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To: BPS Community

From: Dr. Kriner Cash, Superintendent

Date: February 6, 2020

CC: Buffalo Board of Education
Cabinet
Dr. Genelle Morris, Chief Accountability Officer

RE: Volume 23: “Use of Social Media and Student Performance/Behavior” Research Capsule

The Buffalo Public Schools’ (BPS) Education Bargain with Students and Parents has established a mission to ensure the best instruction for all of our children, every day, in every classroom, in every subject, in every year of their schooling. The Research Services arm of the Office of Shared Accountability continues to publish research articles offering current research to supplement insights in policy for a complex, multi-dimensional view of current practices in education, including those aligned to the essential elements of the Education Bargain.

I am pleased to disseminate this issue of the Office of Shared Accountability Research Capsules. I hope that you enjoy and find value for providing a better education for our students in these research briefs. This twenty third research brief discusses the phenomenon of social media and its impact on students. This brief discusses the topic of how social media can both support student learning while also serving as a source of distraction, sometimes diverting student attention from learning and academic performance. This capsule focuses specifically on the impact of social media on student performance. By understanding more about the impact that that social media can have on our students, we can better apply educational strategies to support students, who can sometimes be vulnerable to the impact of this widely-available communication channel.

Further research briefs will continue to discuss topics related to the Education Bargain. For further information, please contact Dr. Genelle Morris, Chief Accountability Officer. Each research brief and capsule will be published online at the BPS website, under the Accountability Research Services webpage, located at <https://www.buffaloschools.org/Page/299>.

Thank you.

“Putting children and families first to ensure high academic achievement for all.”



Buffalo Public Schools

Putting children and families first to ensure high academic achievement for all

Dr. Kriner Cash, Superintendent of Schools
Dr. Genelle Morris, Chief Accountability Officer

RESEARCH CAPSULE

Vol. 23, February 2020

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Social Media and Student Academic and Non-Academic Performance

AT A GLANCE

Social media is a new form of communication that transformed the entire landscape of information access and dissemination online. This platform consists of a range of communication channels, considerably popular among students and assists them in various types of communication and sharing. While today, the technology can be used and is being used for educational purposes, its use by those unable to control their use of the Internet or the applications on their phones to the detriment of social relationships, physical and mental health, work or academic processes, financial issues, and psychological well-being. It can also engage individuals in problematic use of technology (Pawlikowski, Altstötter-Gleich, & Brand, 2013). School students are not an exception because they also seem to spend considerable amount of time on social media (e.g. apps, websites). Hence, the platform of social media can both support student learning and be considered as a source of distractions and divert student's attention from learning and academic performance. The purpose of this research capsule is to focus on the impact of social media on student performance.

Introduction

Reasons for Internet Use by School-Age Children

Badri, Alnuaimi, Al Rashedi, Yang, and Temsah (2017) studied the usage of social media devices and applications, and parental knowledge and involvement among Abu Dhabi children in Grade 6 or higher. They examined the young children's usage of personal computers, mobile phones and tablet PCs, and social media related apps. The paper tries to understand the reasons for joining or not joining online social networking. It explores the parental knowledge of such activities and their chance of being invited to join their children's' social networking groups. More than 31,000 children from private and public schools participated in the online survey. Results show a high home access to the Internet of 91.7 %. Children reported using social networks mainly for keeping in touch with family and friends, and to find information. Most of the children reported that their parents were aware of their online social networking activities (82.2 %). About 38.7 % said that their parents were in their friend group on online social networking. There

is negative correlation between time spent on social networks and perceived student performance in specific subjects.

Student Characteristics and Internet Use

Wilson, Fornasier and White (2010) study sought to predict young adults' use of social networking sites (SNSs) and addictive tendency towards the use of SNSs from their personality characteristics and levels of self-esteem. In 201 University students between aged 17 to 24 years. The results of the study suggested that personality and self-esteem factors significantly predicted both level of SNS use and addictive tendency but did not explain a large amount of variance in either outcome measure. The findings indicated that extraverted and unconscientious individuals reported higher levels of both SNS use and addictive tendencies.

