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Exploring the Potential Correlation Between Smartphone Screen Time and Media Literacy

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The advent and popularity of mobile smart devices have altered media consumption habits. Smartphones have increased the amount of time that is spent interacting with screens, subsequently increasing the amount of media that is being consumed. With more time being spent reading the news, scrolling on social networking sites, and engaging with mobile applications, there is a concern about how well the information consumed is comprehended. The process by which media literacy can be gained is currently unclear.

This study investigates the relationship between iPhone users' screen time consumption and their media literacy skills. Screen time is calculated both as an overall average and by media type. Media literacy is calculated through the use of Koc and Barut's New Media Literacy Scale (2016).

Findings illustrate that there is a statistically significant correlation between Other screen time and media literacy. This study offers a glimpse into the relationship between iPhone usage and media literacy, prompting further exploration into both the benefits of screen time and how media literacy skills can be strengthened.

Keywords: Smartphones, Screen Time, Media Literacy

Introduction

Smartphones have integrated into nearly every aspect of daily routines. In turn, these devices have altered the patterns in which communication is facilitated, increased the time spent engaging with media, and allowed users to access information without being bound to a stationary device (Roehrick et al., 2023). The adaptation of mobile smart technologies has significantly affected societal functions, making it increasingly more difficult to participate without having a smartphone. Social connectivity, role in society, and functionality in everyday life have all begun to become dependent on one's ability to adapt to technological advancements (den Hond & Moser, 2023). Smartphones have intertwined with transportation, economic transfers, and event interactions, making them a crucial technology and increasing their perceived need for consumers (Dai et al., 2024).

Smartphones have been found to be a highly beneficial tool, particularly when used in the educational setting. Their small size and ability to be used independently enable users to access information and gain knowledge anytime, anywhere (Cross et al., 2019). Although other mobile devices, such as tablets and e-readers, can be useful for education, they are not often considered to be the preferred device (Jokela et al., 2015), making these devices secondary to smartphones. The popularity of smartphones and the subsequent increase in screen time have been a focus for researchers. Particularly, research has been focused on the effects screen time can have on users' mental and physical well-being (Anderl et al., 2023; Hartanto et al., 2023; Toh et al., 2021).

The purpose of this study is to explore another potential benefit of smartphone screen time, with its proposed relationship with media literacy. This is a quantitative study that utilized the online survey distribution service CloudResearch to investigate the potential correlation between an increase in smartphone screen time and a higher media literacy score. This study was limited to Apple iPhone users located in the United States of America, with screen time being calculated through the use of Apple's built-in screen time tracker. Media literacy was calculated through the utilization of Koc and Barut's New Media Literacy Scale (2016).

Literature Review

Mobile smart devices, such as smartphones, have overtaken many of the tasks traditionally done on a desktop or laptop computer, including browsing the internet, accessing emails, and facilitating digital communication (Jokela et al., 2015). Smartphones enable internet access without being tethered to one specific area, thus opening a gateway to information on the go, giving users the freedom to engage in entertainment, communicate with others, and seek answers to questions in real time (Andersson, 2022). These devices are utilized on a daily, hourly, and sometimes even minute-by-minute basis, with the average user's day consisting of moderate and inconsistent smartphone usage (Roehrick et al., 2023). The consistent use of smartphones becomes apparent when investigating screen time reports, especially considering that it has been found that screen time self-reporting is not accurate, with users having a tendency to underreport the time spent engaging with screens (Lee et al., 2021; Marengo et al., 2021; Rozgonjuk et al., 2023).

It has been found that there are negative side effects of smartphone usage. Children's emotional, cognitive, and social development are all negatively influenced by smartphone addiction (Kim et al., 2021). Smartphone and social media use were also found to correlate with eating disorder symptomatology, with eating concern having the strongest correlation with smartphone usage (Rozgonjuk et al., 2023). An association with increased screen time and an association with irritability, low mood, and cognitive development has also been found (Domingues-Montanari, 2017).

Similarly, physical health problems have been found to correlate with increased screen time. Prolonged smartphone usage has been found to be related to weaker hand-grip and pinch-grip (Osailan, 2021). This body of research also suggests that smartphone use may be a contributing factor to the loss of hand muscle strength. Headaches, ear ringing, hearing issues, shoulder pain, and joint stiffness are also common complaints from those with substantial smartphone screen time (Machado et al., 2023).

Media Literacy

Often regarded as a response to the demands of the 21st century, media literacy is the cultivation of the skills and knowledge essential for approaching media content and its influence with a critical, analytical perspective (Albermann & Hagood, 2000). Media literacy is an essential skill for comprehending media messages and the intended purpose and outcomes of what is being produced and presented. This skill refers to the ability to interact in a state of active inquiry, cautiously considering texts, the forces and factors that shape them, and understanding how the intended audience is expected to interpret and respond (Scharrer, 2022).

