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STUDENT-PROVIDED TECHNOLOGY IN THE CLASSROOM

by

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A thesis submitted to the Graduate College
in partial fulfillment of the requirements
for the degree of Master of Arts
Frostic School of Art
Western Michigan University
April 2019

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With technology becoming more ingrained in the day-to-day business of 21st century life, it is only natural for such technology to find its way into the hands of our youth and eventually the classroom setting. Student provided technology, specifically the popular smart phone, is proving to be a useful tool in students’ education to some but still seen as a potential danger to many others in the profession. With the world becoming more digitally connected, smart phones have the potential to be a great learning tool or an even greater source of distraction for students.

Art teachers across the United States completed a survey regarding their comfort level around student provided technology in the classroom and how they have grappled with the topic with their students. The results found that teachers have found ways in which to incorporate student smart phones into their classrooms, depending greatly on the teacher’s level of comfort with the technology and how they feel it can be managed successfully. Other teachers have chosen to not allow smart phones based on an availability of district appointed technology or personal feelings towards smart phones in the hands of their students. Ultimately, regardless of administrative policy, the teacher is the one who chooses to establish an environment of trust and discipline when it comes to technology or to choose to ban such devices entirely.
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INTRODUCTION

In his book “From Digital Natives to Digital Wisdom; Hopeful Essays for 21st Century Learning” Marc Prensky (2012) outlines a problem in today’s classrooms. It is not a lack of funding, bullying, or low test scores. It is not ill-prepared teachers or an over-importance on sports instead of academics. Prensky highlights that today’s educational institutions have forgotten about those that matter most within them; the students. We’ve forgotten to ask the students what is important to them in their own education. Many teachers continue to offer the same curriculum through the same pedagogical approaches as they had received as K-12 students. As it relates to the visual arts, this means lecturing students about art that was created hundreds of years ago and bears no significant meaning to their lives. This very top-down approach to education continues to be the norm and we are failing our students again and again, leaving them asleep in their chairs. Far too often we struggle to find ways in which to engage today’s learners but forget to ask our learners what would engage them most.

I propose we start listening to our students more, returning to them some control over how they can best be taught. Students need to become partners in their own education and that begins with educational institutions allowing their students to learn in a manner of their own choosing with the tools of their own choosing, starting with personal smart phones. With this technology getting smarter and faster every day, students continue to depend on these tools to connect them with the outside world.
School districts can view these tools as a distraction from education or they can embrace the technology and take the time to teach their students how to use it properly. Doing so will better prepare our youth for the current demands of 21st century life and success.

In this study, I will address this issue through the scope of the current visual arts classroom and beyond. I will discuss the common policies regarding cell phones in public schools, benefits of smart phone use in the art classroom, the importance of cell phone etiquette, and logistical obstacles preventing a bring your own device (BYOD) policy from being implemented. I will advise how such technology can be utilized in the art classroom as well as how to address potential abuses of technology in the hands of students. Finally, I will discuss the importance of including contemporary art in today's curriculum and how allowing smart phones into the classroom can better connect students to such relevant art.

LITERATURE REVIEW

Benefits of Cell Phones in the Classroom and the M-Learning Movement

Mobile learning (M-learning) is a movement that invites students to use mobile devices such as iPods, smart phones, or tablets as a tool for learning. In her article in BioScience Magazine, Oksana Hlodan (2010) describes various examples of institutions around the United States who are using M-learning as a means of connecting students to the world outside their neighborhoods. Technology is being used to empower, engage, and motivate in ways other types of learning cannot. For example, rural students in Arkansas who ride three hours to school in the Sheridan school district were
given iPods or laptops to study science in buses equipped with Wi-Fi. An m-library is being developed at the University of Athabasca in Canada. Learner-Centered modules are being developed at the University of Michigan for K-12 students using mobile technology. Hlodan writes that these examples of anecdotal evidence show that mobile technology tools in the hands of students increase engagement and promote learning.

Contrary to what many school systems profess, use of personal smart devices has larger implications for the success of students in general. In an effort led by Qualcomm’s Wireless Reach Initiative, smart phones were distributed to low-income students who could not normally afford such an expensive device (Freeman, 2012). In addition to the devices themselves, each phone was equipped with high-speed Internet access. Access to the Internet has become one of the most popular and cost-effective ways to communicate and gain knowledge from the outside world, especially in impoverished areas of the United States. Because these students finally had access to tools of communication and information, standardized test performance improved dramatically. Another example of this was the same digital outreach program called “Project K-Nect” in a school in North Carolina where test scores in math were well below the national average. Through the initiative, 9th grade students were given smartphones equipped with the Internet that they could use throughout the school day to find information they needed, find additional instructions, as well as collaborate with their peers. After one year, students who were given the phones saw an increase of 30% on their standardized test performance. Peggy Johnson, the executive vice president of Qualcomm Incorporated said about the initiative, “Essentially the walls of the classroom came down and they were able to share ideas throughout the day” (p. 3).
Since 2006, the Wireless Reach Initiative has provided smart phones to disadvantaged communities totaling 73 programs in 31 cities nationally and around the world (Freeman, 2012). Companies like Qualcomm understand that digital literacy is an essential tool to achieve success in the 21st century workforce and life after high school.

How Teachers Can Use Cell Phones in the Classroom

Opening up cell phones as educational tools does not only help engage students but it comes with an arsenal of features and tools traditional educational resources lack. A main component of M-learning is the convenience brought by the portability of the cell phone. In an abstract titled “Modern Educational Technology: Educational Usages of Cell Phone as Perceived by Students of Education Faculties,” Tishreen University’s Ali Moneer Harba (2012) lays out the potential uses of cell phones in and out of the classroom. Harba administered a student questionnaire in two Syrian universities, asking how students were using their cell phones for educational purposes. He first describes the various benefits of cell phones, touting the fact that they are more convenient and provide better connectivity than traditional educational formats. Examples of benefits include easy access to learning materials, options to study when you want, where you want, access to immediate feedback through various reports and analytics, access to online materials, and aide in the scheduling of meetings and study groups between members of their class (2012).

He then continues to cite other researchers who have conducted similar surveys of how students are actually using their mobile devices (Harba, 2012). This type of
research would be beneficial to any educational institution to help them decide whether an M-Learning type of system would benefit their own student body. Harba hypothesizes that 1) the student body used cell phones to acquire knowledge, and 2) they have used the internet in conjunction with their cell phones for educational purposes. The results of his study found that there are six main ways in which students used their cell phones to promote their education;

1. keeping and maintaining a schedule (45.65%)
2. exchanging information with classmates (41.84%)
3. advancing new technology skills (41.3%)
4. using the internet to search for information related to their area of study (40.76%)
5. learning cultural information (39.67%)
6. translation tools (39.13%) (Harba, 2012).

Liz Kolb (2011) provides more examples of potential, in-house uses for cell phones in the classroom in her article “Adventures with Cell Phones” many of which involve using free apps to download on the devices brought in by students. Poll Everywhere is an app where teachers can ask students their opinions on certain topics related to their content and get feedback from an entire class within seconds with students texting in their responses. Teachers can then ask students to text more detailed responses that will appear on the classroom whiteboard, exposing students to other viewpoints. These informal responses are anonymous so students can feel comfortable expressing their honest opinions.
Podcasts, pre-recorded audio files that can be downloaded and listened to, are another great tool for personal devices in the classroom. For example instead of assigning a written essay, students can create reports in the form of a podcast that can then be downloaded and listened to by the rest of the class. These audio files can then be developed and sent via email to the teacher to listen to later. In addition to podcasts, students can use their smart phone’s cameras to take pictures of barcodes provided by their teacher, sending them to links of articles, videos, audio recordings and more. Responses to such media can then be instant messaged to the class blog or the teacher’s protected Google account for further review. Kolb goes on to lay out potential activities involving student cell phones for oral quizzes, mobile geotagging, creation of digital storybooks, aids in student organization, photo projects, various classroom response systems, and general information gathering.