Leyrer-Jackson and Wilson (2018) explored the relationship between the use of social-media to be undergraduate students' academic performance using a survey with 234 students. Students had to report their grade point average (GPA), study habits, and social-media use. The results of the study suggested that female students use social-media websites more often than their male peers, and that GPA is negatively correlated with the number of social-media websites to which students subscribe. Additionally, the study suggested that using more social-media websites correlates positively with the amount of time students spend using social-media platforms daily. Researchers concluded that although previous studies indicate that social-media websites should be incorporated into the classroom, this addition may have negative effects on the study habits and academic performance of undergraduate students.

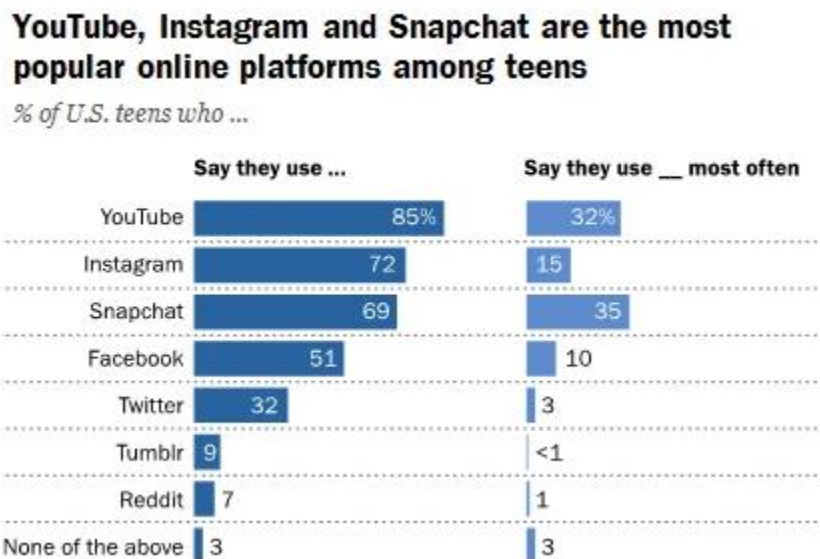
Junco (2015) examined the time students at different class ranks spent on Facebook, the time they spent multitasking with Facebook, as well as the activities they engaged in on the site (N=1649). The results showed that seniors spent significantly less time on Facebook and spent significantly less time multitasking with Facebook than students at other class ranks. Time spent on Facebook was significantly negatively predictive of GPA for freshmen but not for other students. Multitasking with Facebook was significantly negatively predictive of GPA for freshmen, sophomores, and juniors but not for seniors.

Problematic Internet Use in Adolescents

The emergence of the Internet allowed to create a network of interconnected private, public, academic, and business computers showcasing information and knowledge resources (Manikandan, 2013). However, today the word "Internet" is somewhat amorphous because it represents not just connected devices but also the activities conducted over the linked devices (Haigh, Russel, & Dutton, 2015). The Internet is playing an ever-increasing role in all our lives but at a higher level in the lives of the adolescents. Zhitomirsky-Geffet and Blau (2016) found a generational difference in the predictive factors for smartphone addictive behavior and while adults need to learn new ways of doing things (an email instead of a fax, a text instead of a call), the new way is the default way for the adolescent, who are spending an increasing amount of time connected and are connecting at an ever-younger age. The strongest predictive factors of attachment are social environment pressure, emotional gain (i.e. positive emotions, feelings of enjoyment, and the suppression of negative emotional and psychological states), neuroticism, and daily usage time but these factors were stronger for the younger generations. According to Pawlikowski, Altstötter-Gleich, & Brand, (2013) individuals unable to control their use of the Internet to the detriment of social relationships, physical and mental health, work or academic processes, financial issues, and psychological well-being, are labeled problematic Internet users (PIU).

Popularity of Social Networks

Pew Research Center conducted a survey in 2018 on teens' social media use which indicated that certain sites have more popularity than others. *Figure 1* below presents the results.



*Figure 1: Social Media Use by Teens (source: Pew research center's survey: *Teens, Social Media & Technology, 2018*)*

Positive or Neutral Impact of Internet Use

Bal and Bicen (2017) conducted a study with 170 students from different departments in Near East University to explore the purpose of students' social media use and to determine their perspectives on education. The results of the study suggested that students had an effective role on acquisition of information on social media and this provided effective learning which means easy sharing of information. Additionally, the information that students got from the groups contributed to their lesson achievements and together with other multimedia tools this environment increased their motivation in learning.

