 3-4
   c. 5-9
   d. 10-14
   e. 15-19
   f. 20-29
   g. 30-39
   h. 40+

6. In what setting/settings do you currently teach dance (Select all that apply)?
   a. Academic
   b. Studio
   c. Other (Please Specify)

7. What grades of students do you currently teach? (Select all that apply)
   a. Pre-K
   b. Kindergarten
   c. 1st Grade
   d. 2nd Grade
   e. 3rd Grade
   f. 4th Grade
   g. 5th Grade
   h. 6th Grade
   i. 7th Grade
   j. 8th Grade
   k. High School
   l. College
   m. Graduate
   n. Professional

8. What styles of dance do you currently teach? (Select all that apply)
   a. Ballet
   b. Modern
   c. Jazz
   d. Tap
   e. Hip Hop
   f. Musical Theater
   g. Creative Movement/Choreography
   h. Dance History
   i. Dance Production
   j. Other (Please Specify)

Technology in the Classroom

9. What types of technology do you currently have access to in your classroom/studio? (Select all that apply)
   a. Audio Equipment (e.g. iPod/Speakers/Sound system/etc.)
   b. Internet/websites
   c. Video Recording (e.g. Camera/iPad/etc.)
   d. Video Use (e.g. YouTube/Vimeo/etc.)
   e. Desktop Computers
   f. Laptops
   g. Tablet devices
   h. Smartphones
   i. Educational Apps (Quizlet/Kahoot/Evernote/Seesaw/ect.)
   j. Online Educational Platforms
      (e.g. Google Classroom/Edmodo/Schoology/OnCampus/Canvas/etc.)
   k. Interactive Whiteboard/Smart board
   l. Projector
   m. Other (Please specify)

10. What types of technology do you currently use in your classroom/studio? (Select all that apply)
    a. Audio Equipment (e.g. iPod/Speakers/Sound system/etc.)
    b. Internet/websites

    c. Video Recording (e.g. Camera/iPad/etc.)
    d. Video Use (e.g. YouTube/Vimeo/etc.)
    e. Desktop Computers
    f. Laptops
    g. Tablet devices
    h. Smartphones
    i. Educational Apps (Quizlet/Kahoot/Evernote/Seesaw/ect.)
    j. Online Educational Platforms
       (e.g. Google Classroom/Edmodo/Schoology/OnCampus/Canvas/etc.)
    k. Interactive Whiteboard/Smart board
    l. Projector
    m. Other (Please specify)

11. What types of technology do your students use in your class?
    (Select all that apply)
    a. Audio Equipment (e.g. iPod/Speakers/Sound system/etc.)
    b. Internet/websites
    c. Video Recording (e.g. Camera/iPad/etc.)
    d. Video Use (e.g. YouTube/Vimeo/etc.)
    e. Desktop Computers
    f. Laptops
    g. Tablet devices
    h. Smartphones
    i. Educational Apps (Quizlet/Kahoot/Evernote/Seesaw/ect.)
    j. Online Educational Platforms
       (e.g. Google Classroom/Edmodo/Schoology/OnCampus/Canvas/etc.)
    k. Interactive Whiteboard/Smart board
    l. Projector
    m. Other (Please specify)

12. Who provides the majority of technology resources for you?
    a. I provide my own technology resources
    b. My school provides my technology resources
    c. My district provides my technology resources
    d. Other (Please Specify)

13. Which types of technology do you find MOST valuable for teaching dance?
    (Select all that apply)
    a. Audio Equipment (e.g. iPod/Speakers/Sound system/etc.)
    b. Internet/websites
    c. Video Recording (e.g. Camera/iPad/etc.)
    d. Video Use (e.g. YouTube/Vimeo/etc.)
    e. Desktop Computers
    f. Laptops
    g. Tablet devices
    h. Educational Apps (Quizlet/Kahoot/Evernote/Seesaw/ect.)
    i. Online Educational Platforms
       (e.g. Google Classroom/Edmodo/Schoology/OnCampus/Canvas/etc.)
    j. Interactive Whiteboard/Smart board
    k. Projector
    l. Other (Please specify)

14. Which types of technology do you find LEAST valuable for teaching dance?
    a. Audio Equipment (e.g. iPod/Speakers/Sound system/etc.)
    b. Internet/websites
    c. Video Recording (e.g. Camera/iPad/etc.)
    d. Video Use (e.g. YouTube/Vimeo/etc.)
    e. Desktop Computers
    f. Laptops
    g. Tablet devices
    h. Educational Apps (Quizlet/Kahoot/Evernote/Seesaw/ect.)
    i. Online Educational Platforms
       (e.g. Google Classroom/Edmodo/Schoology/OnCampus/Canvas/etc.)
    j. Interactive Whiteboard/Smart board
    k. Projector
    l. Other (Please specify)

15.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
a. Overall, the technology I currently use is up to date.					
b. I feel satisfied with the technology I currently use to teach dance.					
c. My students are more engaged when using technology in the classroom/studio.					
d. Overall, technology improves my ability to effectively teach information to my students.					
e. Overall, technology improves my student's ability to learn in my classroom/studio.					

f. I would use technology to teach dance if more resources were available to me.					
g. Overall, I feel extremely capable incorporating technology into my classroom/studio.					

Teacher Engagement

16. In what ways and when do you use technology to teach your classes?

17. In what ways does technology enhance your ability to teach choreography and technical dance skills?

18. In what ways does technology inhibit your ability to teach choreography and technical dance skills?

19. In what ways does technology affect your ability to teach historical content in your dance classroom/studio?

20. Is technology helpful or hurtful in teaching students to collaborate, communicate, and choreograph together? (Please explain)

Student Engagement

21. In what ways and when do students use technology in your classroom?

22. How does technology improve your student's ability to learn choreography and technical dance skills in your class?

23. How does technology hinder your students from learning choreography and technical dance skills in your class?

24. What effect does technology have on your student's ability to learn improvisational, creative movement, and choreographic skills?

25. Describe the ways technology enhances or inhibits critical thinking and class discussions for your students?

26. In what ways does technology affect your student's ability to learn historical content in your dance classroom/studio?

27. What effect does technology have on your student's ability to learn/demonstrate expression and stage presence?

28. What role does technology play in collaborative projects in your classroom/studio?

29. How does technology affect your student's ability to write about dance?

30. In what ways does technology enhance or inhibit peer critiques and feedback in your classroom/studio?

31. How has technology affected your student's ability to present verbally or physically (choreography) in your classroom/studio?