Digital technology and the arts: Investigating the integration of digital technologies in the elementary art curriculum

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Link to Digital Story

Abstract

Art is a wonderful way for students to express their creativity and engage in their learning in a new and interesting way. In today's modern world, the integration of digital technologies has the capability to enhance lessons and provide unique opportunities for students to experience the curriculum. Through the surveying of my fellow teacher candidates, family, friends and an e-mail interview with a subject matter expert, I asked specific questions about the potential positive and negative effects of the integration of digital technology in the elementary art curriculum. In addition, I explored five added sources to supplement my research. As a result of this investigation, I discovered that a balance of new and old technologies is fundamental to the art experience in the elementary art curriculum. It is imperative that technology is not the sole focus and that other traditional art mediums are included in the curriculum. This research project allowed for the exploration of the positive and negative impact of integrating digital technologies in the arts for my future teaching practice. Ultimately, the potential benefits of the integration of

digital technologies far outweigh any of the negatives and the opportunities they present are endless.

Introduction

As someone who has always loved to explore my own creativity whenever possible, I would like to personally explore and question how art and technology can be combined in the elementary classroom. Specifically, I would like to know what impact the use of digital technologies has had on elementary art education, the students, and the teachers. From my observations during some of my school placements, and through my own experience in elementary school, I have noticed that one of the best ways to engage an elementary learner is to allow them to express themselves and use their creative skills and abilities. Incorporating art is a way to broaden and expand on a lesson, engage the learner, facilitate learning in a new and meaningful way, and most of all, make the curriculum a little more fun. If children can be exposed to emerging digital technologies in art at a young age they can discover new ways in which to express their knowledge and creativity and spark a passion for art technologies that could potentially drive a student to contemplate a future career they might not have otherwise considered. With technology becoming more prevalent in the classroom, I am curious how its use has had both a positive and negative impact on the elementary art curriculum, the students, and the teachers.

Background

After inquiring about how digital technologies have made an impact, both positive and negative, on the art curriculum in Elementary schools, I was able to find five sources that depict a well rounded view of the integration of digital technologies in the art curriculum. It was important to initially find a source that explores the importance of art in the classroom. The first source I discovered is an article by Dr. Rena Upitis (2011) that explores why the arts and art education

matter, how they influence child development, and how the use of technology can support the creative process. This document discusses the benefits of using technology to enhance both music and creative arts education and outlines some concerns art educators have regarding integrating technology in their classrooms.

The second source I found was a YouTube video created by an art teacher named Tricia Fuglestad (2013) in a 21st century classroom that frequently incorporates digital technologies. She discusses the positive benefits of integrating technology into the art curriculum and showcases her own students' technology enriched artwork. She explains how it has engaged the students in her classroom and ultimately had a positive effect on their artwork. This source was particularly intriguing, as it was important to find research of first hand experience from elementary art teachers who were taking advantage of digital technologies in the classroom.

The third source I found is an article by Sarah Kramer (n.d.) that provides a study of the effects of integrating technology into a fifth-grade art class. The study hopes to question whether integrating technology into a specific art unit will significantly change the attitudes of the students towards art, if it does why this happened, and if the students will retain the content in the same way.

The fourth source I discovered was a blog entry created by Craig Roland (2008) of his observations in Tricia Fuglestad's art classroom. He reviews and observes her use of integrating digital technologies into the elementary art curriculum to enhance the lessons and engage the students. In addition, he discusses the large role that the supportive administration of Dryden Elementary School plays in the successful integration of technology into the art department.

The fifth source I discovered is an article by Joan Assey (n.d.) on a technology and education blog that discusses the importance of the use of technology within classrooms and provides a discussion surrounding the future role, and current impact, of technology in arts education. This

document provides information about integrating technology into the curriculum and the assessment of arts education.

These five sources have helped introduce me to the positive and negative aspects of including digital technologies in the elementary art curriculum. It was extremely important to my research to be able to reference articles that discuss the benefits of including an arts curriculum in elementary schools and how digital technologies can impact these lessons. It was important to be able to use research created by teachers who are currently using digital technologies to enhance their art lessons to gain a first hand experience on how these technologies directly affect the students. After consulting these sources, I then wished to conduct my own research and contact as many friends, family, and peers as possible to investigate the use of digital technologies in the art curriculum.