Saha and Karpinski (2016) examined international students' (N = 331) global satisfaction with life as a mediator in the relationship between general social media use (and Skype™ use) and academic performance. The results indicated that social media and Skype™ use were positively predictive of satisfaction with life, and there was a positive relationship between satisfaction with life and academic performance.

Al-rahmi, Othman and Musa (2014) conducted a pilot study of undergraduate and postgraduate students at Universiti Teknologi Malaysia (UTM) to obtain preliminary results of usage of social media. Results obtained showed that social media affects positively and significantly collaborative learning with interaction with peers, interaction with supervisor, engagement, perceived ease of use, and perceived usefulness.

Mixed Results on the Impact of Internet Use

Alghazo and Nash (2017) conducted an experimental study to explore the impact of using *WhatsApp* in school classrooms on student achievement and classroom behavior. Random sample of different classes

were selected. Both the intervention and control groups consisted of the same number of classrooms taught by the same teachers. The treatment group used social media application *WhatsApp* which all students and the instructor were asked to join that enabled constant communication and announcements related to class. The control group taught by the same instructors did not use *WhatsApp*. Their communication with the instructors was through traditional use of blackboard and email. Results of the study showed no statistically significant differences between the treatment and the control groups with regards to course achievement, however, the results did indicate that students in the treatment groups had notably less class absences and missed assignments, which indicated better class behavior.

Junco (in press) studied the relationship between time spent on Facebook, Facebook activities, frequency checking Facebook, and college grade point average (GPA) and time spent preparing for class in 1,839 college students. The results of the study suggested that time spent on Facebook was strongly and significantly negative relation to overall GPA, while it was only weakly related to time spent preparing for class. Furthermore, using Facebook for collecting and sharing information was positively predictive of both the overall GPA and time spent preparing for class, while using Facebook for socializing was negatively predictive of overall GPA and time spent preparing for class.

Wu, Mei and Ugrin (2018) explored the relationship between in-class and out-of-class cyberloafing and the academic performance in 1,050 undergraduate students at a large University in China. The results of the study show a negative relationship between in-class cyberloafing and academic performance, but an inverted U-shaped relationship between out-of-class cyberloafing and academic performance. The researchers concluded that while cyberloafing is a harmful distraction in the classroom, it can have positive effects when performed in moderation outside the classroom as a means of effort recovery.

Internet Use and Student Performance

Camerini, Schulz, and Jeannet (2018) executed a longitudinal study to explore differences in Internet access and use among school-aged children in 843 Italian-speaking students in Switzerland. Results indicated that family's socio-economic status indirectly affected children's school grades as lower parental income lead children to use the Internet more frequently for entertainment and online communication purposes. This form of Internet use also increases as children have more personal digital media devices. Childrens' increased use of the Internet for entertainment and online communication worsens their academic performance.

Dhir and Nieminen (2015) implemented a cross-sectional survey research with 1,914 adolescent Internet users from India. Data were gathered from 10 junior and senior high schools. Adolescents with lower academic performance scores tended to experience higher Internet addiction. Similarly, Internet addicts had lower academic performance than non-addicts.

Kim, Kim, Park, Kim, and Choi (2017) studied whether type of Internet use impacted student academic performance. They obtained cross-sectional data from the 2013 Korean Youth Risk Behavior Web-based Survey. Over 59,000 twelve- to eighteen-year-olds were included in the sample. Researchers used multinomial logistic regressions and found that a higher level of school performance was significantly, positively correlated with Internet use for study but negatively correlated with Internet use for general purpose.

Use of Social Media by Adolescents

Social networking sites (SNS) are Internet-enabled systems that allow members who share common interests and relationships to be linked to one another and to make their connections and interactions known to other members (Kittinger, Correia, & Irons, 2012). Most people can self-manage the frequency and duration of Internet use, but some are unable to manage the time spent on the Internet. Several expressions were used to capture the lack of use control phenomenon such as “Internet addiction”, “compulsive Internet use”, “problematic Internet use”, “pathological Internet use”, or “unregulated Internet usage” (Pawlikowski, Altstötter-Gleich, & Brand, 2013).

