European Journal of Education Studies
ISSN: 2501 - 1111
ISSN-L: 2501 - 1111
Available online at: www.oapub.org/edu

DOI: 10.46827/ejes.v12i4.6028 Volume 12 | Issue 4 | 2025

AN ANALYSIS OF STATE UNIVERSITIES AND COLLEGES STUDENT'S LEVEL OF AWARENESS ON DIGITAL FOOTPRINTS AND DATA PRIVACY IN DAVAO REGION, PHILIPPINES

Alan B. Alejandrino[i]
Engr. Dr., Faculty,
University of Southeastern Philippines,
Philippines

Abstract:
Students' interactions with online platforms have changed due to the swift progress of digital technology. Students at State Universities and Colleges (SUCs) in the Davao Region are increasingly steering digital settings, yet they frequently don't fully understand their digital footprints and data privacy. This study was to determine how well-informed SUC students were about these significant digital concepts and to explore the influences between their knowledge and sociodemographic characteristics such age, gender, course of study, educational attainment, amount of time spent online, and gadget use. Through Google Forms with a varied sample of students from various colleges and state universities within Davao Region, results showed that the ability of the respondents to create digital footprints and data privacy was highly impacted by age, gender and courses. Conversely, there is a correlation between levels and the amount of time spent online. Further, the students' awareness of their digital footprint was significantly influenced by their gadget use. Furthermore, the study highlighted that the institution must have a customized digital literacy innovation, emphasising data protection and footprint awareness. Similarly, to successfully advance the accountability to the students or users, the intervention of the institution must consider the gender and course of the students. Added to that, it must also be discussed the risk and appropriate usage of online environments.

Keywords: challenges, prevention education programmes, alcohol and substance abuse

1. Introduction

1.1 Background of the Study

Digital footprints, the information we leave behind when using various platforms, are becoming increasingly important in the age of digital transformation. Studies have

[i] Correspondence: email alan.alejandrino@usep.edu.ph

shown that students in State Universities and Colleges (SUCs) in the Davao Region are not fully aware of their digital footprints and the potential consequences of their actions. A lack of understanding of digital citizenship practices, such as cyberbullying, digital netiquette, and digital identity, has led to a lack of understanding among teachers, administrators, and parents. A study by Micheli *et al.* (2018) found that digital footprints can reveal how different social groups experience advantages or disadvantages, emphasizing marginalized users. However, there is a disconnect between awareness and actual practices of data privacy, and generation Z students often lack knowledge about privacy protection on social media platforms, leading to privacy paradoxes and fatigue. Alay *et al.* (2023) explored digital citizenship, focusing on digital burial, and suggested the appropriate use of digital footprints for good citizenship. Kapustina (2021) suggested developing a model for personal digital competency-based profiles by analyzing web users' digital footprints on social networks.

This study aims to analyze the level of awareness among students in SUCs in the Davao Region regarding their digital footprints and data privacy, aiming to shed light on the current state of digital literacy and provide insights into potential gaps that need to be addressed.

2. Scope of the Study

2.1 Statement of the Problem

With this challenging era, digital technologies have led to the development of digital learning environments. Thus, the study aims to determine the level of awareness of students at the State Universities and Colleges in the Davao Region on digital footprints and data privacy.

1. What is the socio-demographic profile of the respondents, such as:
    a. Age,
    b. Sex,
    c. Course,
    d. Level of Education
    e. Number of Hours Online,
    f. Gadgets Use.
2. What is the level of awareness of SUCs students on digital footprints, in terms of:
    a. Age,
    b. Sex (Gender),
    c. Course,
    d. Level of Education,
    e. Number of Hours Online,
    f. Gadgets Use.
3. What is the level of awareness SUCs students on data privacy, in terms of:
    a. Age,
    b. Sex,

c. Course,
d. Level of Education,
e. Number of Hours Online,
f. Gadgets Use.

