# Students' Attitudes Toward Teacher Use of Technology in Classrooms

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## Introduction

Given the ubiquity of use the of technological devices by students today, we infer that most students do not perceive a distinction of device usage between their personal lives and school. According to a Pew Research Center study in 2012, 78% of teens owned a cell phone, 38% a smartphone, 80% a desktop or a laptop computer, and these numbers have been consistently climbing since 2007 (Wordmald, 2015).

With teens' constant connection to others through technology, it is natural that students would expect the same constant connections in school. However, that may not always be the case. Teachers are the main factor in deciding what and how technology is integrated within classrooms (Rehmat & Bailey, 2014). The age span of current teachers is far wider than that of the current iGen students who have grown up with such devices, resulting in vast differences among teachers in comfortability with the amount of technology that is integrated into classrooms (LeDuc, & Twenge, 2018).

## Literature Review

Common reasons for teachers' reluctance toward integrating technology into the classroom are lack of confidence in the tools and discomfort or fear of their usage. Teachers often have fear that they will waste time or look incompetent in front of their students (Ackermann, 2001). However, one study showed that self-efficacy improved for preservice teachers when they were trained in the technological content within a science methods course (Rehmat & Bailey, 2014).

Additionally, teacher training technology as it relates to content areas can be supported by Mishra's and Koehler's (2006) Technological, Pedagogical, and Content Knowledge (TPACK) framework, thus helping build confidence within teachers for using technology in their classes. Introducing TPACK as a means to foster greater technological connections and applications to curricular content would strengthen teacher methodology courses.

Along with TPACK, Mustafina (2016) suggests that although teachers have enjoyed integrating information and communications technology (ICT) within classrooms, it is still rare that such technology is actually implemented. Mustafina's research found that teachers had a positive outlook on the use of technology, yet provided limited access to technology for students. This was even true when students showed a high level of motivation to use technology within the classroom (p. 330).

Student motivation is a reason why technology integration is encouraged in schools. Computer technology used in English as a Foreign Language classes has resulted in a high percentage of students showing more motivation (Izadpanah & Alavi, 2016). And again, in English Language Arts courses, it has been shown there is a need for teacher professional development in student-focused technology use since the learning of English increases greatly with the integration of technology in academic classes (Davidson, Richardson, & Jones, 2014).

Student-centered technologies have not only increased student motivation and academic performance, but interactive technologies can lead to differentiated instruction through which students have again shown higher motivation. Interactive technology is changing the philosophy of technological and pedagogical instruction by allowing teachers to adapt their lessons to the differing needs of students (Levin & Wadmany, 2006).

Due to this development of student-centered technologies, pre-service teacher education is able to adapt to meet the needs of 21st century students and teachers (Mulholland, 2006; Janssen & Lozaonder, 2015). Along with technology training, research is needed to analyze whether teachers are integrating the technology that they they are learning in their professional development sessions or other technology trainings in their classrooms (Rehmat, & Bailey, 2014).

However, it has been found that the number of technology trainings held and attended by teachers is not an accurate indicator of actual application within teachers' classrooms. It has been demonstrated that attendance at technology workshops given by school districts does not predict technology use within teachers' classrooms (Brzycki & Dudt, 2005), even when

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the participants were positive regarding technology use (Gibbone, Rukavina, & Silverman, 2010).

It would behoove school districts and individual schools to listen to the attitudes of students regarding pedagogy. Are teachers always the best source for knowing what is best for students and their own learning? Students within the United States are often raised to be receivers of information rather than to be consultants for education. Pajares (1992) has shared that teachers' beliefs influence teacher practice. Research is needed to identify if teachers' beliefs parallel students' beliefs when it comes to lessons in which teachers use interactive technology.

## Methods

Our study took place in a predominately suburban high school located in Southern California. The city census from 2000 to 2010 saw a decrease of six percent in the White population and an increase of eight percent in the Asian population. Although Whites were still dominant, roughly 59% of the local population were ethnic minorities. The city had an average household income of $122,000.