Research Context

I gathered background information primarily online via a YouTube Video, a blog post, and investigations completed by researchers on the effect of technology in art integration. Quite a few of my sources are researchers who are educators themselves and their information was gathered through the observations of their own students.

For the research I conducted myself, I collected data via my peers in the Understanding Current and Emerging Pedagogical Technologies Education course at Mount Royal University, and my friends, family, and colleagues via Facebook and Twitter. A total of sixteen participants completed the online survey. To ensure no personal harm or risk to the participants in my survey, I completed the TCPS 2 Government of Canada Ethics course prior to collecting data to prepare myself to conduct my survey professionally and ethically.

After developing the survey, I sent a link to my Understanding Current and Emerging Pedagogical Technologies Education course at Mount Royal University via e-mail and posted a link to

the survey on both my personal Facebook and Twitter social media pages. I ensured that the survey was completely anonymous, with no names or identifying information, to ensure no risks to the participants. I conducted an e-mail interview with an art integration and subject matter expert and ensured that I was given express permission to use any responses within my research findings.

Methods of Investigation

My research method was almost entirely inquiry based. Participants in my research were asked various questions concerning the use of art and digital technology within an elementary classroom setting. Participants were asked these questions via a Google Forms online survey that was sent by e-mail to my peers in the Understanding Current and Emerging Pedagogical Technologies Education course at Mount Royal University and through social media websites such as Facebook and Twitter. I also conducted research through an e-mail interview with Collette Quinn-Hall, an art integration and subject matter expert who is currently using digital technology in expressive work with her students in Calgary, Alberta. In addition, I was able to use existing literature to supplement my research. Once the participants completed the survey, I analyzed the results by utilizing graphs, percentages, charts, summaries and quotations in my research findings. In addition, I used word clouds where the largest words reflect the most commonly used words in the written responses of the survey participants.

Findings

After conducting my research via an online survey to my peers in the Emerging Pedagogical Technologies Education course at Mount Royal University and to my friends and family through social media websites such as Facebook and Twitter, I received a wide variety of responses regarding the use of digital technologies and art in an elementary classroom. This particular survey was made up of various forms of questions including scales, long answer, checkboxes, and multiple choice. There were a total of ten questions on the online survey and although some of the survey results reflect seventeen participants, there were a total of sixteen individuals who participated in the survey.
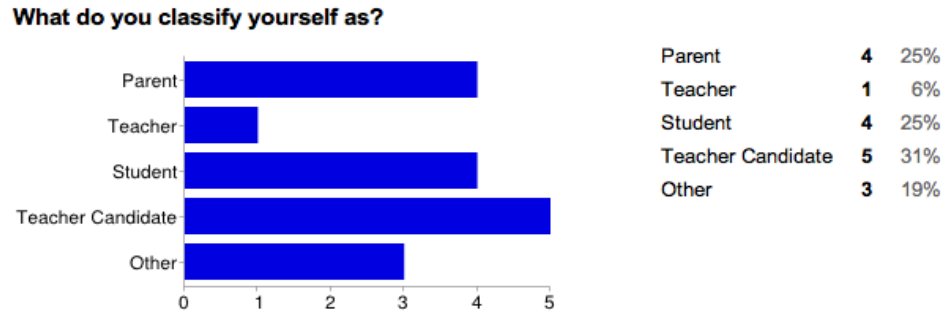
What do you classify yourself as?

Parent	4	25%
Teacher	1	6%
Student	4	25%
Teacher Candidate	5	31%
Other	3	19%

Figure 1. Demographics of survey participants

To provide context to my research, it was important to discover the demographic of those that completed my online survey. Teacher candidates, such as myself, comprised the bulk of the participants at 31%. By including a link to my online survey on social media websites, I was able to receive responses from parents, other students, and professionals who each contributed to 25% of the responses. The other responses classified themselves as adult or businessperson.

It was important for my research to determine how my survey participants felt about the importance of art in general in the elementary classroom. This particular question asked participants to range their responses on a scale of one to ten. Number one on the scale was set to "Not Important" and number ten on the scale was sent to "Extremely Important."