4. Is there a significant relationship between digital footprint and data privacy of SUCs students in Davao Region?

5. Is there a significant difference in the level of awareness on digital footprints and data privacy of SUCs students when grouped by sociodemographic profile?

2.2 Objectives of the Study

Considering changing digital learning settings impacted by technology breakthroughs, the study attempts to assess students' awareness levels of digital footprints and data privacy from State Universities and Colleges (SUCs) in the Davao Region. The study specifically aims to identify the respondents' sociodemographic characteristics, such as age, sex, course, degree of education, amount of time spent online, and use of gadgets. In relation to these demographic factors, it also seeks to measure students' awareness of digital footprints and data privacy. The study will evaluate the effects of these variables on awareness levels and investigate the connection between data privacy and comprehending digital traces. Furthermore, it will investigate whether sociodemographic variables like age, sex, course, education level, online hours, and others significantly affect awareness levels.

3. Literature Review

3.1 RRL1

The Digital Literacy Theory focuses on understanding and using digital information, including online platforms and data protection. It emphasizes ethical use and critical thinking. Digital literacy involves locating, consuming, creating, and communicating. In Russia, digital literacy is studied using various approaches, including ICT, psychology, pedagogy, media, information, and industrial (Spires and Bartlett, 2012).

CPM Theory, a concept in interpersonal communication, emphasizes individuals' decision-making regarding personal information sharing based on perceived privacy risks and expectations (Petronio, S., 2010). It highlights the importance of understanding privacy management, relational development, and conflict resolution in real-world interactions, and the role of cultural and social influences in shaping communication.

The Digital Literacy Theory and Communication Privacy Management (CPM) Theory are valuable frameworks for analyzing students' awareness of digital footprints and data privacy in the Davao Region. The Digital Literacy Theory focuses on ethical digital behavior, while the CPM Theory assesses students' understanding of privacy risks, boundaries, and expectations, helping them manage their personal data effectively.

Digital literacy is increasingly crucial in various sectors, transforming communication methods and contributing to the development of an information society

through digital literacies, distance learning, ICT, online resources, multimedia, and social networks (Kameneva, N. A., 2016).

The study of Liu, Z., J. *et al.* (2020) aims to evaluate teachers' digital literacy and identify areas for innovative digital learning models. A 2018 survey in Russia found that higher education instructors and schoolteachers have a higher level of digital literacy. Enhancing training initiatives, sharing global experiences. The article emphasizes the importance of developing digital literacies for professional, educational, and personal purposes (Liu, Z. J., *et al.*, 2020).

This research, investigated by Leong, J. S. Y. (2024), on the factors influencing customers' intention to disclose their digital footprints on social media, focusing on habits, enjoyment, trust, perceived social influence, and self-enhancement, using a descriptive survey and statistical analysis. In fact. Dayarathne *et al.* (2021) found that males had more extensive digital footprint measurements than females, with the CART algorithm being the most accurate. Karabatak *et al.* (2022) found high digital footprint awareness among female faculty members at a state university in Turkey, with higher awareness of online chat tools, social networks, email services, blogs, and learning management systems.

Added by Jones *et al.* (2022) highlight a global digital literacy gap among 13-18-year-old students, revealing gender differences and specific plagiarism and critical awareness scores, impacting teaching and curriculum development. Relative to this, UNESCO's policy paper aims to address gender gaps in digital skills education, particularly for women and girls, by providing recommendations for interventions to develop and strengthen digital skills (West, *et al.*, 2019).

4. Methods

4.1 Data Analysis

The study utilized a quantitative research method to analyze students' digital footprint awareness and data privacy. A cross-sectional survey was administered to assess variations across different demographic groups, including age, gender, education, and gadget use. This approach provided a broad overview of students' current understanding without longitudinal effects.