Kolb then summarizes the benefits and potential outcomes of incorporating cell phones into the classroom as a learning tool (2011).

1. Incorporating cell phones into learning means using such technology-based activities outside of the classroom, allowing more class time to focus on learning content, and freeing up valuable classroom time.
2. Permitting students to bring technology that they have already purchased saves school districts from spending money on expensive hardware and software.
3. Engagement increases if students are encouraged to use the tools that are familiar to them.
4. Technology makes learning more convenient, allowing students to learn anytime, anywhere, from any source, and at their own pace.
5. Teaching using cell phones gives teachers the opportunity to prepare students for 21\textsuperscript{st} century jobs.

6. Students are exposed to lessons regarding Internet safety and mobile etiquette.

7. Mobile phones give more accessibility to students who are visually or hearing impaired. Apps such as Dial2Do give students who are visually impaired a speech-to-text application to achieve communications such as email, responding to blog posts, reminders, scheduling and more. Podcasts are another useful tool for the visually impaired to listen to important content instead of relying on braille translations. Dial2Do also provides text-messaging features in lieu of activities that require oral communication and Google Voice to create transcripts of voice-mail messages.

**The Importance of Cell Phone Etiquette and Safety**

In addition to using personal cell phones as educational tools that promote actual academic content, the social element of cell phone use is widely ignored. With cell phones progressively becoming almost necessary to function in the 21\textsuperscript{st} century job market, cell phone etiquette is something very few students actually discuss formally. Kolb addresses this as a potential concern with inviting cell phones into the classroom but encourages it as a learning opportunity. “It is important to talk with students about cell phone etiquette inside and outside of school. Our students need to understand when it is appropriate and when it is not appropriate to use cell phones,” (Kolb, 2008, p.14). She goes on to explain that certain informal jargon such as LOL, ROFL, and OMG may not be acceptable in the professional work place. When to and not to take a
phone call is another example of important cell phone etiquette that students should discuss. These are lessons that are not addressed in school but would be beneficial to learn before a student submits their first application.

Social norms around cell phone use and digital safety are also rarely discussed in today’s typical classroom. Unfortunately, very few students consider protecting their own privacy or the privacy of others when online (Kolb, 2008). For example, only 45% of students care about whether the material they get online is copyrighted and only 25% of students consider safety as a cost of concern when using the Internet. With Web 2.0 tools like blogging, Facebook, Instagram, MySpace, and YouTube being used by students on a daily basis, there is very little time taken to teach students the difference between private and public spaces online. Topics like signing up for accounts, appropriate information for a profile, what kinds of media can be published and where, changing default settings to ensure privacy, as well as how and when to communicate with others safely are all topics to which too few students are exposed (p. 16). By allowing cell phones to be used in the classroom, this gives the classroom teacher the opportunity to open these conversations with students, whose parents may be grateful for such a topic being discussed with their child.

Instead of spending time and effort on banning these devices from our classrooms, today’s educators should be finding ways to integrate them as communication, data collection, and knowledge construction tools at the same time teaching our youth about the importance of digital safety both socially and professionally. According to Kolb, only one-third of parents have actually seen their children’s MySpace page and fewer than that monitor it regularly. Digital etiquette and
safety is not limited to cell phones but incorporating these lessons into the classroom
would be much appreciated by the parents of our digitally-driven students.

**Inevitable Abuses and How to Thwart Them**

Opening the door to allowing students to bring and use their cell phone in a
classroom setting proposes a whole new set of challenges to the teacher. With such a
powerful and fun tool at their desk how does one keep students’ attention on the lesson
instead of on their screen? With phones becoming equipped with powerful cameras and
social media looming over all, how can student privacy be ensured in school? How can
these devices be controlled?

In short, it all starts with the classroom teacher taking charge. Liz Kolb (2008)
outlines in her book *Toys to Tools; Connecting Student Cell Phones to Education* ways
in which cell phones can be managed in the classroom by first insisting that the teacher
be the one to insist on when students can and cannot use their phones. The classroom
teacher can collect all phones in the beginning of class and then pass them out to
his/her students when it is time to use them. She reminds the reader that any tool can
become a distraction to a listless student and that even a pencil and paper can be used
to doodle or pass notes. It all comes down to how the teacher manages such
distraction.

Another strategy is to first establish a social contract with the students (2008).
Have a discussion with the class on when, how, why, and where cell phones can be
used in the classroom in order to establish a positive, digital community. Establish these
rules and then come up with consequences for if these rules are broken. If this social
contract is written with student input, they (the students) will be more likely to adhere to
the rules they helped enact (p. 21). Below is an excerpt taken from Kolb’s website,
“From Toy to Tool; Cell Phones in Learning” where much of her data on the subject is
available to the public. This particular blog outlines an example of what a student-
created, digital contract could sound like:

“We recognize that our cell phones can be tools to help us learn and
extend learning to the real world.

We can use our cell phones in school to connect our learning to the real
world, to gather information, to participate in assessments, to collaborate
with classmates on projects, and to communicate with our teacher.

We recognize that our teacher is open to talking with us about our cell
phone use at anytime and that our classroom is a safe space to have
these discussions.

We recognize that our cell phones can distract from our learning and will
avoid this distraction by adhering to the classroom rules by placing our cell
phones in their pocket holders when not being used for learning. Also, by
using the devices efficiently and to stay on the learning task.

We recognize that conversation is important to learning and we can have
conversations on our tools in class that have to do with our learning goals
and objectives, and not on topics that distract from those goals.

We recognize that our cell phones have the power to lift people up, as well
as put people down. We will use our cell phones to help create positive
digital footprints and a positive mental health for all our classmates.”

- Kolb, Aug. 18, 2017
  http://cellphonesinlearning.blogspot.com/

As you can see, the contract closes as many loopholes allowing students to
misuse their technology all the while keeping the idea of positive, digital interactions as
a central pillar to the program. Remind students that the technology is a privilege and
that there will be clear consequences for abusing that privilege. Kolb insist that this
contract not only stop at the classroom door and strongly suggests making sure students get parent permission to use their cell phone in class before taking it on a classroom tool (2008). Share the permission slip with the building principal as well as the district technology coordinator to make sure all issues are addressed (p. 17).

Logistical Obstacles of a BYOD Program

Allowing students to bring in their own cell phones into a classroom setting is not something that can be implemented without careful planning. There are many financial, analytical, and security elements that need to be carefully thought through before inviting young adults to connect with the outside cyber community. In a report titled “Latest Trend in EdTech – BYOD; Bringing Control, Analytics, and Feedback to the Classroom”, Sean Peasgood (2014) cautions that the multitude of different devices and apps kids use all need to be monitored and controlled under the same platform by the teacher. He recommends software developed by EXO U, which has been developed specifically to address such issues within educational institutions.

The article fleshes out the many benefits of a BYOD program, such as high levels of student engagement, increased tech savviness, collaboration between students, and not requiring students to learn school-appointed technology that may not be as powerful as the technology they already own (Peasgood, 2014). In fact, many school districts across the country that have adopted BYOD policies do so typically after investing in hardware to give to students, only to find that the benefits did not out-weight the initial investment (2015). Allowing students to bring in their own technology gives
students ownership in their education as well as taking better care of expensive devices purchased by themselves or by their parents.