Do you feel art is important in elementary school?

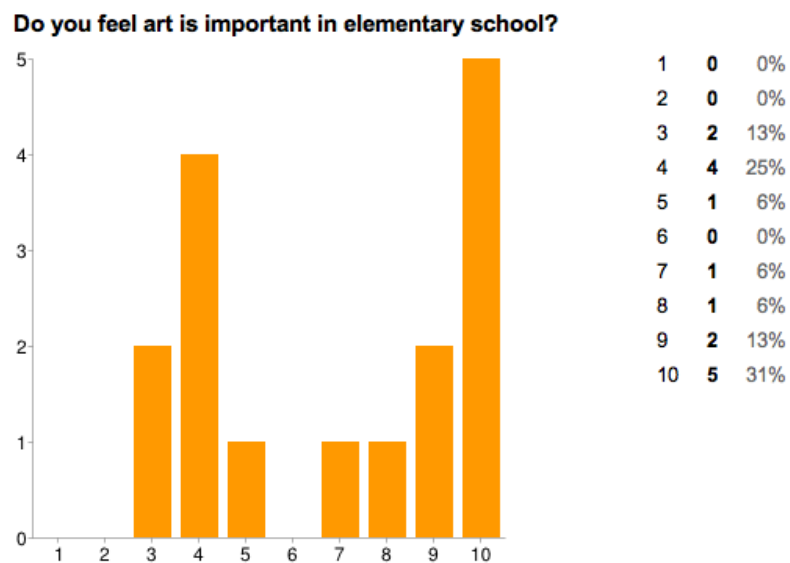|		
1	0	0%
2	0	0%
3	2	13%
4	4	25%
5	1	6%
6	0	0%
7	1	6%
8	1	6%
9	2	13%
10	5	31%

Figure 2. Rating the importance of elementary art education

The results of this particular question were quite varied. The majority of the participants felt that art was extremely important in elementary school. This was reflected in five out of the sixteen received responses, which contributed to 31% of the data collected. Four out of the sixteen participants did not feel that art was extremely important in the classroom and felt that art rated at a four on the scale. Their responses contributed to 25% of the data collected. The remainder of the responses fell on various parts of the scale. Due to nine of the participants rating above a six on the numbered scale, as opposed to seven participants rating below six, it is my conclusion that the majority of the participants of this particular survey feel that art is important in elementary schools.

One of my research sources in particular supports this conclusion. Upitis (2011) believes that the arts have the ability to "engage the learner wholly - intellectually, socially, emotionally, and physically" (p. [i]). The arts allow students to use their imagination and express their creativity. There are both extrinsic and intrinsic benefits to including art in the elementary curriculum. Upitis (2011) describes the extrinsic benefits as "learning in, about, and through the arts contributes to increased engagement in learning in other subject areas, and to the development of students' self-confidence, social skills, and metacognition" (p. [i]-[ii]). Upitis (2011) describes some of the intrinsic benefits of the arts as "opportunities to develop creativity and imagination, and to experience joy, beauty, and wonder … make the ordinary special, to enrich the quality of our lives, and to develop effective ways of expressing thoughts, knowledge, and feelings" (p. [i]). I am surprised that the results of the survey did not depict a more definitive majority. I am curious how the results would differ if this survey were to be conducted on current elementary school students.

After discovering how the participants felt about art in the classroom, I wanted to determine what digital technology and art personally meant to them. This particular question was set up in a long answer format to ensure the participants were able to expand on their ideas and give their

opinions on digital technologies and art. In order to explore the responses, I set up the data collected