Students from State Universities and Colleges (SUCs) in the Davao Region are the target of this study, which uses a survey questionnaire as its main data source. The survey's multiple-choice, Likert-scale, and open-ended questions are intended to gauge students' understanding and comprehension of data privacy and digital footprints. By grouping participants according to sociodemographic characteristics, including age, gender, academic courses, online engagement, and device use, stratified random sampling guarantees a representative sample. Google Forms is used to send surveys online to increase convenience and reach.

The study is carried out in SUCs located throughout the Davao Region, which is the center of higher education in Southern Mindanao. A diversified student body and

extensive use of digital platforms for communication and education define this region, which is made up of five provinces and Davao City as its metropolitan hub. It is the perfect place to study digital awareness because of its special combination of resources and difficulties.

The study focuses on students aged 18 and above in Social Work Units (SUCs) across various academic disciplines. Stratified random sampling ensures representation across demographic groups. Data analysis uses descriptive and inferential statistical methods, including ANOVA, to explore relationships between socio-demographic factors and awareness levels. The analysis investigates tech-oriented students' awareness and perceptions of privacy risks.

5. Findings and Discussions

The research results will be discussed and evaluated in this part. This study was to find out how much knowledge there was about digital footprints and data privacy among students at State Universities and Colleges (SUCs) in the Davao Region.

The study reveals that many respondents (61.42%) are between the ages of 18 and 22, with the majority being between 18 and 22 years old. The gender distribution is male, with 63.62% of the respondents being male and 36.38% female. The largest group of respondents is in Education, Arts and Social Sciences, followed by Agriculture, Forestry, and Fisheries, Business and Management, Engineering and Technology, and Health and Allied Sciences. Course code 5 is linked to the largest group, but it is not clear if this indicates a specialized field or small cohort sizes. Most respondents are in their second year of study, with 31.97% being first-year students. The study also found that most students spend 7-10 hours online daily, with 36.54% spending at least 5 hours. This high online engagement raises concerns about the balance between digital and offline lives and its impact on academic performance and well-being. Further, for the gadget use, the data shows that 58.27% of respondents own or use only a cellphone, with 36.85% using both. A small fraction (1.42%) combines cellphones, laptops, and smartwatches, while 0.31% use a laptop alone.

Table 1: The Sociodemographic Profile

Factor	Category	Percentage (%)
Age	18 and 22 years old	23.35
	19 years old	18.90
	20 years old	17.17
	21 years old	61.42
	26-40 years old	Below 5
Gender	Male	63.62
	Female	36.38
Course	Education, arts, social sciences	63.62
	Agriculture, forestry and fisheries	18.58
	Business and management	13.23
	Engineering and technology	0.31
	Health and allied sciences	4.25
Level of Education	First year	31.97
	Second year	39.06
	Third year	13.54
	Fourth year	15.43
Hours Spent Online	1-3 hours	3.94
	4-6 hours	6.77
	7-10 hours	36.54
	11-15 hours	13.07
	16-20 hours	6.77
	21 and above	< 5
Gadget Use	Cellphone only	58.27
	Cellphone and laptop	36.85
	Cellphone, laptop, and smartwatch	1.42
	Cellphone, laptop and tablet	2.99
	Laptop only	0.31
	Laptop and tablet	0.16

5.1 Socio-demographic factors and the level of awareness of SUCs students on digital footprints

The study explores students' digital footprint awareness in State Universities and Colleges, analyzing age, sex, course, and education level, to inform targeted educational interventions and policies.

In terms of age, the study found a significant difference in digital footprint awareness among different age groups, with a p-value of 0.023, indicating that age significantly impacts the level of awareness among the sampled population.

Relative to gender, the study reveals significant variability in digital footprint awareness between gender groups, with a p-value less than 0.05, indicating a greater difference in awareness. This is due to individual differences within each gender group and the ANOVA results indicating gender-based differences.