Peasgood (2014) realizes, however, the major red flag in a BYOD program is adequately supporting the variety of devices flooding into a school district. This can potentially be a technological nightmare for IT departments and Help Desks. Peasgood explains, “IT departments have to add another dimension to the different operating systems and hundreds of different BYOD devices; the hundreds of thousands of downloadable apps, (p. 6). These apps have the ability to hide malware and provide a serious danger to a system filled with personal information on our students. There must be management tools in place to minimize such a threat. However, software systems to thwart the potential onslaught of malware and viruses are expensive and out of reach for the average public school. Peasgood proposes that educational institutions control a BYOD program by use of good classroom management and learning analytics, providing inexpensive or free tools and software suggestions that will aid in a teacher’s ability to control all devices introduced into their classroom. He suggests allowing the teacher to use a tablet or device equipped with learning analytic surveillance software to monitor all online activities on students’ screens.

Software developed by EXO U is reported to safely handle all device content and information, allowing students to communicate freely. This software is capable of handling all kinds of devices that students bring and across all types of operating systems (Peasgood, 2014). Regardless of whether students use an Android or iPhone, EXO U’s platform has been built to facilitate them all. This platform can utilize current hardware in the classroom such as SMART boards and projection screens as well as
provide teachers with classroom management features. I am confident that with the right kind of software that protects the information of our students and allow teachers to be in control of the technology inside their classrooms, more school systems would be willing and eager to try a BYOD program in their learning communities.

**Breaking the Rules, Trust, and Respect**

We now know that the software to handle student provided smart phones in the classroom exists, giving teachers and administrators the control to manage such an endeavor safely and responsibly. Let us now look into student’s relationship with technology at a more personal level. Today’s learners are exposed to an immense amount of technology. From kiosks at restaurants, to social media, to the latest and greatest apps, they have spent their entire lives learning about the world and getting information from some form of technology. Most of this is delivered to them in the form of a personal device, smart phone, or tablet. Today’s learners see these as lifelines to the world but most school districts see these tools as constant problems. Cell phones are banned from classrooms all across the country in order to keep the peace in their schools and minds focused on what is in the textbook. Prensky describes this action as such:

“They are told, typically in no uncertain terms, that in school – the place they come to supposedly learn about the world – they are *not allowed* to use their powerful tools—their cell phones, their computers, the open Internet—the lifelines they have learned to employ so fluently to remain in and thrive in the light of their lives.”

(Prensky, 2012, p. 59)
Even though many educational institutions have set rules in place, banning smart phones from entering the classroom, a large amount of rule-breaking and side-stepping of these rules still occurs. In her article published in *American Secondary Education* titled “Cell Phones: Rule-Setting, Rule-Breaking, and Relationships in Classrooms” author Anita Charles, Ph.D. illustrates the point that many educators who see the value in allowing their students to use their devices for educational purposes are doing so even though their district dictates the contrary (Charles, 2012). This cannot come without first laying very crucial groundwork ahead of time, however.

Through a study of three English teachers and their classrooms, Charles sees smart phones as powerful tools for our students to use and learn with but insists that the classroom environment be just right before allowing such rules to be broken (2012). There must be concrete democratic relationships of trust and respect between the teacher and his/her students as well as the same relationship between students themselves. Once these foundations of trust and respect have been established, a certain level of negotiation can begin to open up between student and teacher. Through the study, Charles found that there was a wide disconnect between what the school’s policy was in regard to personal technology and what the students interpreted those rules to look like. For example, one school’s policy banned all cell phones in the building but the students found that the teachers of the building rarely enforced this rule at lunch time. Another teacher described cell phone use in the hallway as “a gray area… a management issue” (p. 7). The study found that many students found ways to work around the system, slipping text messages here and there during specific times of the day when these rules were not as enforceable or not as disruptive.
So what is it going to take to ensure that every student follows these institutionalized rules? Many students in the study admitted that they were fully aware of the consequences of their actions but did not care (2012). In addition to the risk of getting detention, these students did hold themselves to a certain standard of common sense when it came to when to and when not to use their cell phone. This level of student-led self-regulation was seen by the students as a way of following the rules set by the school. The teachers in the study did express their frustrations with some students' attitudes toward the ban with one participant saying, "I think there will always be abuses. What you have to make clear is where your standards are, that you recognize that this is a tool that can help them with the talk you have at hand, and there are parameters where you can use that" (p. 10).

There needs to be a certain level of negotiation with students and setting of clear boundaries when it comes to personal technology (2012). Charles states clearly "rules are only as good as their enforcement, but the enforcement hinges primarily on relational trust" (p. 11). Certain levels of trust must be given from the educators but students must also respect the boundaries of the classroom. Like all elements of a classroom environment, teachers but take on the challenge of setting clear expectations, reminding students of the expectation, and following through with consequences if they are not met. If a student breaks the trust given to them by the teacher, the teacher should be the one to assign the appropriate consequence based on a break in the established relationship, not the rule of the school. Charles summarizes the lessons learned in her study with three basic tenants to win the battle over student-owned devices (p. 15):
1. Assist students to gain clear understanding of when and how cell phones might be appropriate or inappropriate.

2. Incorporate new media into pedagogical practices through mobile technologies.

3. Develop meta-awareness of discourse use (that is helping students develop a sense of negotiation of boundaries inside the various communities within their lives.)

**Importance of Contemporary Art**

With an initiative as new as B.Y.O.D. it demands a certain level of technological savviness on the side of the teacher. Knowing how various apps and technology work and being able to adapt to new and improved versions of what was used before is a necessity. The same can be said about the actual content in which these new tools are being used to present. With pencils and textbooks being upgraded to smart phones and the open Internet, then too should our curricula reflect more of a contemporary approach to art education.

In her article “Postmodern Principles: In Search of a 21st Century Art Education” author and Coordinator of Art Education at the University of Illinois at Chicago, Olivia Gude lays a case for the importance of updating our approach to art education by scaling back on what tradition has dictated in the past. Gude finds the all too common Elements and Principals of Art (what she calls the “7 + 7” approach) put too much of an emphasis on Western conceptions of what art is, casting a very narrow net (2004). As art educators we need not focus so much of our efforts on teaching our students skills
deemed appropriate and necessary by educators who taught 100 years ago. “We owe it to our field and our students to study the art of our times and to being, as Dow did, with probing questions and far-reaching goal” (p. 8). Gude strives to teach her students what they need to know to better understand the art of their world now, not that of cannon that came before us. She describes a quality art education as one that reflects the times and culture of the society that students are living in now. She envisions art as investigation, as seeing and understanding the art of others and other cultures in order to see their own art as research and gain significant conceptual insights.

Collectively, Gude has created eight important postmodern art making practices that are hybrids of both the visual and the conceptual (2004). They include appropriation, juxtaposition, recontextualization, layering, interaction of text and image, hybridity, gazing, and representin’. These are not intended to replace the traditional “7 + 7” approach to art education, but to establish a new common vocabulary that describe practices that appear more and more in artwork created by our youth. Contemporary art brings an increased level of appropriation in which many students are using images printed directly from the Internet or from another printed source. In a world flooded with disposable images, they are destined to begin appearing in the artwork in the time in which it was created. These cheap images are then composed with a certain level of juxtaposition used to compare and contrast each one either visually or conceptually or both. This juxtaposition of images then leads to recontextualization of each individual element in order to portray what the artist is saying. With so many images available to our young artists, a certain amount of layering is used where printed images are literally piled on top of each other achieving higher levels of complexity to reflect the
unconscious mind a la the Surrealist movement. Students also explore the convenient or disjointed interaction of text and images, exploring the possibilities of interesting verbal and visual relationships instead of relying on literal connections between them. An element of hybridity in both media selection as well as mixing of various cultural elements can also be found in student work. As contemporary work begins to evolve, the idea of gazing becomes more evident. It is increasingly becoming more important to keep in mind “who is being looked at and who is doing the looking” (p. 11). Finally as youth strive to create art that displays their passions and personal characteristics, displaying one’s own identity and affiliations, or representin’, (taken from U.S. urban street slang) is a way for students to find their own artistic voice.