Media literacy is popularly considered to be a skill of self-determination; however, this "do-it-yourself" approach places the burden on the individual (Masur et al., 2021). Widespread misinformation has made it crucial to investigate the ways in which media literacy can be increased, especially in a time of fake news and false information taking over the internet (Sádaba et al., 2023). There is especially a need for media literacy on the student level, helping support and empower the youth to effectively navigate the digital information landscape (Mann, 2026). Educational centers around the world have begun implementing

media literacy classes with the goal of improving media literacy skills in a wide range of students (Lev-On et al., 2022; Purtilo-Nieminen et al., 2021; Shear & Hawkman, 2023; Zhang et al., 2024). However, there are inconclusive results on whether or not these courses have a significant and repeatable impact on media literacy skills. Teaching media literacy has been found to be a difficult task, especially when only the bare minimum is taught (Shear & Hawkman, 2023).

Park and Burford ran a longitudinal study to find if having access to a new digital device would have an effect on the participants' media literacy skills. This study took place over the course of a year, with participants checking in on a regular basis. As a result, it was found that participants' digital media literacy levels did change over time, and those who used the tablet to access information and connect with others socially increased their digital media literacy. However, this increase in media literacy was unable to be directly correlated with the time spent interacting with the tablet (Park & Burford, 2013).

An investigation on the factors that influence children's Executive Function found that time spent actively engaging with a screened device was positively correlated with executive function, but time passively engaging with the device had a negative effect on executive function (Altun, 2022). Executive function is a set of cognitive skills that help regulate one's behavior and ability to adapt responses. Executive function and media literacy are different skill sets, but overlap in their roles in decision-making and understanding situations.

New Media Literacy Scale

Koc and Barat developed and validated a new media literacy scale (NMLS) to assist in the measurement and operationalization of new media literacy. This consists of thirty-five items comprised of four factors: Functional Consumption, Critical Consumption, Functional Prosumption, and Critical Prosumption. The NMLS encompasses all the complex factors of modern media literacy and can be used as a starting point to conduct research on media literacy skills. This utilizes a Likert scale formulation (1- Strongly disagree, 2- Disagree, 3- Neither agree nor disagree, 4 - Agree, 5- Strongly agree), with the addition of responses resulting in a reflective media literacy score (Koc & Barut, 2016).

Research Question

RQ- How does iPhone screen time affect media literacy for U.S. users?

Methodology

The purpose of this non-experimental quantitative study is to investigate the potential relationship between United States iPhone users' screen time and media literacy score. Screen time was calculated through the use of the iPhone's internal tracking reports, as found in the settings. This feature automatically creates a report of device usage, including the weekly total and daily average (Support, 2026). Utilizing the iPhone's built-in report reduces the burden of participation for the sample population, as well as increases reporting accuracy (Gower & Moreno, 2018). Participants were asked to submit screenshots of their in-device screen time reports, and the submissions were calculated into minutes.

Media literacy was calculated through Koc & Barut's New Media Literacy Scale (2016), with participants answering the 35 Likert scale questions regarding their media consumption, creation, and understanding. When added together, a higher total of the scale question responses indicates more media literacy, and a lower total indicates lower levels of media literacy. Koc and Barut's New Media Literacy Scale has been validated, adopted from the literature surrounding New Media Literacy (Chen et al., 2011; Lin et al., 2013).

To gather and produce a statistical estimate of the proposed relationship between smartphone screen time and media literacy, this study used a survey to collect data. The survey was posted on CloudResearch where potential participants who met the study's requirements of being United States iPhone users received financial payment in return for their time. CloudResearch is an online survey distribution service that allows researchers to collect data from participants in their target demographic and manage large-scale online studies (CloudResearch, 2022). Although there are a variety of options for online survey distribution platforms, participants on CloudResearch have been found to be more likely to pass attention checks, give meaningful answers, and follow research instructions (Douglas et al., 2023).

The population for this study is limited to iPhone users in the United States of America. Owning an iPhone and using it as a main mobile communication device was the main requirement to be considered for this study. The population encompassed a wide range of demographics, spanning age, gender, career, economic status, and location barriers; however, all participants had to meet the minimum age requirement of 18. This study's participation requirements were chosen based on device usage and popularity in the United States. iPhones are one of the most popular smartphone brands in the United States (Laricchia, 2024), with an estimated over 155 million people in the United States being iPhone users (Oberlo, 2024).

The survey utilized in this study first asked participants to answer questions regarding their demographics, including age, sex, and education level. Next, instructions were provided to ensure participants understood how to find the device's screen time report and were able to take the necessary screenshots. These instructions walked participants through the process of opening the settings, finding the screen time report data, and taking a screenshot on the device.