Similarly, the study reveals significant variation also in digital footprint awareness across different course groups, with a total variation of 141.8006. The F-value (15.18) indicates substantial differences across different courses. The ANOVA analysis reveals

significant differences in digital footprint awareness across different courses, possibly due to the specific field or curriculum, with technology, computer science, or communications courses incorporating more digital literacy content.

Added hereto, the ANOVA test found that the number of hours spent online did not significantly impact digital footprint awareness. The total variation in digital footprint awareness was attributed to differences in online hours, with a mean square value of 0.1915. The F-statistic was 0.86, and the p-value was 0.5109, indicating no significant difference in digital footprint awareness across different groups.

Lastly, it was also found out that the type of gadget used significantly impacts digital footprint awareness, with a low p-value (0.0000) and an F-statistic (8.57). The null hypothesis was rejected, indicating a significant effect of gadget use on digital footprint awareness. The results suggest that gadget use significantly influences one's digital footprint awareness.

Therefore, the study finds that while hours spent online have little bearing on knowledge of digital footprints, sociodemographic characteristics such as age, gender, academic course, and year level do. Given the importance of gadget diversity, interventions should concentrate on giving pupils access to technology and focused digital literacy courses. Customized approaches that target demographics (males, non-technical students, or younger people) are essential for raising awareness and encouraging responsible digital behavior.

Table 2: Socio-demographic factors and the level of awareness of SUCs students on digital footprints

Variable	Source	SS	df	MS	F	Prob > F	Decision on Ho
Age	Between groups	2.52666632	4	0.63166658	2.86	0.023	Reject Ho
	Within groups	139.27393	630	0.22106973			
	Total	**141.800597**	**634**	**0.22366025**			
Gender	Between groups	1.71044501	1	1.71044501	7.73	0.0056	Reject Ho
	Within groups	140.090152	633	0.22131146			
	Total	**141.800597**	**634**	**0.22366025**			
Course	Between groups	12.4667986	4	3.11669965	15.18	0	Reject Ho
	Within groups	129.333798	630	0.20529174			
	Total	**141.800597**	**634**	**0.22366025**			
Level of Education	Between groups	5.14434602	3	1.71478201	7.92	0	Reject Ho
	Within groups	136.656251	631	0.21657092			
	Total	**141.800597**	**634**	**0.22366025**			
Hours Spent Online	Between groups	0.95770167	5	0.19154033	0.86	0.5109	Fail to Reject Ho
	Within groups	140.842895	629	0.22391557			
	Total	**141.800597**	**634**	**0.22366025**			
Gadget Use	Between groups	9.0470571	5	1.80941142	8.57	0	Reject Ho
	Within groups	132.75354	629	0.21105491			
	Total	**141.800597**	**634**	**0.22366025**			

5.2 Socio-demographic factors and the level of awareness of SUCs students on data privacy

This study examines data privacy awareness among students at State Universities and Colleges, focusing on age, sex, course, and education level. The results show that age does not significantly impact data privacy awareness, suggesting that differences are likely due to random variation rather than actual differences. Gender significantly impacts data privacy awareness, with a significant difference between genders. Courses significantly affect data privacy awareness, with a variance of 167.5738 attributed to differences between courses. Year level significantly impacts data privacy awareness, with an F-statistic of 5.03 indicating a larger variation between year levels than within year levels. The number of hours spent online did not significantly affect data privacy awareness, with a total variance of 0.5282. The null hypothesis was rejected, indicating that the type of gadget used is a key factor influencing levels of data privacy awareness. The findings suggest that tailored educational initiatives can better equip students with the knowledge to protect their digital identities and personal data.