Gude’s intentions in creating this new list of postmodern principles is not to simply replace the old “7 + 7” approach to the elements and principles (2004). Instead she proposes that today’s educators step back and reflect on the idea that art and one’s approach to teaching art can be a combination of different systems. “It can be frustrating and disconcerting to lose the certainty of an earlier time, but I do not think that it is wise to prematurely smooth away these ambiguities and create a 21st century orthodoxy” (p. 12-13). The article is a stark reminder that there is no one grand way to do something. However, to cling to a narrow-thinking approach to art education with a set of unyielding and ever powerful elements and principals no longer reflects the postmodern society in which we live.
How Contemporary Tools Connect to Contemporary Art

With these postmodern elements of art in mind, we can take Gude’s theory of adaptability to time and culture by using tools that do just that. We need classrooms that reflect the culture and society in which are students live, not those that worked for us when we were in school. Today’s classrooms need to adopt a procedure for creating art that involves deep investigation into the community around them as well as cultures from around the globe, and that begins with including more contemporary art in our classrooms. With youth that have grown up in the digital age, connectivity and communication are paramount and are getting increasingly easier to achieve with the right tools and savvy.

This idea is being addressed and studied in contemporary art museums through teen media programs. In an article written for the Journal of Museum Education, Ryan Hill and Joe Douiillette outline the findings from such a program through the Hirshhorn Museum and the Institute of Contemporary Art Boston (Hill, 2014). The article titled “Teens, New Media and Contemporary Art: Expanding Authority in the Museum Context” defines today’s use of technology in museums but similar ideas could be directly applied to the art classroom.

Teens who are constantly submerged in popular culture (much of which is delivered to them via smart phones) have particularly easy access to contemporary art (2014). This makes interactions with contemporary art museums important and that experience is being shaped by the Internet. Teens, these digital natives, live in an increasingly digitally responsive world, which means that they yearn for more control over how they learn. Technology can provide museums with the chance to be more
than just an authoritative institution. With a new audience bringing a whole new learning style, the ICA Boston and Hirshhorn Museum have developed teen programs called The Teen New Media Program and ARTLAB+ respectively. Both programs have teens create and present new works of art in their facilities during gatherings called “teen nights”. These programs have been created in response to teens, giving these museums a chance to learn from these digital natives and responding to technological trends accordingly.

This bottom-up approach to art education is exactly what is needed in our classrooms today. A teen participant in the 2013 ICA National Convening for Teens in the Arts reflected on the power of the Internet to attract a teen audience. He explains “the Internet is more accessible to teens than art is” (Hill, 2014, p. 252). Previously intimidated by the institution of a contemporary art museum, he felt more confident about visiting one of these museums because he was able to access their collection online. It was his fluency in the digital world and know-how to navigate the Internet that allowed him to feel comfortable in an area of study from which he previously felt excluded.

The study continues to describe these teen-driven programs by emphasizing the importance of inviting visitors of the museum into the artistic process (2014). Realizing the level of comfort in digital media, the programs outlined in the study focus on these types of processes for creating art with youth, embracing their role as digital media artists. This idea was modeled off of a pedagogy by the MacArthur Foundation called “Hanging Out, Messing Around, and Geeking Out,” or HOMAGO. The pedagogy describes the way in which teens learn through interactions with new technologies and
social media, validating informal practices currently used by many museums and artists. The practice describes how at times in the creative process artists may be engaging and collaborating with others, where other times they are more inactive. “Similarly, the theory of HOMAGO is not a linear progression but an interplay of modes of engagement that youth have with technology” (p. 253).

Teen programs like ARTLAB+ are credited for providing a gateway for youth who are passionate about new technology, opening up new opportunities for our students outside of the classroom (2014). Through networking and presenting personal artwork, the participants in the program have learned not just how to use technology to create art but how to achieve professional relationships. The process has even taught students to understand the difference between their many identities and personas depending on their current social context. For example, through the interactions with the museum, the students learned how difficult it was to maintain both a personal and professional representations of themselves on the Internet. The report reads,

Participants agreed universally that the virtual relationship to their institution has helped them develop “appropriate” professional identities, provide a “positive forum” to share their work, and facilitate connection to their peer and alumni networks. Many said they appreciated the opportunity to blog and share opinions in online forums as representatives of their institutions. (p. 258)

Learning from the experiences described by these museums, listening and responding to today’s youth on the ways in which they learn best and allowing them to use the tools in which they are most comfortable using has great benefits. Allowing 21st century learners to use contemporary tools connects our students to the modern world, gives a deeper, richer understanding of contemporary art, as well as provides valuable
professional networking skills that you just cannot learn from a classroom devoid of this technology.

Summary

It is clear that technology is changing the face of education compared to what it was even 10 years ago. With the advent of smart phones, faster Internet speeds, countless new apps being developed every day, and new modes of connectivity, it is only natural for our youth to be engaged in the online world. Establishments outside the world of K-12 education such as museums, public libraries, and universities are adopting new programs like M-learning to allow members to use the technology in their pockets to bolster their service to their communities. Philanthropic agencies have identified the good smart phones can do and have distributed them for the academic well-being of students who would normally not be connected to the countless amount of online resources available.

The applications for smart phone inclusion in the classroom are only as limited as the imagination of the teacher in charge. From podcast creation, to stop-motion animation, blogging, photography, digital classrooms and more, the portability and convenience of having these tools in the pockets of our students gives smart phones a clear edge over district provided technology such as tablets or laptops. With these tools comes the challenge of management. Developers are creating software that can help a district manage the many different types of devices sharing one network. No amount of software, though, can stop a student from turning this tool into a constant source of
distraction however, so it is up to the teacher to set strict rules about technology’s role in his/her domain. It is ultimately such because studies have shown that there is still a large body of teachers who have seen the potential of the smart phone first-hand and are willing to break their district policy. They are willing to allow their students to use the technology that has been a source of information and engagement through most of their lives whether they own a smart phone or not. That is only after a period of democratic negotiations with clear regulations and consequences that are created together as a class instead of being imposed by the teacher.

With the evolution of the tools students are using to learn best, teachers must be willing to adapt their curricula to fit the needs of the 21st century student. Therefore, art education itself must reflect the contemporary art that is influencing society today. With smart tools that have the power to connect students to active museum exhibits in real time, bringing the vision and creativity of today’s most relevant and influential contemporary artists into the classroom setting is possible. With learning about professional artists shaping the art world, students can then use the knowledge they gleaned from such connectivity and apply it to their own form of expression. Programs like HOMAGO have proven that art is shaped around the influences of social media, YouTube, and collaboration with others.

As challenging as it may be, educators must become comfortable with the fact that the profession is changing at a rapid pace. We can all agree that if today’s teachers want to continue to teach the content they are tasked with conveying to our youth, they must adapt to the ways in which our youth learn best. Technology is becoming more and more ingrained within the fabric of society and to embrace its potential as a useful
life tool everywhere else but the classroom is to exclude a valuable source of power from the hands of students. The road to a successful inclusion of student provided technology is not an easy one. It requires a necessary system of management that our country’s teachers will have to take the time to learn. It requires clear expectations and discipline on behalf of the teacher to maintain a safe, online community. Most of all, it requires a strong relationship bound together by trust between student and teacher.

Smart phones are not a magic fix for today’s schools and there is still much skepticism and even fear around the idea of students having such powerful tools. More research is needed to gauge how ready today’s classroom teachers are to accept the idea of students bringing in their smart phones for an added educational advantage. How comfortable are they with such technology themselves? Could they manage their classrooms in a way that is safe and productive? What are their experiences with student provided technology at this point in their careers? Like the teachers described by Kolb, are they willing to break district rules to allow their students the opportunities technology can bring? Do they believe that smart phones in their classrooms can truly be managed and are they willing to try to make it happen for their students?