Protecting the confidentiality of participants is a crucial aspect of meeting the expected ethical standards in academic research. In order to keep participants confidential, identifying information was not collected as part of this study. Although the survey collected demographic information, it did not collect any personally identifiable information, such as name, home address, or email. Participants in this study were incentivized with a monetary payment for completing the survey.

Once the data from the survey was collected, it was downloaded into Microsoft Excel, where screen time was calculated from the screenshots into minutes. Once the survey answers were transcribed into Excel, they were uploaded into SPSS for further data analysis. The data was first tested for normality, and was then analyzed by calculating Pearson's correlation coefficient.

Findings

As detailed in Table 1, the dataset for this study consisted of 400 participants. 33.5% of participants identified as male, 64% as female, and 2.5% as non-binary. The majority of the 400 participants reported having a Master's Degree (42.8%), followed by those with an Associate's Degree (27%), Doctorate Degree (14.8%), Bachelor's Degree (12%), and High School Diploma or GED (1.8%). 42.8% of participants were between the ages of 18-30, 42.8% were between 31-45, 11% were between 46-60, 3.5% were between 61-75, and 0% were over the age of 76.

Table 1. Demographic Profiles of Study Participants

Demographic Variable	Category	Number of Respondents	Percentage of Respondents
Gender	Male	134	33.5%
	Female	256	64.0%
	Non-Binary	10	2.5%
	Other	0	0%
Education Level	High School Diploma or GED	7	1.8%
	Associate's Degree	108	27.0%
	Bachelor's Degree	48	12.0%
	Master's Degree	171	42.8%
	Doctorate Degree	59	14.8%
	Other	7	1.8%
Age Range	18-30	171	42.8%
	31-45	171	42.8%
	46-60	44	11.0%
	61-75	14	3.5%
	76+	0	0

Note. n = 400

Table 2 details the average screen time for the participants, calculated in minutes. Daily average mean screen time was 459.25 minutes, the weekly total was 2,399.60, Social was 788.28, Creativity was 91.22, Productivity and Finance was 261.23, Information and Reading was 206.77, Shopping and Food was 110.26, Entertainment was 352.97, Utilities was 176.20, Games was 418.93, Health and Fitness was 54.51, Travel was 72.28, Education was 49.41, and Other was 293.96.

Table 2. Participant Average Screen Time

Screen Time Type	M	SD	n
Daily Average	459.25	227.13	400
Weekly Total	2399.60	1259.14	388
Social	788.28	660.18	395
Creativity	91.22	157.53	262
Productivity and Finance	261.23	298.59	384
Information and Reading	206.77	271.01	335
Shopping and Food	110.26	140.06	303
Entertainment	352.97	621.75	340
Utilities	176.20	368.03	283
Games	418.93	536.52	210
Health and Fitness	54.51	111.12	167
Travel	72.28	98.85	235
Education	49.41	164.57	105
Other	293.96	381.71	358

Note. M and SD represent mean and standard deviation, respectively. Screen time is calculated in minutes.

Before data analysis, a Shapiro-Wilk test was conducted to assess the normality of the distribution of the survey results. The test indicated a deviation from normality ($p < 0.001$). Pearson's correlation does not assume normality (Chok, 2010) making it applicable. Table 3 details the Pearson's correlation coefficients.

Table 3. Screen Time and Media Literacy Correlations

	<i>n</i>		Daily Average Screen Time	Weekly Total Screen Time	New Media Literacy Score
Daily Average Screen Time	400	Pearson's correlation	1	.906**	.057
		Sig. (2-tailed)		<.001	.255
Weekly Total Screen Time	388	Pearson's correlation	.906**	1	.034
		Sig. (2-tailed)	<.001		.505
Media Literacy Score	400	Pearson's correlation	.057	.034	1
		Sig. (2-tailed)	.255	.505	

Note. **. Correlation is significant at the 0.01 level (2-tailed).

As can be seen in Table 3, a statistically significant ($p = <.001$), strong positive correlation (.906) was found between the daily average screen time and the weekly total screen time. There was no statistically significant correlation between the daily average screen time and media literacy ($p = .255$). There was no statistically significant correlation found between the weekly total screen time and media literacy ($p = .505$).

Discussion of Findings

Media literacy is a widely-wished-for skill, yet there is not currently a clear way in which an individual can increase their media literacy skills. Researchers have theorized and tested several different paths in which consumers can increase their media literacy skills, including through courses, by producing media on their own, or with access to new digital technology (Lev-On et al., 2022; Purtilo-Nieminen et al., 2021; Shear & Hawkman, 2023; Zhang et al., 2024). However, these studies have found inconclusive results on whether or not these methods have a significant and repeatable impact on increasing media literacy skills.