Table 3: The socio-demographic factors and the level of awareness of SUCs students on data privacy

Variable	Source	SS	df	MS	F	Prob > F	Decision on Ho
Age	Between groups	1.645	4	0.4106	1.56	0.1836	Failed to Reject Ho
	Within groups	165.9313	630	0.2634			
	Total	**167.5738**	**634**	**0.2643**			
Gender	Between groups	3.4187	1	3.4187	**13.18**	**0.0003**	**Reject Ho**
	Within groups	164.1551	633	0.2593			
	Total	**167.5738**	**634**	**0.2643**			
Course	Between groups	8.6817	4	2.1704	**8.61**	**0.0000**	**Reject Ho**
	Within groups	158.8921	630	0.2522			
	Total	**167.5738**	**634**	**0.2643**			
Level of Education	Between groups	3.9119	3	1.3040	**5.03**	**0.0019**	**Reject Ho**
	Within groups	163.6620	631	0.2594			
	Total	**167.5738**	**634**	**0.2643**			
Hours Spent Online	Between groups	0.5282	5	0.1056	**0.40**	**0.8505**	**Failed to Reject Ho**
	Within groups	167.0456	629	0.2656			
	Total	**167.5738**	**634**	**0.2643**			
Gadget Use	Between groups	7.6891	5	1.5378	**6.05**	**0.0000**	**Reject Ho**
	Within groups	159.8847	629	0.2542			
	Total	**167.5738**	**634**	**0.2643**			

5.3 Significant relationship between digital footprint and data privacy of SUCs students in Davao Region

The regression analysis reveals a strong positive relationship between data privacy awareness and digital footprint awareness. A positive coefficient of 0.8119 indicates that for every one-unit increase in digital footprint awareness, data privacy awareness increases by 0.8119 units. A p-value of 0.0000, which is highly significant, suggests that digital footprint awareness significantly impacts data privacy awareness. The null hypothesis (no relationship) is rejected, confirming that digital footprint awareness plays

a crucial role in shaping data privacy awareness. The study concludes that digital footprint awareness significantly impacts data privacy awareness.

Table 4: Presented the relationship between data privacy awareness and digital footprint awareness

Variable	Mean	Std. Dev.	Description
Digital Footprint	4.26	0.47	Very High
Data Privacy	4.29	0.51	Very High
Overall Mean	4.27	0.47	Very High

A regression analysis reveals a strong positive relationship between data privacy awareness and digital footprint awareness. The coefficient of 0.8119 indicates that for every one-unit increase in awareness or behavior related to the digital footprint, there is an expected increase of 0.8119 units in data privacy awareness. A p-value of 0.0000 indicates that this relationship is highly significant, indicating that as individuals become more knowledgeable or mindful of their digital footprint, their awareness of data privacy issues increases substantially. The null hypothesis (Ho) is rejected, confirming that digital footprint significantly influences data privacy awareness. Improving people's awareness of their digital footprint is likely to enhance their understanding and practices regarding data privacy.

Table 5: Relationship between data privacy awareness and digital footprint awareness

Digital Footprint	Coefficient	p-value	Decision on Ho
Data Privacy	0.8119*	0.0000	Reject Ho

5.4 Significant difference in the level of awareness on digital footprints and data privacy of SUCs students when grouped by sociodemographic profile

The data reveals significant differences in students' awareness of digital footprints among different sociodemographic factors. Age, gender, course, level of education, and gadget use are the main factors influencing students' awareness. Age significantly influences students' understanding of the implications of their digital presence and online activities. Gender also influences how students perceive and understand the impact of their digital footprints. The course also influences students' awareness, suggesting that students in different academic fields may have different levels of understanding regarding the consequences of their online behaviors and personal data. Year level also plays a significant role in awareness, suggesting that as students progress through their academic journey, their awareness may change. Hours spent online do not significantly affect students' awareness levels. The type of gadgets used by students also plays a significant role in shaping awareness.

Moreover, the study reveals that sociodemographic factors like age, gender, education level, and gadget use significantly influence students' awareness of their digital footprints.