RESEARCH DESIGN

In order to establish the level of acceptability of student provided smart phones in a classroom setting, research was conducted by means of a survey through the online
data collector, Survey Monkey. Participants for the survey were found through two different means. The first was through a national art teacher group on Facebook. A link to the survey was placed on the group’s wall, inviting its more than 15,000 members throughout the United States to participate. The second means of participant collection was by distributing the survey link via email to the members of the Michigan Arts Education Association. This survey was voluntary and collected 105 results.

Researchers were interested to discern to what extent teachers who interact with students everyday are comfortable with their students bringing their cell phones into their classrooms, what types of systems they have in place for handling difficult situations regarding the technology, and how they balance trust between their students and rules imposed by their school or district.

**Survey Questions**

The language of the survey read as such;

1. What grade level do you teach? (select all that apply)
   a. Elementary School (K-5)
   b. Middle School (6-8)
   c. High School (9-12)

2. How many years have you taught?
   a. 1 – 5 years
   b. 6 – 10 years
   c. 11 – 15 years
d. 16 – 20 years
e. 21+ years

3. Do you own a smart phone (a device capable of email access, instant messaging, access to the Internet, etc.)?
   a. Yes
   b. No

4. If you own a smart phone, do you use it in any capacity to help you at school (email, information acquisition, music, documentation, scheduling etc.)? If so, please indicate how.
   a. I do not own a smart phone.
   b. I own a smart phone but it does not help me at school
   c. Yes, I use my smart phone to help me at school

The following series of questions asked participants to acknowledge their level of agreement to the following statements by indicating “strongly disagree”, “disagree”, “neutral”, “agree”, or “strongly agree”.

5. Please answer the degree in which you agree to the following opinions regarding student cell phone use in your classroom by checking the corresponding box.
   a. Cell phones are a distraction in my classroom.
   b. Cell phones pose a threat to student learning.
   c. Cell phones pose a threat to student health (physical, mental, and/or emotional)
   d. Cell phones are difficult to manage in my classroom.
e. With proper management strategies (rules and consequences for
abusers), cell phones have the potential to be a learning tool.

f. My students would benefit from a discussion on Internet safety/privacy.

g. My students would benefit from a discussion on cell phone
etiquette/professionalism.

h. I would be interested in professional development on ways of
incorporating student cell phones into my classroom.

i. Knowing how to use a cell phone in a professional setting would benefit
students for life after high school.

j. I wish my school/district would adopt a B.Y.O.D. (bring your own device)
policy.

6. Does your school/district allow smart phones to be used in the school building?
   a. No, smart phones are not allowed.
   b. No, smart phones are not allowed but I allow my students to use them
      anyway. (Please indicate how below)
   c. Yes, smart phones are allowed but I do not allow them in my classroom.
   d. Yes, smart phones are permitted and I allow my students to use them.
      (Please indicate how below)
   e. I am unsure of my district/school stance on student smart phones.

The final question of the survey invited participants to give any additional opinions
regarding student provided technology in the classroom that were not addressed in the
survey.
7. If you have any additional opinions regarding BYOD (bring your own device) programs or permitting students to use their smart phones in an educational setting, please give them below.

Participants were also given the opportunity to be contacted after the research had been analyzed to see the results of the survey in which they participated.

8. If you would like to be contacted after the data for this survey is analyzed in order to learn more about how teachers feel about smart phone use in the classroom, please leave your information below. You will be given a copy of the research behind this survey as well as the results. Your personal information will not be used for any other purposes other than delivery of the study results. You are not required to leave your contact information to be a part of this study.

DATA RESULTS

Grade Level Taught

The following data was collected from 105 survey responses from art teachers across the United States. Out of 105 responses, 33 participants teach elementary school (32.34%), 41 participants teach middle school (40.20%), and 52 participants teach high school (50.98%) (Figure 1).
Years of Experience

Out of 105 responses, most (38.09%) came from teachers who have been in the classroom for 21 years or more. The next most represented group (20.00%) were teachers who had been in the classroom for five years or fewer. Participation was equally split among those who have taught between 11 and 15 years (15.24%), and those who have taught between 16 and 20 years (15.24%). Teachers with 6 to 10 years of experience comprised the fewest participants (11.43%) (Figure 2).
Ownership of Smart Device

The vast majority, 97.14% of participants claimed to own a smart device capable of email access, instant messaging, access to the Internet, etc. with only 3 participants claiming they do not own such a device (Figure 3). In comparison to national trends, 91% of Americans with a college degree own a smartphone with 6% owning a cell phone but not a smartphone (Pew Research Center, 2019).
Use of Smart Device for Professional Applications

Regarding participants use of their phone during the school day, 70.19% of participants claim to use their smart phone to some capacity in school for school related business such as email, information acquisition, music, documentation, scheduling, among other uses. 26.92% of participants reported to own a smart phone but do not use it at school. Only 2.88% of participants restated that they do not own a smart phone.
**Personal Stance on Cell Phones in the Classroom**

Question 5 of the survey dove into the degree in which each participant agreed to a series of statements regarding smart phones in the classroom and acceptable use of the Internet. Because of the wide range of student age groups (elementary, middle, and high school) cell phone use in of these settings would range significantly. Most elementary school level children do not own a smart phone so the issue of student provided technology would be significantly different from the viewpoint of the elementary school teacher versus that of the middle and high school teacher. Because of this, the responses for Question 5 will be filtered by what the
element participant indicated in Question 1. Responses for these questions will be further analyzed in the following section.

**Elementary School Teachers**

Please answer the degree in which you agree to the following opinions regarding student cell phone use in your classroom by checking the corresponding box.

![Bar chart showing responses to opinions on student-provided smart phones](chart.png)

*Figure 5. Elementary Opinion on Student Provided Smart Phones*
Table 1. Elementary Opinion on Student Provided Smart Phones

<table>
<thead>
<tr>
<th></th>
<th>STRONGLY DISAGREE</th>
<th>DISAGREE</th>
<th>NEUTRAL</th>
<th>AGREE</th>
<th>STRONGLY AGREE</th>
<th>TOTAL</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phones are a distraction in my classroom.</td>
<td>15.63%</td>
<td>15.63%</td>
<td>18.75%</td>
<td>25.00%</td>
<td>25.00%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student learning.</td>
<td>9.38%</td>
<td>18.75%</td>
<td>31.25%</td>
<td>31.25%</td>
<td>9.38%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student health</td>
<td>3.13%</td>
<td>18.75%</td>
<td>31.25%</td>
<td>34.38%</td>
<td>12.50%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>(physical, mental, and/or emotional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phones are difficult to manage in my classroom.</td>
<td>18.75%</td>
<td>28.13%</td>
<td>18.75%</td>
<td>18.75%</td>
<td>18.75%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>With proper management strategies (rules and consequences for</td>
<td>3.13%</td>
<td>3.13%</td>
<td>25.00%</td>
<td>53.13%</td>
<td>15.63%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>abusers), cell phones have the potential to be a learning tool.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My students would benefit from a discussion on Internet safety/</td>
<td>6.25%</td>
<td>9.38%</td>
<td>3.13%</td>
<td>25.00%</td>
<td>56.25%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>privacy.</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My students would benefit from a discussion on cell phone</td>
<td>3.13%</td>
<td>9.38%</td>
<td>3.13%</td>
<td>18.75%</td>
<td>65.63%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>etiquette/professionalism.</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be interested in professional development on ways of</td>
<td>12.50%</td>
<td>21.88%</td>
<td>15.63%</td>
<td>15.63%</td>
<td>34.38%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>incorporating student cell phones into my classroom.</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing how to use a cell phone in a professional setting</td>
<td>6.25%</td>
<td>0.00%</td>
<td>6.25%</td>
<td>34.38%</td>
<td>53.13%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>would benefit students for life after high school.</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>11</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I wish my school/district would adopt a B.Y.O.D. (bring your</td>
<td>25.00%</td>
<td>15.63%</td>
<td>31.25%</td>
<td>18.75%</td>
<td>9.38%</td>
<td>32</td>
<td>1.00</td>
</tr>
<tr>
<td>own device) policy.</td>
<td>8</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please answer the degree in which you agree to the following opinions regarding student cell phone use in your classroom by checking the corresponding box.