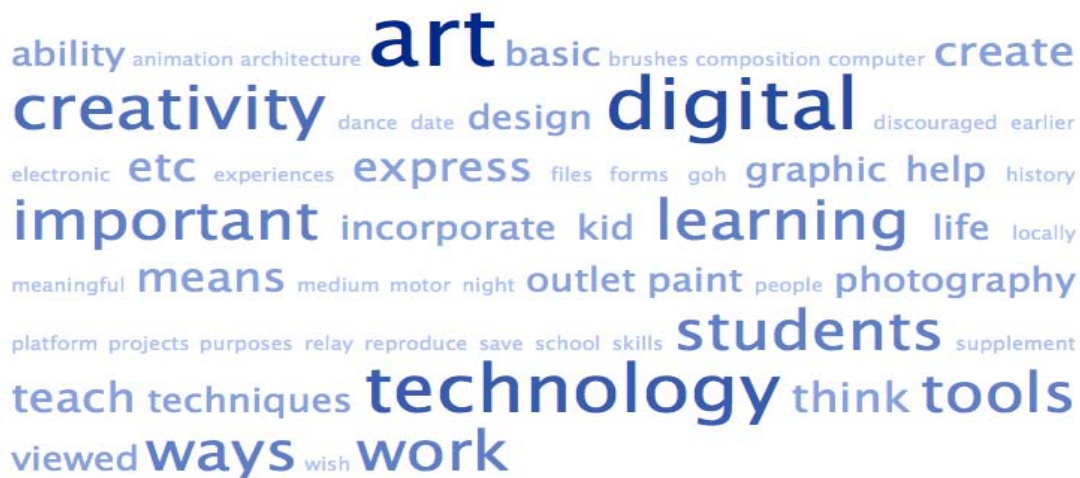in a word cloud of the most frequent words used by the participants.

Figure 3. What does digital technology in art mean to you? Please explain.

The majority of the participants, a total of twelve, felt that digital technologies in art meant

that various digital tools, such as computer software programs, graphic design programs, art

websites, photography, and animation tools could be used to create art or express creativity in new

ways using new and interesting mediums (Survey participants 1-3, 5-11, 14, 15). In addition, many

of the participants believe that teachers can utilize digital technologies to inspire, research, and

share artwork (Survey participant 6, 7, 12, 14, 16).

One researcher, Joan Assey (n.d), supports the survey results when she writes that

technology, in particular the Internet, can provide students and teachers with the ability to "access

the major museums as well as conduct research for specialized articles on art criticism aesthetic

valuing. Many of these experiences incorporate interactive media that engages the learner" (p. 3).

Students, and their teachers, would have the ability to explore the Internet to view famous works of

art that they would otherwise not have access. They could view and learn about other forms of art

or learn about famous artists and they could set up online portfolios to share their artwork with their

families, peers, and the public. Assey (n.d.) also describes some of the particular benefits of technology for teachers who integrate digital technologies into art curriculum. She describes the ability for teachers to use the Internet to communicate with other art educators, experts, and organizations around the world. Through this tool they can share successful lesson plans and tips and create unique learning opportunities for their students (p. 3).

In an e-mail interview with Quinn-Hall (Dec. 2014), she describes a unique benefit to the integration of digital technologies and art when she discusses the creative opportunities they provide students by providing access to tools that are otherwise too expensive for the classroom:

> Digital technologies give opportunities for kids to experience the tradition [sic] models of art by providing access to virtually created tools too expensive to provide for all our students in the   classroom. I am thinking about the Apple app Brushes on our ipads designed to enable the user access to hundreds of brush sizes and thousands of colour tints and intensity choices. Or Garage Band where kids can use myriad sound bites to string together personal compositions. (E-mail interview participant)

Quinn-Hall's perspective is one that I have not previously seen reflected in research or in the opinions of the survey participants. The potential brush sizes and colour spectrums, and other various technology programs, can provide added opportunities for students to express their creativity.

After determining what the participants believed the use of digital technologies in art meant to them individually, I wanted to determine how often they believed the elementary art curriculum should include modern digital technologies. This particular question was designed with three specific responses: often, rarely, and never. The participants had the option of one of these choices.

In your opinion, how often should the elementary art curriculum include modern digital technologies?