To show the diversity of the school, both ethnicity and gender statistics are presented here. Within the specific school (there are four high schools in the district along with two alternative high schools), 36% of the students were Latino and 31% of the students were Asian. The White population of students measured 23%. The difficulty with ethnic breakdowns is that a number of students of mixed race were not counted as such. We recognize that many students identify and embrace their multiethnic backgrounds; unfortunately, for this study, such data were not available.

The school reported that 22% of the students were eligible for free or reduced lunch and an average of 96% of the high school seniors were graduating. For those students enrolled in Advanced Placement (AP) courses, almost 70% scored a three or higher on their tests. Students at this school averaged a 1560/1600 on their SAT.

Students from history classes were asked to participate in this study. Of the students who were asked, 73 completed the 17-question Likert Scale survey through Google Forms. Of the students who completed the study, 62% identified as female and 38% identified as male. The grade level break down indicated that 49% of the students were in 9th grade and 51% in 11th grade.

All questions were optional. The students were not required to answer each question before moving on to the next one. Students were also allowed to leave the survey at anytime without repercussion. Parental consent and student assent were obtained from those who were under the age of 18 years.

## Results

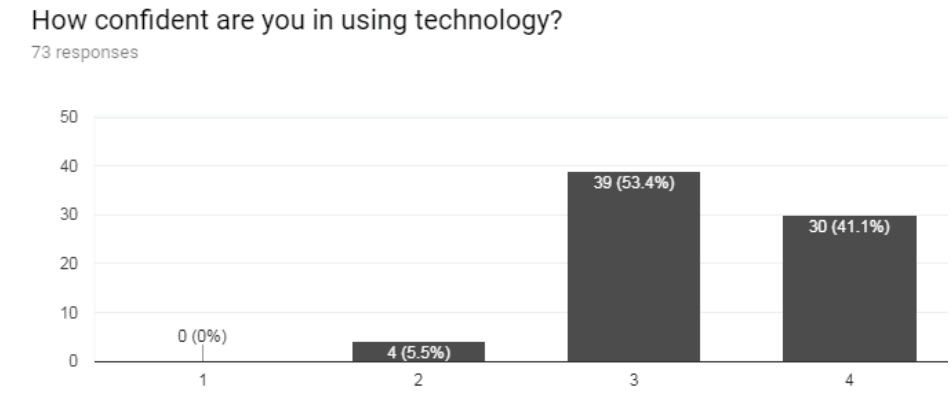
The accompanying graphs display the questions asked of the students and the responses of those who participated. Seventy-three students participated and responded to all of the questions.

Students in this study were asked about their confidence level in using technology. They were given options on a Likert Scale, 1 indicating not confident to 4 extremely confident. Graph 1 demonstrates their response to this questions. Of the participants who chose to answer this question 94.5% reported being confident.

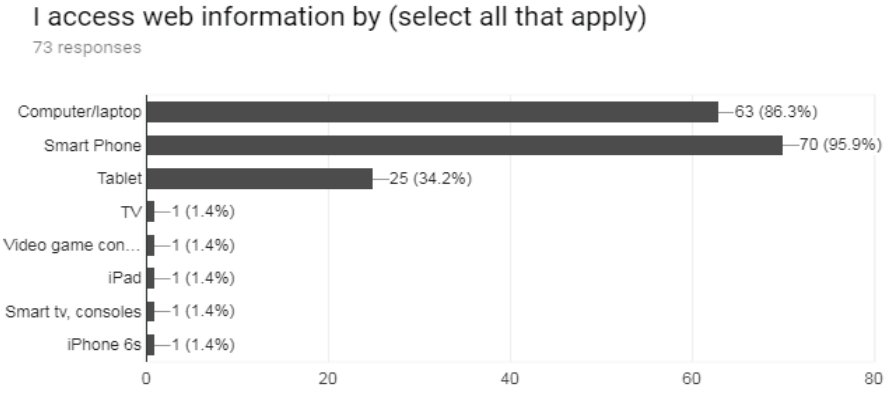
In question 2 students were asked how they accessed web information and were given multiple options as well as the option to check all that might apply. Graph 2 represents their responses. The majority of the students reported using their phones and computer/laptop to access the web.