Answered: 40  Skipped: 1

Figure 6. Middle School Opinions on Student Provided Smart Phones
Table 2. Middle School Opinions on Student Provided Smart Phones

<table>
<thead>
<tr>
<th>Cell phones are a distraction in my classroom.</th>
<th>STRONGLY DISAGREE</th>
<th>DISAGREE</th>
<th>NEUTRAL</th>
<th>AGREE</th>
<th>STRONGLY AGREE</th>
<th>TOTAL</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.00%</td>
<td>20.00%</td>
<td>10.00%</td>
<td>35.00%</td>
<td>30.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student learning.</td>
<td>7.50%</td>
<td>12.50%</td>
<td>22.50%</td>
<td>40.00%</td>
<td>17.50%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student health (physical, mental, and/or emotional)</td>
<td>2.50%</td>
<td>17.50%</td>
<td>17.50%</td>
<td>37.50%</td>
<td>25.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones are difficult to manage in my classroom.</td>
<td>10.00%</td>
<td>35.00%</td>
<td>12.50%</td>
<td>12.50%</td>
<td>30.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>With proper management strategies (rules and consequences for abusers), cell phones have the potential to be a learning tool.</td>
<td>7.50%</td>
<td>12.50%</td>
<td>17.50%</td>
<td>40.00%</td>
<td>22.50%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>My students would benefit from a discussion on Internet safety/privacy.</td>
<td>5.00%</td>
<td>10.00%</td>
<td>5.00%</td>
<td>30.00%</td>
<td>50.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>My students would benefit from a discussion on cell phone etiquette/professionalism.</td>
<td>2.50%</td>
<td>7.50%</td>
<td>5.00%</td>
<td>20.00%</td>
<td>65.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>I would be interested in professional development on ways of incorporating student cell phones into my classroom.</td>
<td>17.50%</td>
<td>15.00%</td>
<td>22.50%</td>
<td>20.00%</td>
<td>25.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>Knowing how to use a cell phone in a professional setting would benefit students for life after high school.</td>
<td>2.50%</td>
<td>5.00%</td>
<td>5.00%</td>
<td>37.50%</td>
<td>50.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
<tr>
<td>I wish my school/district would adopt a B.Y.O.D. (bring your own device) policy.</td>
<td>30.00%</td>
<td>22.50%</td>
<td>25.00%</td>
<td>17.50%</td>
<td>5.00%</td>
<td>40</td>
<td>1.00</td>
</tr>
</tbody>
</table>
High School Teachers

Please answer the degree in which you agree to the following opinions regarding student cell phone use in your classroom by checking the corresponding box.

Answered: 52  Skipped: 0

![Bar Chart](chart.png)

**Figure 7.** High School Opinion on Student Provided Smart Phones
Table 3. High School Opinions on Student Provided Smart Phones

<table>
<thead>
<tr>
<th>Option</th>
<th>STRONGLY DISAGREE</th>
<th>DISAGREE</th>
<th>NEUTRAL</th>
<th>AGREED</th>
<th>STRONGLY AGREE</th>
<th>TOTAL</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phones are a distraction in my classroom.</td>
<td>0.00%</td>
<td>9.62%</td>
<td>15.38%</td>
<td>30.77%</td>
<td>44.23%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student learning.</td>
<td>0.00%</td>
<td>19.23%</td>
<td>15.38%</td>
<td>32.69%</td>
<td>32.69%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones pose a threat to student health (physical, mental, and/or emotional)</td>
<td>1.92%</td>
<td>19.23%</td>
<td>19.23%</td>
<td>25.00%</td>
<td>34.62%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>Cell phones are difficult to manage in my classroom.</td>
<td>5.77%</td>
<td>26.92%</td>
<td>13.46%</td>
<td>25.00%</td>
<td>28.85%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>With proper management strategies (rules and consequences for abusers), cell phones have the potential to be a learning tool.</td>
<td>1.92%</td>
<td>5.77%</td>
<td>9.62%</td>
<td>13.46%</td>
<td>25.00%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>My students would benefit from a discussion on Internet safety/privacy</td>
<td>1.96%</td>
<td>7.64%</td>
<td>25.49%</td>
<td>35.29%</td>
<td>29.41%</td>
<td>51</td>
<td>1.00</td>
</tr>
<tr>
<td>My students would benefit from a discussion on cell phone etiquette/professionalism.</td>
<td>1.92%</td>
<td>3.85%</td>
<td>3.85%</td>
<td>38.46%</td>
<td>51.92%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>I would be interested in professional development on ways of incorporating student cell phones into my classroom.</td>
<td>1.92%</td>
<td>5.77%</td>
<td>7.69%</td>
<td>38.51%</td>
<td>32.69%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>Knowing how to use a cell phone in a professional setting would benefit students for life after high school.</td>
<td>1.92%</td>
<td>5.77%</td>
<td>7.69%</td>
<td>38.51%</td>
<td>32.69%</td>
<td>52</td>
<td>1.00</td>
</tr>
<tr>
<td>I wish my school/district would adopt a B.Y.O.D. (bring your own device) policy.</td>
<td>17.31%</td>
<td>19.23%</td>
<td>26.54%</td>
<td>19.23%</td>
<td>7.69%</td>
<td>52</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Regarding a teacher’s willingness to allow personal technology in their classrooms, out of 104 responses, 35.58% of participants reported that their school/district does not allow smart
phones to be used in school, 13.46% claim that they allow their students to use their smart phones even if their district does not allow them, 13.46% report that smart phones are allowed in their school but they do not allow them in their classroom, 32.69% report that their school allows smart phones and they allow them in their classroom as well, and 4.81% of participants report that they are unsure of their district/school policy as it regards smart phones (Figure 8).

Figure 8. Permission of Smart Phones in the Classroom
ANALYSIS OF DATA

Out of all responses collected, the majority came from those teaching either middle school (40.20%) or high school (50.98%) (Figure 1). Only 32.35% of responses came from elementary school teachers. Because participation in the survey was voluntary, perhaps the lack of participation from the elementary school population of teachers is due to their disconnect from the topic in general. As state above, because the vast majority of elementary school age children are too young to own smart devices, the opportunity to participate in a student provided technology survey would seem unnecessary to an elementary school teacher however welcomed it was by the researcher.

A large percentage of participants (38.10%) have taught more than 20 years according to the data collected (Figure 2). Such a high number of participants have a significant amount of experience in the field of education and have had many opportunities to grapple with their views on student-provided technology. The next largest group of participants were new teachers with less than 6 years of teaching experience. The remaining group of participants fell in between these ranges of experience teaching between 6 and 20 years.

Because of the relevancy of students’ use of smart phones in their classrooms, the author found it important to establish if the teacher owns similar technology. It was no surprise that 97.14% of participants themselves owned a smart device (Figure 3).
However the range in which these teachers used their smart devices in a school setting was a bit more varied. Out of the 103 participants that claimed to own a smart phone, 26.92% said that they do not use their smart phone in any capacity in a professional setting but 70.19% did in order to send email, get information from the Internet, play music in their classroom, uses for documentation, scheduling, or other functions (Figure 4).

Question 5 was a fragmented question, meant to gauge the participant’s level of comfort and acceptability of smart devices in the hands of their students. As state above, the tables presented have been filtered into three separate collections of data based on the teacher’s grade level position. This was done on behalf of the researcher to compare and contrast the level of acceptability of student provided smart phones between the elementary, middle, and high school classroom. This data was also separated to compare the responses of those with the least amount of teaching experience to those with the greatest amount of teaching experience.