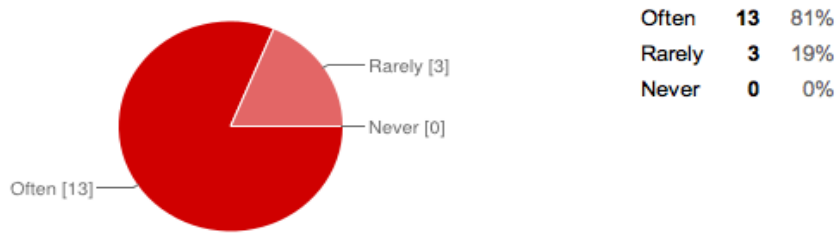|		
Often	13	81%
Rarely	3	19%
Never	0	0%

Figure 4. Frequency of using digital technologies in the elementary art curriculum

The results were overwhelmingly in favour of the elementary art curriculum including modern digital technologies often. Thirteen of the sixteen total participants comprising 81% of the data believed that digital technologies should be used often. Three of the sixteen participants believed that digital technologies should rarely be used, comprising 19% of the data collected. None of the participants felt that digital technologies should never be used in the elementary art curriculum.

Quinn-Hall (Dec. 2014) agrees with the survey participants in the importance of utilizing digital technology when she writes, "As educators, we can not ignore the presence of technology in the work we do with our students. And, I think the benefits of these technologies far outweigh the negatives." Technology is becoming increasingly more prevalent in elementary classrooms and it is important for educators to do their best to embrace technology and utilize it to its fullest capabilities to enhance and support the curriculum and our students.

In addition, I wanted to explore the opinions of the participants in regards to their own personal engagement in art lessons if digital technologies were used. This particular question was set up as long answer to ensure the participants were able to express their opinions clearly.

Figure 5. Impact of digital technologies in the elementary art curriculum

The majority of the participants, ten out of the sixteen in total, indicated that they would feel

more engaged and interested in an art lesson if it involved digital technologies (Survey participants

1, 2, 3, 5, 6, 9, 10, 12, 14, 15). Some of their responses described their personal lack of creativity

and artistic ability when using more traditional forms of art (Survey participants 5, 6, 9). In

addition, one survey participant believed that digital technologies provide more creative

opportunities than traditional forms of art (Survey participant 4).

However, two of the participants did not feel that they would be more engaged or interested

in the art lesson if it contained digital technologies (Survey participants 8, 16). One of these

participants preferred to use more traditional forms of art as opposed to digital technologies (Survey

participant 6). One participant felt that students should have the ability to choose whatever form

they would like when creating art and art mediums should not be forced on anyone (Survey

participant 8).

Interestingly, four of the participants felt that their engagement and interest in the lesson

would depend on the circumstances and many of the responses mentioned that they would prefer a

balance of both modern and older art technologies (Survey participants 7, 11, 13, 14). One

participant believes that technology can provide a distraction and that students can benefit from the simplicity of art and encourages teachers to try not to do too much to take away from the traditional forms (Survey participant 7). This participant feels a balance of both the new and the old will be far more beneficial to students than focusing primarily on one form (Survey participant 7). Similar responses described not using digital technologies for every lesson and would prefer to be introduced to various forms of art to discover what appeals to them most (Survey participants 11, 14).

Two of the research sources and the interview participant, Quinn-Hall, specifically mention the engagement of students through the use of digital technologies in the arts. In Fuglestad's (2013) YouTube video that describes a 21st century classroom that frequently uses digital technologies in the art curriculum, she mentions that she only uses digital technologies when it is a better way to deliver content, engage students, or enhance the art experience. Sarah Kramer (n.d.), who conducted an investigation into the effects of integrating technology into a fifth-grade art class, discovered at the conclusion of her study that the technology use she observed in her study "caused students to be more actively involved in their learning and to exhibit more positive behaviors" (p. 27). In addition, in the e-mail interview with Quinn-Hall (Dec. 2014), she describes how art and digital technology can engage students when she writes, "through this work we engage our students in experiencing the capacities…. Noticing deeply, embodying, questioning, identifying patterns, making connections, exhibiting empathy, living with ambiguity, creating meaning, taking action, reflecting and assessing" (E-mail interview participant). Digital technologies in the arts can provide a variety of ways to engage learners. All three of these educators have noticed engagement in their students when using digital technologies in the art curriculum.

For my research, I wanted to determine what specific forms of art the participants were

drawn to and would prefer to work with in an elementary classroom. This particular question was set up with four possible responses. These responses included: I prefer to work with older technologies such as pencils, paints, crayons, etc., I prefer to work with modern digital technologies such as photography equipment, computer animation programs, photoshop, etc., I prefer to work with a mixture of old and new technology, and other.