Question 3 was intended to see how many hours students spend on social media. Graph 3 shows that 65% of students

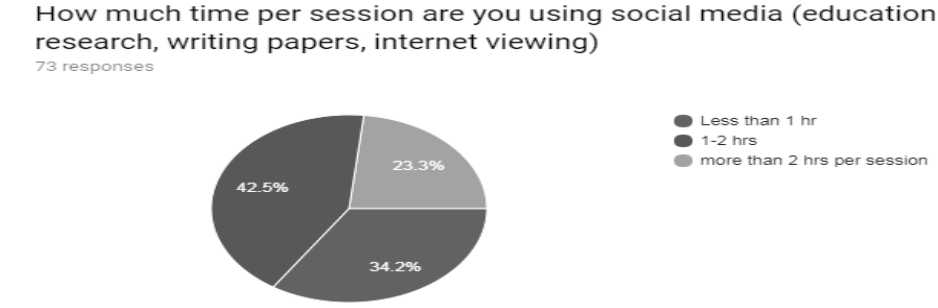
**Graph 1**




**Graph 2**




**Graph 3**



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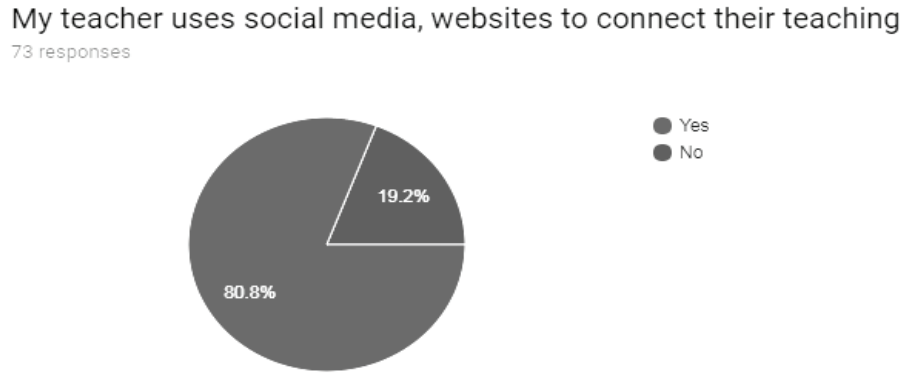
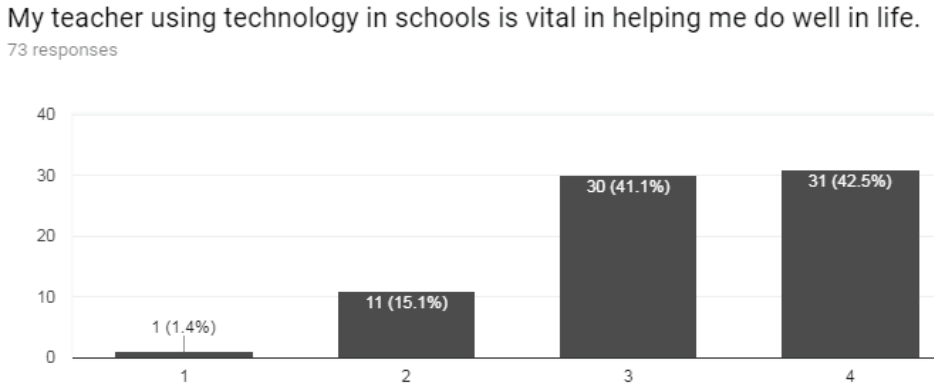