These questions came down to opinion so some responses did not show significant trends while others were more one-sided. Participants were asked to state whether they strongly disagree, disagree, feel neutral about, agree, or strongly agree to the ten statements listed in the question.
In the elementary school division, the 32 teachers that were polled had very different levels of agreement on whether smart phones are a distraction in their classrooms, with less than a 5% split of levels of agreement between them (Figure 5 or Table 1). Nearly 40% of elementary teachers either agree or strongly agree that smart phones pose a threat to student learning with similar numbers of teachers feeling that they pose a threat to student health. As far as management of such devices in their classrooms, the participants are relatively split with the majority being 28.31% of elementary school teachers disagreeing with the statement “Cell phones are difficult to manage in my classroom” and 18% strongly disagreeing.

However split in the first four statements, 68% of participants either agree or strongly agree that with proper management strategies (rules and consequences for abusers), cell phones have the potential to be a learning tool with only 2 participants...
saying they have no place in the classroom, period (Figure 5 or Table 1). It is also no surprise that 81% of participants either agree or strongly agree that their students would benefit from a discussion of Internet safety/privacy and 84% stating they would benefit from a discussion on cell phone etiquette/professionalism.

Moving forward with their educational career, 50% of elementary school teachers stated they would be interested in additional training or professional development regarding student provided cell phones in their classroom (Table 1). A staggering 87% of participants also either agreed or strongly agreed that knowing own to use a cell phone in a professional setting would benefit students for life after high school. As far as school districts adopting a B.Y.O.D. (bring your own device) in their schools, 40% of participants feel it is a bad idea, 28% agree with the idea with 31% not having an opinion either way.

Middle School Teacher Opinions of Student Provided Smart Phones

Out of a total of 105 responses, 40 participants claimed to have taught middle school (Figure 1). The viewpoints of these middle school teachers was much more critical of cell phone use in their classrooms compared with elementary school teachers, with 35% of participants agreeing and 30% strongly agreeing that cell phones are a distraction in their classroom (Figure 6). A total of 57.5% of participants feel that cell phones pose a threat to student learning as well as student health. However much these teacher believe that cell phones pose some kind of threat to their classroom environment, they seem to have just as much confidence in handling the presence of
such devices in the hands of their students. 45% of participants felt that cell phones are not difficult to manage in their classrooms. That’s compared to 47% of elementary school teachers who also feel they are not difficult to manage (Figure 9). With proper management systems involved though, 62% of participants agree that cell phones can be useful tools in the classroom with only 20% saying otherwise.

As far as having discussions with their students regarding their technology use, 80% of middle school teachers say their students would benefit from a conversation on Internet safety with slightly more agreeing or strongly agreeing that they could use a talk on cell phone etiquette and professionalism (Figure 6). These numbers are almost identical to those of elementary school teachers who wish the same conversations to be had with their students (Figure 9).

Regarding an interest in additional professional training or PD related to student provided technology, middle school teachers were evenly split in their opinion with no one side dominating the others. However 87% of participants do feel that their students would be better prepared for a life after high school if they knew how to use a cell phone professionally, again, comparable to elementary school teachers’ opinions (Figure 9). However eager these professional are to have their students know how to use cell phones professionally, they are still not willing to have their school or district adopt a B.Y.O.D. program with 30% strongly disagreeing with the idea and 22.5% disagreeing (Figure 6). This is a 12.5% increase for teachers who disagree with B.Y.O.D. compared to elementary school teachers. Only 5% of middle school teachers would like to see such a program adopted in their district.
High School Teacher Opinion of Student Provided Smart Phones

Of 105 responses, 52 participants claimed to have taught at a high school level (Figure 1). High school teachers were more opinionated than elementary school teachers regarding their feelings towards cell phones being a distraction in their classroom. Nearly 75% of high school teachers felt that cell phones are a distraction compared to only 50% of elementary school teachers (Figure 7). They also feel more strongly about cell phones having a potential harm toward students with 65% feeling they pose a threat to student learning and 60% who believe they pose a threat to student health.

Like both elementary school and middle school teachers, high school teachers are relatively split in their opinions of whether they feel cell phones are difficult to manage in their classrooms (Figure 9). However, 42.5% of middle school teachers agreed or strongly agreed with this statement compared to nearly 54% of high school teachers who also feel they are difficult to manage. Across the board, all three parties, including high school teachers (between 62% and 70% of all teachers polled) felt that with proper management strategies, cell phones could be useful classroom tools.

Middle school teachers are more likely to feel that discussions of technology use would benefit their students than high school teachers. 21% more middle school teachers strongly agreed that their students would benefit from a discussion on Internet safety than high school teachers (Figure 9). 13% less high school teacher strongly agree that their students would benefit from a discussion on proper cell phone etiquette and professionalism compared to middle school teachers.
Among the 52 high school teachers polled, only 11% were strongly interested in additional training on cell phone use in the classroom compared to 34% of elementary school teachers and 25% of middle school teachers (Figure 9). Like the other groups, however, 84% of high school teachers agree that their students would be better off after high school if they knew how to use their cell phones in a professional setting (Figure 8). Although they may want their students to be better prepared for a professional life after high school, many high school teachers are unsure on whether they would like to see their district adopt a B.Y.O.D. program with 36% feeling neutral about the idea. Only 7% of high school teachers strongly agree with its implementation and 17% strongly disagree.

**A Comparison by Teacher Experience**

We’ve discussed the potential differences in opinion along the lines of grade level taught and seen that the level of comfort in regard to student provided technology vary between elementary, middle, and high school teachers. An additional characteristic that may come into play is the amount of experience a teacher has in the classroom. Below is a comparison to the answers from Question 5 of the survey between those teachers who have between one and five years of experience in the classroom (21 responses in total) compared to those who have more than 20 years under their belt (40 responses) (Figure 2).
In regard to how they feel about student provided cell phones, 42.5% of veteran teachers strongly agree that cell phone are a distraction and are difficult to manage compared to only 23% of new teachers (Figure 10). 30% of veteran teachers strongly agree that cell phones pose a threat to student learning as well as student health compared to only 19% of new teachers. Both sets of teachers agree to the same degree that with proper management strategies, cell phones can be an aide to student learning. They also agree in that students would benefit from discussions on Internet safety, with nearly 80% of new teachers and 71% of veteran teachers who are in agreement. 90% of new teachers also agree that their students would benefit on a discussion on cell phone etiquette and professionalism compared to 85% of veteran teachers.

The two parties differ on their interest in additional training on the topic with nearly 62% of new teachers open to learning more about student provided technology.
inclusion in the classroom compared to only 32.5% of veteran teachers (Figure 10). Both levels of experience agree that students would be better prepared for life after high school if they were more familiar with cell phone use in a professional setting with more than 80% of teachers polled in agreement.

Permission of Student Smart Phones in the Classroom

Question 6 of the survey asked participants to acknowledge their school’s policy in regard to student provided technology and whether or not they adhere to this rule or not. The largest percentage of participants (35.5%) simply stated that their school/district does not allow smart phones and that they adhere to the rule in their own classroom (Figure 8). However 13% of participants said that even though administration banns smart phones from the school, they allow their students to use their phones in their classrooms, breaking the rule. 46% of participants reported that their district indeed does allow smart phones in the classroom but 29% of these teachers do not permit phones in their classrooms anyway. Less than 5% of teachers polled were unsure of their district’s policy on student provided smart phones.