What art technologies would you prefer to work with?
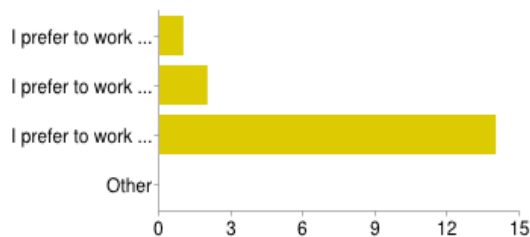
I prefer to work with older technologies such as pencils, paints, crayons, etc.	1	6%
I prefer to work with modern digital technologies such as photography equipment, computer animation programs, photoshop, etc.	2	13%
I prefer to work with a mixture of old and new technology	14	88%
Other	0	0%

Figure 6. Preference for technologies associated with art education

The vast majority of the responses indicated that 14 of the 16 participants, 88% in total, prefer to work with a mixture of old and new technology. Only two of the participants prefer to work solely with digital technologies, and one participant prefers to work solely with traditional forms of art. This graph indicates that the majority of the participants prefer to have a balance of both technologies in the art curriculum in elementary school.

In addition, I was curious to find out how many of the participants of my survey were exposed to art through the use of digital technologies in elementary school. This particular question was set up with fairly straightforward question of either yes or no.

From your own experience, were you exposed to art through the use of digital technologies in elementary school?

Yes   3   19%

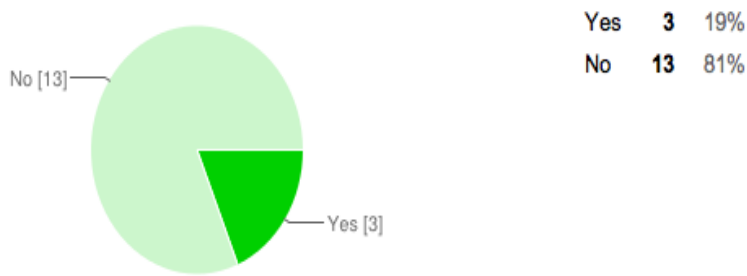No   13   81%

No [13]

Yes [3]

Figure 7. Exposure to digital technologies in the elementary art curriculum

Due to the demographic of my survey participants, I was not overly surprised to discover that thirteen of the sixteen, 81% in total, were not exposed to art through the use of digital technologies in their own elementary schools. The majority of the participants were peers, friends, and family who did not generally attend elementary school when digital technologies were frequently used in classrooms. Of the sixteen total responses, 13 were not exposed to art through digital technology, while 3, 19% in total, were exposed to technology in art during their time in elementary school.

To further the investigation, I asked the participants if they felt that students would be disadvantaged if they were not exposed to the integration of art and digital technologies in elementary school. This particular questions was designed with just two possible answers of either yes or no.

Do you feel students would be disadvantaged if they are not exposed to the integration of art and digital technologies in elementary school?

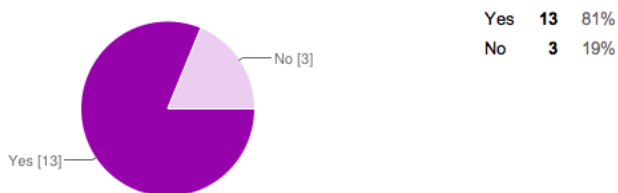Yes   13   81%

No   3   19%

No [3]

Yes [13]

Figure 8. Perception of whether students are disadvantaged if they are not exposed to the integration of art and digital technologies in elementary school

The majority of the participants, 13 of the 16, or 81% in total, indicated that they believe students would be at a disadvantage if they were not exposed to these technologies in elementary school. Only three of the sixteen, or 19% in total, indicated that students would not be disadvantaged if they were not exposed to these technologies.