**Graph 5**

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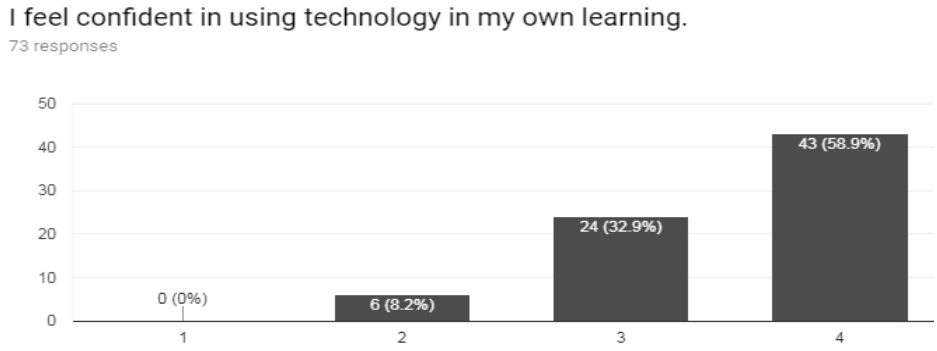
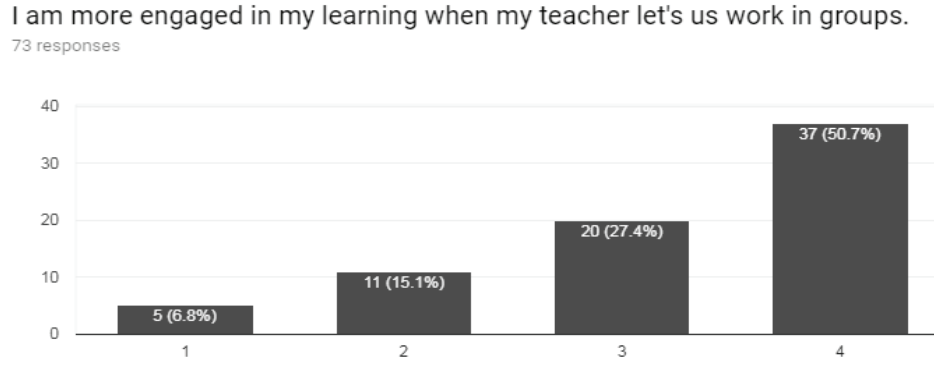



**Graph 7**




spend one or more hours on social media per session.

Question 4 asked students whether teachers use social media and websites to connect their teaching. Students reported nearly 20% of teachers at this school did not use social media and websites to connect to their teaching.

In question 5 students were asked to disagree or agree on a Likert Scale (1-4) with whether they believed their teacher's use of technology was vital in helping them as students do well in life. Eighty-three percent of the students believe technology use in classrooms does assist them in doing well in life.

In question 6 participants were asked if they felt confident using technology in their own learning. On a Likert Scale (1 not confident to 4 very confident), 92% reported they were confident in using technology in their own learning.

Question 7 was Likert Scaled (1 not engaged to 4 very engaged), and students were asked if they were more engaged in their learning when their teacher lets them work in groups. Seventy-eight percent felt engaged to very engaged when their teacher allowed them to work in groups.

In question 8 students were asked if they were more engaged in their learning when their teacher communicated with them using social media. In their responses 76% of students said they felt more engaged when teachers communicate with them using social media.

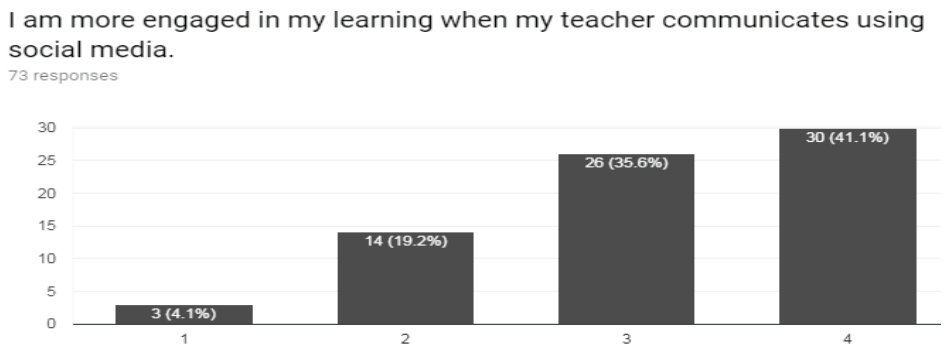
Question 9 asked students on a Likert Scale (1 not engaged to 4 very engaged) if they were more engaged in their learning when their teacher allowed them to use technology for assignments (creating movies, PowerPoints/Google Slides etc). In response, 86% of the students said they were more engaged when allowed to use technology for assignments.

With SmartPhones and the abundance of apps (applications) available, question 10 asked about students' level of engagement when teachers offered them different types of apps to use. Responses indicated 82% were engaged and very engaged.