Table 6: Presented the in students' awareness of digital footprints among different sociodemographic factors

Variable	Source	SS	df	MS	F	Prob > F	Decision on Ho
Age	Between groups	2.5267	4	0.6317	2.86	0.023	Reject Ho
	Within groups	139.2739	630	0.2211			
	Total	**141.8006**	**634**	**0.2237**			
Gender	Between groups	1.7104	1	1.7104	7.73	0.0056	Reject Ho
	Within groups	140.0902	633	0.2213			
	Total	**141.8006**	**634**	**0.2237**			
Course	Between groups	12.4668	4	3.1167	15.18	0	Reject Ho
	Within groups	129.3338	630	0.2053			
	Total	**141.8006**	**634**	**0.2237**			
Level of Education	Between groups	5.1443	3	1.7148	7.92	0	Reject Ho
	Within groups	136.6563	631	0.2166			
	Total	**141.8006**	**634**	**0.2237**			
Hours Spent Online	Between groups	0.9577	5	0.1915	0.86	0.5109	Fail to Reject Ho
	Within groups	140.8429	629	0.2239			
	Total	**141.8006**	**634**	**0.2237**			
Gadget Use	Between groups	9.0471	5	1.8094	8.57	0	Reject Ho
	Within groups	132.7535	629	0.2111			
	Total	**141.8006**	**634**	**0.2237**			

On the other hand, Table 7 presents the students' awareness of data privacy based on sociodemographic factors. Results showed no significant difference in awareness across different age groups, but a significant difference between male and female students. Awareness varies across different academic courses, with students pursuing different fields having different levels of awareness. Academic progression also affects students' awareness, with more advanced students having increased exposure to privacy and data security discussions. The number of hours spent online did not significantly impact students' awareness, suggesting that the amount of time spent online is not a key factor. The type of gadget used also influenced data privacy awareness, with a low p-value indicating that the type of gadget used is a significant factor.

Thus, the findings suggest that sociodemographic factors, such as gender and academic background, play a more substantial role in shaping students' understanding of data privacy than the amount of time spent online or their age.

Table 7: Presented the students' awareness of data privacy based on sociodemographic factors

Variable	Source	SS	df	MS	F	Prob > F	Decision on Ho
Age	Between groups	1.6450	4	0.4106	1.56	0.1836	Fail to Reject Ho
	Within groups	165.9313	630	0.2634			
	Total	**167.5738**	**634**	**0.2643**			
Gender	Between groups	3.4187	1	3.4187	13.18	0.0003	Reject Ho
	Within groups	164.1551	633	0.2593			
	Total	**167.5738**	**634**	**0.2643**			
Course	Between groups	8.6817	4	2.1704	8.61	0	Reject Ho
	Within groups	158.8921	630	0.2522			
	Total	**167.5738**	**634**	**0.2643**			
Level of Education	Between groups	3.9119	3	1.3040	5.03	0.0019	Reject Ho
	Within groups	163.6620	631	0.2594			
	Total	**167.5738**	**634**	**0.2643**			
Hours Spent Online	Between groups	0.5282	5	0.1056	0.40	0.8505	Fail to Reject Ho
	Within groups	167.0456	629	0.2656			
	Total	**167.5738**	**634**	**0.2643**			
Gadget Use	Between groups	7.6891	5	1.5378	6.05	0	Reject Ho
	Within groups	159.8847	629	0.2542			
	Total	**167.5738**	**634**	**0.2643**			

6. Summary

The study analyzed the awareness of students at State Universities and Colleges in the Davao Region regarding digital footprints and data privacy. It found a strong correlation between digital footprint awareness and data privacy awareness, with age, gender, course, and year level being significant factors. However, hours spent online had little effect. The type of gadget used was a key factor influencing both. The study suggests that targeted educational interventions based on socio-demographic characteristics could improve students' understanding of digital footprints and data privacy, emphasizing the importance of responsible online behaviors.