In addition to stating how cell phones are permitted in their school, Question 6 allowed teachers to leave a comment on how students are allowed to use their smart phones if they are permitted to do so. Very few comments were given stating that phones were banned in their classroom and if a student is caught with a phone, they are asked to put it away or it is confiscated. Many teachers described policies in which the building has banned smart phones in general but have given the teachers the power to
permit individual students to bring in their devices for educational purposes.
Respondents also stated that because their schools have 1:1 ratio laptops or iPads, the
students have no need to bring in their own devices. Some participants expressed
corns of cyber-bullying as a result of allowing students to have access to social
media during the school day. The vast majority of the responses were ways in which
they encourage students to use their technology in a way that is useful to their own art
classrooms. Based on the comments left in Question 6 the following is a list of the ways
in which teachers have used smart phones as a learning tool in their classroom:

1. Cameras on smart phones as a way of documenting student work for academic
   portfolios or to track artistic growth over time
2. Image acquisition through the Internet
3. Information acquisition through the Internet
4. Listen to music (“I have large classes in a small room and it is easier for many
   students to focus when listening to their choice of music.”)
5. Submit assignments through Google Classroom or ArtSonia
6. Video acquisition through YouTube
7. Cameras and filters on smart phones to be used for photography assignments
8. Interactive surveys like Kahoot
9. Setting timers for time management
10. Way of leading online discussions between classes (blogging)
11. Informal reviews through online games
12. Stop motion animation
13. Take parent phone calls (uncommon)
14. Free technology day as an incentive for good behavior

15. Checking on their grades

In addition to practical uses of technology, a few teachers expressed their willingness to allow students to bring in their devices as a general life lesson as in this teacher who writes…

I have allowed students to use phones for years. If they abuse the privilege they are taken for the day. IF [sic] they continue to misuse a phone, they may loose [sic] their ability to use them in my room. I feel that this is part of learning what is right and wrong. Students should be able to handle this responsibility and I talk to them about all things phones as needed through the year.

This teacher is willing to take the time to have important discussions on how phones should be used in a professional setting. He/she is also setting clear expectations for their students on what the consequences are if the technology is abused in their classroom.

Still some teachers have expressed deep skepticism when it comes to smart phones in their classroom as in this educator who makes a clear distinction between phones and all other technology.

“"They used to be allowed, and now have been banned. Students have Chromebooks for all tech use. They have no need for phones. School learning, engagement and behavior and focus has improved since the ban. I have been trained in teaching safe tech use (MA in art education), and have integrated that into my classes already. Tech is great. Phones are used for bullying and cheating. I have witnessed this even at higher education settings (kids in the bathroom using phones during exams)."

Because this teacher’s school has provided every student with the necessary technology, they have banned the use of phones and have seen positive results
because of it. He/she has also taken the time to teach safe technology practices in their classroom but still sees smart phones as tools for bullying and cheating on exams.

CONCLUSIONS

After careful analysis of the data collected from these 105 art teachers through the United States, it is clear that the debate on whether smart phones should be allowed into the classroom is full of nuance and personal opinion. It is no surprise that the vast majority of participants in the survey personally own a smart phone. It is difficult to conduct business in today’s high-tech world without one. In fact, as the data suggests, most teachers use their smart phone in order to make their professional lives at school easier.

However it seems that to some educators simply owning a smart phone does not qualify it to be a useful tool for art education. As was analyzed in the previous section, elementary school teachers were torn on their feelings toward student provided technology in the classroom compared to middle or high school students. This may be due to the lower number of opportunities for these teachers to address technology in their own classrooms, due to the fact that fewer elementary school age children own smart devices and are willing to bring them to school. It is quite apparent from those with more experience with older students, middle and high school level teachers see cell phones as a constant distraction and are more inclined to believe that they pose a threat to student learning and health.
In lieu of the idea of personal technology as a deterrent to student achievement, there is no clear answer as to the degree in which teachers find it difficult to manage cell phone use in their classroom. Some teachers find it very easy to manage with either successful strategies to incorporate the technology or simply banning them with a firm hand. Others are not so successful with their desires to welcome to prevent their students to use their technology in their classrooms. However torn their successes with management though, most teachers agree that with proper management systems in place, personal technology such as smart phones can be a beneficial tool for student success. This leads the researchers to conclude that the majority of teachers want to see their students be able to use such technology but have not developed systems in their classrooms to successfully manage them without the possibility of abuse. Because of the uncertainty of adopting such a radical policy, these teachers would rather not take the risk of welcoming the technology into their classrooms and would rather insist their students leave their devices at home.

Even though the majority of teachers are not comfortable with student provided technology in their classrooms, they do feel it is important to discuss the use of technology. The majority of teachers claimed that their students would benefit from discussions of Internet safety and professional etiquette regarding technology. This was especially apparent with middle school teachers finding these discussions to be greatly beneficial to their students. It seems teacher’s opinions are at an impasse. These teacher see topics of safe Internet use and professional etiquette as important skills for their students to learn but most are unwilling or unable. 84% of teachers see that proper cell phone use is a critical skill to have after high school but are still unlikely to allow
them to practice such skills in their classrooms. This may be due to a lack of knowledge on the topic, a lack of time in their curriculum, or are simply following the rule of law set by administration. Even though they may feel strongly about their student’s safety online or care for their professional practices regarding technology, giving their students the chance to learn these lessons with their own technology is not something most are willing to do either because of their own classroom policy or that imposed by administration.

In regard to learning more about the topic of B.Y.O.D., there is more enthusiasm from teachers who are just entering in the profession compared to those who have been teaching a long time. A large majority of new teachers expressed interest in training on the topic of student provided technology (62%) but very few veteran teachers feel the same way. Although participants in the research were not asked their age, one can assume that most entry level teachers are closer the age of their students than those who have been teaching for over 20 years. The generational gap between these two groups of teachers could illustrate more of a comfort level when it comes to technology and therefore, more of a curiosity as to how it can be incorporated into their classroom.

The survey also closely reiterated how trust and rule-breaking play a large part in a successful B.Y.O.D. program. Close to half of the teachers polled come from schools/districts where personal technology in the hands of students is banned but there are still reports of teachers working around this rule and note finding ways to take advantage of the technology in their classrooms. Still others hail from schools that are open to students bringing in and using their technology but still do not want to fight with the distraction and dysfunction they have the potential bring to their students’ education.
Overall, administrative rules are rarely the main factor when it comes to students being allowed to use personal technology in the classroom. In the end, the teacher is the one who has full control over the use of technology in the hands of their students. It is up to them to either ignore the rules set by administration, how stringently these rules can be bent or adhered to, or what their students can and cannot do with the technology they so love. In the end, the most important aspect of technology’s role in the classroom is the relationship that teacher has with his/her students. The teacher needs to feel that they have full control over the device, the authority over their students, and a relationship of trust to ensure it is being used in an appropriate way. Both the teacher and the student must be aware of the potential abuse of such technology and be ready to accept the consequences if they find themselves misusing the privilege. There are teachers in the United States that have found the benefits of student smart phones and are using them to make their classrooms more engaging and more connected to a global society. In doing so, they are better preparing their students for the demands of the 21st century workforce.
REFERENCES


APPENDIX

HSIRB APPROVAL LETTER

Date: February 8, 2019

To: William Charland, Principal Investigator
   Matthew LaFleur, Student Investigator for thesis

From: Amy Naugle, Ph.D., Chair

Re: IRB Project Number 19-01-31

This letter will serve as confirmation that your research project titled “Student-provided Technology in the Classroom” has been approved under the exempt category of review by the Western Michigan University Institutional Review Board (IRB). The conditions and duration of this approval are specified in the policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may only be conducted exactly in the form it was approved. You must seek specific board approval for any changes to this project (e.g., add an investigator, increase number of subjects beyond the number stated in your application, etc.). Failure to obtain approval for changes will result in a protocol deviation.

In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the IRB for consultation.

The Board wishes you success in the pursuit of your research goals.

A status report is required on or prior to (no more than 30 days) February 7, 2020 and each year thereafter until closing of the study.

When this study closes, submit the required Final Report found at https://wmich.edu/research/forms.

Note: All research data must be kept in a secure location on the WMU campus for at least three (3) years after the study closes.