Adolescents spend more time on communication technology devices and on communicating with their peers than with their parents (Li, Li, Wang, Zhao, Bao, & Wen, 2013). Technological influences are contesting the traditional role of parents to tell stories, pass on culture, and influence future direction. Dhir, Pallesen, Torsheim, and Andreassen (2016) noted that adolescents were more likely to take own and group selfies, post own selfies and use photographic filters, and female adolescents were more likely to exhibit all the three behaviors.

Mitchell, Petrovici, Schlegelmilch, and Szócs (2015) reported that Generation Y (those born between 1980 and 2004) have grown up with the Internet and can rationalize immoral and unethical practices. Behaviors similar to online pornography, hate site visitation, bomb/drug making websites, copyright violation, and software piracy are justified based on some different Internet etiquette called “Netiquette” which enhances a false sense of reality. Parental exhortation apparently has very little influence on the ethical behavior of this group. Observed parental practices and peer pressure have more influence on the ethical choices of Generation Y than verbal exhortation from anyone.

Mim, Islam, and Kumar (2018) examined the impact of social media on students’ academic performance in 345 randomly selected students of Mawlana Bhashani Science and Technology University (MBSTU), Tangail, Bangladesh. Both univariate and multivariate analysis were used to meet the objective. The results of the study suggested that many respondents experienced negative effects such as late submission of assignment, less study time and poor academic performance due to the heavy participation on social media networks. A portion of the students provided positive feedback about the involvement with the terrorist and militant activities and the tendency to the predisposition with political issues due to social media.

Yeboah and Ewur (2014) studied the use of *WhatsApp* messenger and its impact on the academic performance of students in tertiary institutions. 50 students from five tertiary institutions were interviewed and 500 questionnaires were administered to students from same institutions. The results of the study suggested that *WhatsApp*, instead of making communication easier and faster and enhancing effective flow of information and idea sharing among students, has negative impact on the performance of tertiary students in Ghana. It was found to take much of students’ study time and to result in procrastination, lack of concentration during lectures, difficulty in balancing online activities and academic preparation. Additionally, it seemed to destroy students’ spellings and grammatical construction of sentences, distract students from completing their assignments and adhering to their private studies timetable.

Mingle, Adam, and Adjei (2016) conducted a comparative study on activities performed by students on social media, its effect on spelling during examination, and to find out if participation affected students’ grades before and after using social media in two public and two private senior schools. The study revealed that the majority of respondents from the private schools used *WhatsApp* and *Facebook* more often. Also, respondents from the private schools spent more hours online as compared to counterparts in the public

schools. In addition, a higher proportion of respondents from the private schools experienced a drop in grades as compared to their counterparts in the public schools.

Hassell and Sukalich (2016) conducted a study to identify the predictive relationships between social media use, academic self-efficacy beliefs, academic performance and satisfaction with life. The results of the study suggested that there are negative relationships between social media use and academic performance, as well as between social media use and academic self-efficacy beliefs. Academic self-efficacy beliefs mediate the negative relationship between social media use and satisfaction with life. These relationships are present even when controlling for individuals' levels of self-regulation.

Kirschner and Karpinski (2010) explored the impact of Facebook use on academic performance as measured by self-reported Grade Point Average (GPA) and hours spent studying per week. Results show that Facebook users reported having lower GPAs and spend fewer hours per week studying than nonusers.

Screen Time and Academics

Adelantado-Renau et. al (2019) conducted a meta-analysis of prior research testing for an association between time or frequency of screen media use and academic performance in children and adolescents. A total of 5,599 students were included from research articles published between 1958 and 2019 representing 23 countries. Findings from the study suggested that each screen-based activity should be analyzed individually for its association with academic performance. The analysis indicated a lack of association between the amount of time spent on overall screen media use and academic performance. However, significant findings surfaced when screen time was separated into distinct activities. Television viewing and video game playing appeared to be the activities most negatively associated with academic outcomes. Results showed that TV watching was inversely associated with language and math scores; whereas video game playing was inversely associated with composite scores.