For my investigation, I wanted to determine what the participants believed were possible disadvantages to including these digital technologies in the art curriculum. I asked the participants this particular question in long answer, so they would have the opportunity to fully form their responses and give detailed opinions on the potential disadvantages.
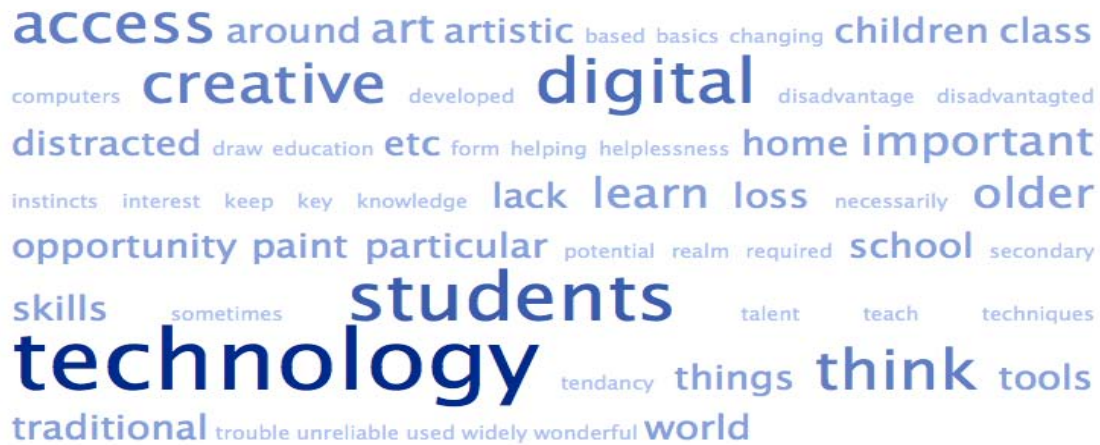

Figure 9. Possible disadvantages that could arise from the use of art digital technologies in the elementary classroom

According to the responses, the participants described interesting and insightful potential disadvantages that could arise from the use of art and digital technologies in the classroom. One of the responses described the unreliability of technology (Survey participant 14). The act of having to troubleshoot or explain the processes of using digital technology can take away from class time and time that could be spent creating art by hand (Survey participant 14). It was mentioned that it might take a considerable amount of time for students to develop the skills to use these technologies adequately (Survey participant 14, 2). Students also will not have the ability to experience creativity

and artistic expression with traditional forms of art if digital technologies are only being used in the classroom (Survey participants 6-9). Some participants believe that our lives, and the lives of our students, are becoming far too centered on digital technologies in general (Survey participants 4, 5, 9, 12, 13). If we can cut out the use of digital technologies in certain areas, like art education, we will be benefiting students by letting them cultivate their artistic abilities in a more organic and basic way. Others believed that ultimately technology is very distracting and will take away from students learning the basics (Survey participants 1, 7). One participant believes there will be a loss of traditional forms of art and a disconnect from the individual's own talent (Survey participant 11). Another participant believes that digital tools should be secondary to traditional tools (Survey participant 8). In addition, some of the participants felt that there could potentially be unequal access to these technologies for students and classrooms (Survey participants 1, 3, 6). One of the participants felt that students would not be exposed to the wonderful opportunities that are involved in the creation of art if only digital technologies are allowed in the classroom (Survey participants 2, 9).

Assey (n.d.) echoes some of the concerns of the survey participants when she describes some of the potential disadvantages of the use of digital technologies in the arts. She writes that "the uneven distribution of technology based on income, gender, race or geography could widen the social divisions that exist in our society today" (p. 10). In addition, she describes the importance of keeping the elementary art curriculum focused. She writes that "technology cannot become more important than the arts content or curriculum" (p. 10). Technology must be used correctly in order for it to be truly effective in its integration with art. It must not become the sole focus of the art curriculum. It should always be used as an additional tool to enhance and support the students' creativity and must not entirely detract from traditional forms of art mediums.

Quinn-Hall (Dec. 2014) describes two particular potential negative impacts of digital technologies in the art curriculum. In the first, she describes the potential for digital technology to "hinder the non-risk taker from pushing through to elevate their technique or style by practice and honing skills over time" (E-mail interview participant). If students are hesitant to attempt to use new digital technologies, this could potentially hinder their creative abilities. In addition, she describes the potential for digital technology to impact both the students and teachers when she writes, "As an educator, the most difficult problem with digital technology is access to the technology. There is never enough technology in a school to provide immediate opportunities to all kids when needed" (Quinn-Hall, Dec. 2014, E-mail interview participant). This sentiment echoes the opinions of other researchers as well as survey participants who believe that accessibility could cause potential issues.