This study investigated the relationship between smartphone screen time and media literacy. When Pearson's correlation coefficient was calculated for these variables, a strong positive correlation ($r = .906$) was found between the total weekly average and daily average screen time. No correlation was found between either screen time variable and the participant's score on the New Media Literacy Scale, and so, no correlation was found between smartphone screen time and media literacy.

Descriptive statistics, means, and Pearson correlation were all utilized in this study to address the research question. The Pearson correlation coefficient did not show a statistically significant relationship between iPhone screen time and media literacy. However, when the Pearson correlation coefficient was calculated between each iPhone screen time category and the New Media Literacy Scale score, a weak positive correlation was found between Other screen time and media literacy. This is the only statistically significant correlation found as part of this body of research.

Other screen time category consists of the time spent engaging with an iPhone that does not fit into any of the other categories pre-determined by iPhone software. This includes uncategorized websites being visited through the phone's built-in web browser, software features such as taking screenshots or user authentication services, and applications that offer mixed functionality and do not fit into a single category. The type of screen time found in the Other category of iPhones varies in their content and can be hard to define, but they do all have one major factor in common: they can be classified as alternative media.

Alternative media can be defined as any source of media that is not of interest to the public masses, not conventional, or not the socially established popular pick (Rauch, 2015).

The positive correlation between Other screen time and media literacy supports Vliegthart et al.'s (2024) findings that alternative media consumption was associated with fewer media misperceptions, given that having fewer misperceptions is a crucial aspect of media literacy. Media consumers who recognize perceptions rooted in false information and adjust their beliefs according to such are more media literate.

The lack of a correlation between daily and weekly smartphone screen time and media literacy requires a consideration of what could have potentially affected the outcome. One of the factors that may have affected the results of this study was the data collection method of utilizing CloudResearch. Online web survey results can be at a disadvantage due to the digital divide and the inability to reach participants who do not have internet access. It has been found that web surveys are the most useful for reaching younger, more technology-oriented people (Daikeler et al., 2022). The overwhelming majority of the participants in this study's sample are aged 45 and younger (85.6%), which supports the claim that online web surveys reach a younger participant pool. It should also be considered that the participants sampled in this study could be more technologically savvy than average, given that they are active CloudResearch users, which may have affected the average media literacy score.

With the above factors being plausible, it is also crucial to note that there may just not be a correlation between smartphone screen time and media literacy. The lack of a correlation adds to the body of knowledge of media literacy, especially in how it aids in the understanding of how and how not media literacy can be increased. The lack of a correlation demonstrates that media literacy is not necessarily gained with time spent consuming media. A similar lack of correlation was found in a 2013 longitudinal study on the effects of tablet usage on media literacy (Park & Burford). This study found that, although those who used a tablet for information access and social activities had an increased media literacy, the overall increase in digital media literacy was not directly related to the time spent on the tablet.

Limitations

Addressing study limitations is a crucial aspect of research because the ways in which they represent areas of weakness in the design that may influence the outcomes and conclusions of the study (Ross & Bibler Zaidi, 2019). The overall population and research sample of this study are confined to only Apple iPhone users in the United States, which may influence the outcomes and conclusions of the study because the population is niche. When discussing the study results, it is critical to address that the findings only included a certain population of smartphone users in the United States, and the study does not represent users of other smartphone brands or international users. Also, this study does not include the screen time on other mobile smart devices, including iPads or other brands of smart tablets.

The survey utilized to collect the data for this study was distributed through CloudResearch, which was created by academics for the purpose of connecting one another with online survey participants efficiently and effectively. Because of the nature of the platform, CloudResearch users generally have a more technical background, and thus, participants may be limited to more tech-savvy individuals who may in turn be more media literate. Future research should take this into consideration when investigating ways in which one can increase their media literacy skills.

Conclusions

Media literacy is seen as a highly sought-after skill that is extremely valuable in a media-driven society; however, the ways in which it can be increased are currently unclear. Simultaneously, screen time and media consumption are increasing with the advent and popularity of mobile devices. This body of research sought to identify a correlation between the two.

The findings of this research may serve as guidance for a wider inquiry into the ways in which media consumption preferences affect media literacy. As consumers steer away from mainstream media and defer to alternative media sources, more research should be conducted to investigate the effects of this alteration.

This study offers a brief insight into media consumption habits and the underlying understanding of how media is comprehended, but there is certainly more to be investigated.

Further research should explore the weak positive correlation that was found between Other screen time and media literacy, particularly with Other screen time being a facet of alternative media. Furthermore, studies should investigate the potential correlation between alternative media consumption and media literacy.

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