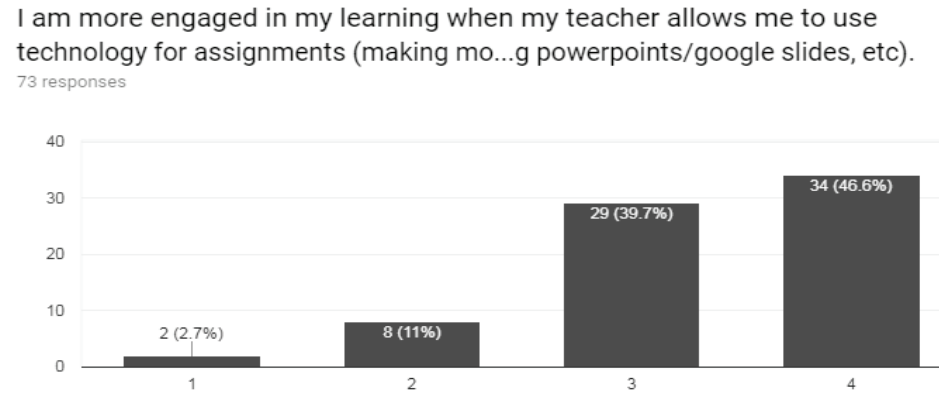
We wanted to know how many social media sites students participated in and this was asked in question 11. According to the results, 63% of students are active in three or more social media sites.

In the twelvth and final question, students were asked which social media sites they followed. Participants were told to check all that apply. Table 1 lists the five most popular social media sites and the number of students who used each of

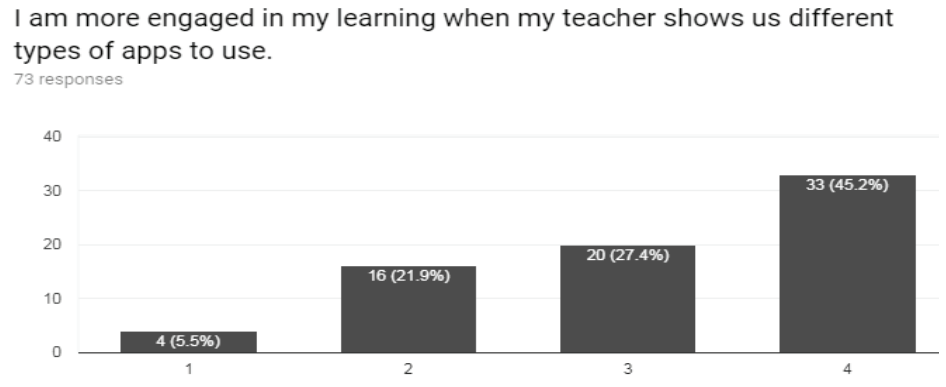
**Graph 8**



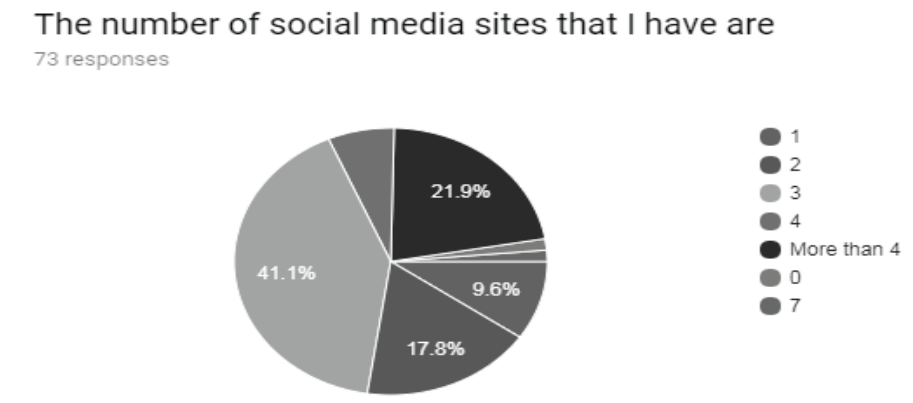

**Graph 9**




**Graph 10**




**Graph 11**




them. Overall, these students were subscribed to 28 different social media sites.