Finally, to conclude the investigation, I asked the participants in the survey to give me advice, feedback, or recommendations about using digital technology in the elementary art curriculum. This question was asked in long answer format to ensure the participants were able to give their full opinions.

Figure 10. Advice or recommendations regarding the use of digital technologies in the elementary art curriculum

Most of the advice given by the participants mentioned that ultimately balance is the key (Survey participants 6, 11-14). It is important to ensure that students have access to digital technologies, but they need to be introduced to traditional forms of art as well. One participant mentioned that students should be encouraged to explore their passions and use whatever form of art they prefer to express their creativity and strengths (Survey participant 12). Another mentioned that having options for the students is important and to listen to the students and work with the tools they are most interested in and familiar with (Survey participant 3).

Conclusions and Recommendations

In conclusion, through this investigation into the potential positive and negative impacts of the integration of digital technologies into the elementary art curriculum, I have ultimately discovered the importance of balancing new and innovative technologies with traditional art mediums. It is important that technology is not the primary focus and is instead used as an effective tool to enhance and support the elementary art curriculum and the students. This concept is reflected in Roland's (2008) blog post on his observations in an elementary classroom that has integrated digital technologies into the art curriculum when he writes, "Moreover, while Tricia's students have a range of conventional and digital media at their disposal, the focus of their learning is always on Art and creative expression, rather than the tools themselves" (para. 3). Even though technologies are an important addition to the curriculum, the primary focus should remain the subject itself. Quinn-Hall (Dec. 2014) expresses the belief that the positive benefits of using technology far out-weigh any of the potential negatives (E-mail interview participant). She writes that the integration of digital technologies provides students "with the opportunities to blend medias together to create wildly incredible, thoughtful and unique bodies of work" (Quinn-Hall, Dec. 2014, E-mail interview participant). She mentions that this is the best way for educators to incorporate or integrate digital technologies and art and this integration will create "a multi-mediumed [sic] platform blending the art forms and then naming this work for the

"other" form of art it is as opposed to taking over traditional art form" (Quinn-Hall, Dec. 2014, E-mail interview participant). Quinn-Hall (Dec. 2014), as opposed to a number of the survey participants, believes that technology is not taking over traditional forms of art mediums, but instead creating an entirely new form of art (E-mail interview participant). The idea that we can create a unique and innovative new art form is interesting and appealing. Adopting this viewpoint allows me to feel much more comfortable with the integration of digital technologies and art in my future practice.

Technology can provide wonderful learning opportunities for both students and educators. Quinn-Hall (Dec. 2014) writes that digital technologies provide "access to a wealth of art experiences we would be hard-pressed to share with our students without the window to the virtual world. Access to museums around the world and recorded performances form [sic] every nation and culture who can video and Youtube" (E-mail interview participant). As evidenced in Quinn-Hall's interview responses, there are a plethora of creative opportunities that technology can provide to enhance the learning experience for our students.

I believe that this investigation into the integration of technology has the capability to be applied to numerous other subject areas. The concept of maintaining a balance of the new and the old could be replicated in the core subjects as well. It is important that technology does not become our sole focus as elementary teachers. It is still imperative for our students to be exposed to more traditional and basic concepts in addition to these new technologies.

This investigation allowed me to consider and identify future questions and concerns regarding the integration of digital technology in the art curriculum. I am curious how elementary students, in particular, rate the importance of not only the arts in the curriculum, but also this integration of digital technologies. I am curious to see how assessment is impacted by this integration. Does the higher engagement of students who use digital technologies and art reflect in their formative and summative

assessments? How do we find this perfect balance of old and new technology? What specific old technologies should students be exposed to? Have any old technologies become obsolete specifically due to digital technologies? Have we seen an increase in graduates entering digital art related fields such as graphic design, animation, photography? Was this due to exposure of digital technologies and art in school? Although there are numerous questions left to be answered and areas left to explore, I am confident that I have a better understanding and appreciation for the integration of digital technologies and art and I look forward to the opportunity to apply my newly gained knowledge in my future teaching practice.

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