Walsh et al. (2018) analyzed data from a broader study funded by the National Institute on Health, focusing on 4,500 children ages 8 to 11. Researchers compared time spent on screens, sleeping, and engaging in physical activity from a student in Canada. Researchers found even just limiting screen time or getting enough sleep had the strongest links to better cognition. Kids who spent more than two hours in front of screens were linked to poorer cognition. Researchers recommended further research on the impact of different forms of screen time on students (i.e. educational vs. entertainment).

American Academy of Pediatrics (2016) facilitated a study of pediatricians from Brown University School of Public Health who analyzed children's use of digital media to better understand how it relates to childhood "flourishing," or overall positive well-being. They used data from the 2011-2012 National Survey of Children's Health to analyze the media use and homework habits of more than 64,000 children ages 6 to 17 years old, as reported by their parent or guardian. Children who spent two to four hours a day using digital devices outside of schoolwork had 23 percent lower odds of always or usually finishing their homework, compared to children who spent less than two hours consuming digital media. For every additional two hours of combined digital media use per day, there was a statistically significant decrease in the odds of always or usually completing homework.

Poulain and colleagues (2018) helped fill the gap in longitudinal studies investigating independent effects of physical activity and media consumption on school performance. Consumption of screen-based media (TV/video games, Internet and cell phone) of 850 ten- to seventeen-year-old adolescents participating in the LIFE Child study in Germany were related to their school grades in Math and German Language. Also

reviewed were the effects of these activities on school grades achieved 12 months later. Adolescents of lower secondary schools reported a significantly higher consumption of TV and video games compared to students in the highest secondary schools. Better performance in Math was predicted by a lower consumption of computers/internet. Better performance in physical education was predicted by a lower consumption of TV and video games. Suggesting that media consumption has a negative effect on school achievement, whereas physical activity has a positive effect.

Hansen and colleagues (2016) examined how lifestyle behaviors in the context of physical activity levels and screen time were associated with school absenteeism. They analyzed 2005-2008 NHANES data on proxy interviews for 1,048 children aged 6-11 and in-person self-reports of 1,117 adolescent twelve- to sixteen-year-olds. Watching television two or more hours a day was significantly associated with severe school absenteeism among both younger and older students compared to peers watching less than 2 hours per day. No associations were found with children or adolescents using a computer 3 or more times.

Garvia-Hermoso and Marina (2017) examined the relationship between weight status, physical activity and screen time with academic achievement in Chilean adolescents. The Physical Activity Questionnaire for Adolescents assessed student physical activity and additional questions measures television, videogame and computer use. Academic achievement was measured using the average of the grades obtained in mathematics and language subjects. Logistic regression analysis showed that adolescents with excessive screen time were less likely to obtain high academic achievement. Similar results were observed in adolescents with obesity and classified with medium-low physical activity. The researchers concluded that when combined, obesity, low-medium levels of physical activity, and excessive screen time may be related to poor academic achievement.

Miao et. al (2017) examined sociodemographic patterns of parental expectations for academic performance, terminal degree, and future occupations for middle school students in China and how these expectations influence students' screen-based and academic-related sedentary behaviors through parent control practices. Data was collected in 2013-2014 from 19,487 Chinese middle school students. Children experiencing higher parental expectations spent more time on homework, but less time on TV/ internet which was partially explained by stricter parental homework and screen control.

Screen Time and Behavior

Yan et. al (2017) studied whether screen time was negatively associated with markers of health in Chinese youth as it is in western youth. Middle-school and high-school students (n=2625) in Wuhan, China, completed questionnaires assessing demographics, health behaviors, and self-perceptions in spring/summer 2016. Linear and logistics regression analyses were conducted to determine whether screen time was associated with body mass index (BMI), eating behaviors, average nightly hours of sleep, physical activity (PA), academic performance, and psychological states. Watching television on school days was negatively associated with academic performance, physical activity, anxiety, and life satisfaction. Television viewing on non-school days was positively associated with sleep duration. Playing electronic games was positively associated with snacking at night and less frequently eating breakfast, and negatively associated with sleep duration and self-esteem.