## Discussion

We could have asked the participants how many games they have on their phone? How many apps do they use? Do they all come with instructions on how to use them? We know some do, some don't. The issue is that often teachers have an expectation of learning by having another entity—an administrator or district—show them how to do things. Yet these are things that often they, as professionals, have the means of learning on their own.

A simple Google search for teacher apps for 2017 produced thousands of hits with articles proclaiming what the Top 21 or Top 50 teacher apps were. This has been noted by Tambunan (2014), who advocates that teachers can learn on their own initiative or by asking others who may be more familiar with current technologies.

Today's teachers also have the benefit of going to Google to access the Education Training Center or to Adobe's Education Exchange to take classes and to stay current in developing technologies.

The juniors who participated in our survey were born in 2000 and 2001. When they were born, the mobile phone was in production, Internet Explorer 5 had a command on the web browsers vying for top position, Microsoft Office 2000 debuted, and Vaio introduced their new laptop (Drewe, 2014). Within four years after their birth, the students were introduced to Facebook, YouTube, and a menagerie of devices, software, apps, smartphones, and games like the Wii which arrived in 2006, and the ability to keep track of workouts just by wearing a device (BS3138, n.d.).

Therefore, by the time the students who contributed to this survey entered elementary school, many had never known life without technology. They were not learning by reading a manual or being told how to use it, rather they were learning by actually using it.

**Table 1**

***Which social media sites do you follow?***

| Social Media Site | n |
|---|---|
| Instagram | 57 (73%) |
| Snapchat | 50 (68%) |
| Twitter | 25 (34%) |
| Facebook | 19 (26%) |
| YouTube | 12 (16%) |

Note. N=73.

The students who participated in this survey indicated they are very confident in using technology while accessing information daily from their smartphones. This should indicate to us as educators that students are comfortable using technology in navigating their learning. With the number of social media sites they are subscribed to, students from this study are connected with many people and information both locally and globally.

The students from the survey believe that teacher use of technology within the classroom is vital for their overall performance in life and indicated they thrive when teachers use technology in group work. With the onslaught of group chats, group texts, and social media platforms, today's students may be more adapt at working within a group than they are individually. When students are in groups and working on assignments, students become more attuned to the subject matter, especially when the teacher allows the content to be delivered via PowerPoints/ Google Slides or by making a movie. With such advances in technology, a student is now able to record, edit, and dub music onto a created video using their phone. What does this mean for teachers and educators? It's simple, educators just need to change.

## Conclusion

And many are—we are seeing more creativity from newer teachers and their use of technology. Apps such as Quizlet and Plickers were being used in classrooms while we were conducting observations for this study. Quizlet (https://quizlet.com/) is a web-based study application using flashcards for review purposes, whereas Plickers (https://www.plickers.com/) is a web-based formative assessment tool used within the classroom.

Although we have not reported on participant observations in this article, we did see that the students were passionately involved when their teacher was using Quizlet or Plickers. For students who did not have a smartphone, the teacher provided laptops from the school. In all the classes, at least one student used a laptop. All of the other students at this particular school have access to technology through their smartphones.

Throughout the lessons for each class, all students were engaged and all students were contributing to the day's assignment. As the teacher provided information, students in groups would communicate with one another while observing their phones. Students would then decide the correct answer and provide it via their devices and the answers would project onto the screen in real-time. This continued throughout the duration of the class with the teacher providing feedback when students did not provide the correct answer. The more this approach was used, the more the students became involved in their learning.

Students from these classrooms understand what they wish to have teachers do within a classroom. They have a keen sense of how they learn and how to navigate technology for answers. With students learning and creating from their smartphones, where do teachers come into play? A question to ask for the future is, how can teachers maximize such technology? What can and should the teacher's role become?

In a recent interview a systems technology educator from a private university (Tim Schumacher, personal communication, November 6, 2017) shared,

> Just this past week, I overheard a professor complain about students' use of technology within his classroom. He was irritated that they students were not listening to him while looking up information on their phones. Today's students are building their learning networks, the question is, do you [teachers] wish to be a part of their network?