Twenge, Martin, and Campbell (2018) used nationally representative annual surveys of United States 8th, 10th, and 12th graders between 1991-2016 (n= 1.1 million) to examine the relationship between psychological well-being and screen time. Results indicated that psychological well-being (measured by self-esteem, life satisfaction, and happiness) suddenly decreased after 2012. Adolescents who spent more time on electronic communication and screens (e.g. social media, the Internet, texting, gaming) and less

time on non-screen activities (e.g., in-person social interactions, sports/exercise, homework, and attending religious services) had lower psychological well-being. Adolescents spending a small amount of time on electronic communication were the happiest. Psychological well-being was lower in years when adolescents spent more time on screens and higher in years when they spent more time on non-screen activities.

Ferguson (2017) assessed a representative sample of youth for links between screen time and risky behavioral outcomes. Data collection occurred in 2013 by the State of Florida. Use of screens that was moderately high, in excess of the American Academy of Pediatrics former recommendations, was not associated with delinquency, risky behaviors, sexual behaviors, substance abuse, reduced grades, or mental health problems. Even excessive screen use was only weakly associated with negative outcomes related to delinquency, grades and depression only. Ferguson's results indicated that moderate use of screens, though in excess of the AAP's historical recommendations, are unassociated with problem outcomes for the sample examined.

Garmy et al (2019) investigated whether sleep duration was associated with self-reported overall health, screen time, and nighttime texting among Swedish adolescents. Researchers used a cross-sectional survey of students (1,518) aged 13 to 15 years in southern Sweden. Results revealed that students who indicated that they spent more time in front of the TV or computer (in addition to schoolwork) were more likely to sleep fewer than eight hours on nights before a school day. Additionally, nighttime texting had a stronger association with sleeping fewer than eight hours than spending more time in front of a computer or television. Sleeping fewer than eight hours was significantly associated with poorer self-reported overall health and often being tired at school.

Aorora et. al (2018) examined the relationship between technology device usage prior to bedtime and real-life academic outcomes in adolescents. They implemented a three-year study with 853 students. Participants were asked about using television viewing, video gaming, mobile telephone use, music, and social networking prior to bed. English attainment was the subject most affected by pre-bedtime use, albeit small, whereas social networking, video game playing, and mobile telephone use were all negatively associated.

Ambachew and Endris' (2019) study examined the relationship between hours of television watching and student academic achievement. Two hundred students were randomly selected for the study. Data were collected through a structured questionnaire. The results show there is no statistically significant relationship between hours of television watching and academic achievement of students. Based on this, it can be concluded that television may not have a significant effect on students' academic achievement by itself.

Phone Use in Adolescents

Domoff et. al (2019) measured addictive phone use and its association with academic performance in a sample of 641 adolescents. They used the Addictive Patterns of Use (APU) scale and found it had strong psychometric properties and associated with hours of social media use and media multitasking. APU was also associated with poorer academic performance, over and above hours of school day social media use and social media multitasking during homework. Results suggested that Smartphones may be a distinct risk factor for poor academic performance.

Kates, Wu, and Coryn (2018) conducted a study to further examine any relationships that may exist between mobile phone use and educational achievement. A meta-analysis of research conducted on the relationship between mobile phone use and student educational outcomes over a 10-year period (2008–2017) was conducted. The results of this study indicate that, overall, mobile phone use has a small negative effect on educational outcomes which is consistent with the previous literature. However, the caution should be used with results since the summary effect size is relatively small, even in the educational sphere.

Lepp, Barkley and Karpinski (2014) investigated the relationships between total mobile phone use and texting, on Satisfaction with Life (SWL) in 986 college students. The results of the study suggested that the mobile phone was negatively related to GPA and positively related to anxiety; in turn, GPA was positively related to SWL while anxiety was negatively related to SWL.

Conclusion

A take-away from this discussion seems to be that adolescents do get addicted to the internet, they have various reasons to use it and student characteristics also play a role why and how students may use the internet. Generation Y is tech savvy and is addicted to technology (at least to mobile phones), which can also become a valid educational technology if used correctly. While technology can and should be integrated into education, the instruction should be designed so that it can be used in a productive way. Students need to be educated about the positive and the negative that can be obtained from social networks. Internet pages can be created to enhance academic activities, avoiding setbacks in the students' academic performance. Students also need to be monitored by teachers and parents on their use of social networking sites. For students addicted to social media, counselling should be available to help them overcome their addiction. Further, it might be possible to turn students' addiction to the internet into a favorable condition and use social media in instruction thinking that it can increase students' motivation in learning.

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