Unless a teacher/professor has a tremendous gift of information or is on the cusp of research, most information taught can be Googled, sourced, and used. Today, students may obtain information in real-time from researchers in the field or from experts throughout the world. This isn't to say teachers and the teaching profession is obsolete.

Rather, what can teachers provide? Teachers can provide guidance on how students can differentiate between real and fake information. Teachers can provide formative assessments such as those being used by the teacher in the social study courses that we observed. Engagement with, rather than lecturing at the students, is what the students from this study desire. When we have a population of students entrenched in something called social media, it should be obvious the students wish to be social within their classroom and their learning.

## Suggestions for Future Research

Our research was conducted in a single suburban high school in Southern California. Looking at larger populations or more urban schools could provide more insight on this topic. Future research could be explored in a case study evaluating the literature supporting technology training or professional development and seeking out guidance to actual implementation. Additionally, since students' attitudes regarding technology integration were positive, it would be interesting to study a co-mentorship between teachers and students to provide ideas for teacher-technology integration in school.

Lastly, teachers should see how they are being perceived in their tech usage. They may believe that they are being innovative with technology; however, as an example, students may not see the use of slides as innovative. Having teachers take a reflective innovative technology usage survey and compare it to students' perceptions of innovative technology use among their students could provide interesting and relevant results.

## References


Ackermann, E. (2001). *Piaget's constructivism, Papert's constructionism: What's the difference?* Retrieved from http://learning.media.mit.edu/content/publications /EA.Piaget%20_%20Papert.pdf

BS3138 (n.d.). *Technology in the 2000's*. Retrieved from: https://www.timetoast.com/timelines/technology-in-the-2000s

Brzycki, D., & Dudt, K. (2005). Overcoming barriers to technology use in teacher preparation programs. *Journal of Technology and Teacher Education, 12*, 619-641.

Davidson, L. J., Richardson, M., & Jones, D. (2014). Teachers' perspectives on using technology as an instructional tool. *Research in Higher Education Journal, 24*, 1-25

Drewe, N. (2014, Dec). *Technology in the year 2000!* Retrieved from: http://blog.marketdojo.com/2014/12/technology-in-year-2000.html

Gibbone, A., Rukavina, P., & Silverman, S. (2010). Technology integration in secondary physical education. *Teachers' Attitudes and Practice, 3*(1), 27-42.

Izadpanah, S., & Alavi, M. (2016). The perception of EFL high school students in using of computer technology in the process of learning: Merits and demerits. *Advances in Language and Literary Studies, 7*(3), 146-156.

Janssen, N., & Lazonder, A. W. (2015). Implementing innovative technologies through lesson plans: What kind of support do teachers prefer? *Journal of Science Education Technology, 24*, 910-920.

LeDuc, D., & Twenge, J. (2018, January 31). The next generation. *The Pew Charitable Trusts: Multimedia*. Podcast retrieved from http://www.pewtrusts.org/en/multimedia/audio/2018/the-next-generation

Levin, T., & Wadmany, R. (2006). Teachers' beliefs and practices in technology-based classrooms: A developmental view. *Journal*

*of Research on Technology in Education*, *39*, 157-182.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054. doi:10.1111/j.1467-9620.2006.00684.x

Mulholland, R. (2006). A technology snapshot: Teacher preparation program and the local public schools. *Contemporary Issues in Technology and Teacher Education, 6*, 284-292.

Mustafina, A. (2016). Teachers' attitudes toward technology integration in a Kazakhstani secondary school. *International Journal of Research and Education and Science (IJRES), 2*(2), 322-332.

Rehmat, A. P., & Bailey, J. M. (2014). Technology integrations in a science classroom: Preservice teachers' perceptions. *Journal of Science Education Technology, 23*, 744-755.

Tambunan, H. (2014). Factors affecting teachers' competence in the field of information technology. *International Education Studies* 7(12), 70-75.

Wordmald, B. (2015). Device ownership by teens over time. *Pew Research Center: Internet & Technology*. Retrieved from http://www.pewinternet.org/chart/device-ownership-by-teens-over-time/