6.1 Recommendations

Universities should implement targeted digital literacy programs to raise awareness about digital footprints and data privacy, especially for non-technical students. Integrating digital literacy into academic curricula, including technology, computer science, and communications courses, can enhance students' understanding. Ensuring gadget accessibility and training is crucial for promoting responsible online practices. Further research is needed to evaluate the effectiveness of these programs and track changes in students' digital behavior and data privacy practices over time.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Engr. Dr., Alan B. Alejandrino, Licensed Civil Engineer with specialization in Construction Engineering and Management, currently serving as Associate Professor I at the University of Southeastern Philippines. He handles undergraduate and graduate courses under the College of Development Management integrating engineering principles with development management strategies, bridges technical disciplines with the strategic framework of development management, fostering interdisciplinary learning and application.

Research Engagements:

- Actively involved in the university's research programs.
- Research interest include:
  - Public Safety and Security
  - Rural and Urban Development
  - Water Management System focus on Sustainable Water Resource Utilization, Flood Risk Mitigation and Resilient Infrastructure Planning.

Extension Activities:

- Community-based initiatives focus on Local Governance Capacities, Infrastructure Development, and Environmental Sustainability
- Ensures academic outputs lead to tangible societal impacts, promoting holistic and inclusive community development.

Area of Interest:

- Construction Engineering and Management
- Sustainable and Resilient Infrastructure Systems
- Rural and Urban Development and Planning
- Extension and Community Development
- Governance and Leadership in Public Sector Development

Membership in Professional Societies:

- Philippine Institute of Civil Engineers (PICE)
- Structural Engineers Association of Davao, Inc. (SEAD)
- The Philippine Association for the Advancement of Science and Technology (PhilAAST)
- Analytics Association of the Philippines

Papers Presented to International Conferences:

- Development of Water Security Governance Framework in the Context of Rapid Urbanization in Davao Region (Asian Conference on Education for Sustainable Development – 2021)
- Leadership Competency Model for Public Safety Officers Senior Executive (PSPA 2021 International Conference)
- Development of Contextual Intelligence Leadership Model in the Implementation of Executive Order No. 70 (PSPA 2023 International Conference)

Education Summary:
- PhD in Development Research Administration, University of Southeastern Philippines, 2015
- Master of Teaching Mathematics, University of Southeastern Philippines, 2005
- Bachelor of Science in Civil Engineering, Cor Jesu College, 1987
ORCID: https://orcid.org/0009-0000-3145-2884
Research Gate: https://www.researchgate.net/profile/Alan-Alejandrino?ev=hdr_xprf

References

Alay, H. K., & Deveciyan, M. T. (2023). Digital Footprint Management: Digital Burial. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi*, *13*(3), 1446-1456. https://doi.org/10.30783/nevsosbilen.1270853

Brake, S. A. (2022). Digital Privacy: A Quantitative Study Exploring the Influence of Privacy Fatigue on Privacy Management Behavior in Generation Z College Students. Doctoral dissertation. Retrieved from https://digitalcommons.liberty.edu/doctoral/3582/

Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). Sage Publications. Retrieved from https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf

Dadios, E. P., Culaba, A. B., Albert, J. R. G., Paqueo, V. B., Orbeta, A. C., Serafica, R. B., ... & Bairan, J. C. A. C. (2018). *Preparing the Philippines for the fourth industrial revolution: A scoping study* (No. 2018-11). PIDS Discussion Paper Series. Retrieved from https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1811.pdf

Davydov, S., Logunova, O., Maltseva, D., Sharikov, A., & Zadorin, I. (2020). Digital literacy concepts and measurement. *Internet in Russia: A study of the Runet and its impact on social life*, 103-120. Retrieved from https://link.springer.com/chapter/10.1007/978-3-030-33016-3_6

Dayarathne, S., Nawarathna, L. S., & Nanayakkara, D. (2021). Determination gender using foot, footprint, hand and handprint measurements in a Sinhalese population in Sri Lanka using supervised learning techniques. *Computer Methods and Programs in Biomedicine Update*, *1*, https://doi.org/10.1016/j.cmpbup.2021.100017

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). SAGE Publications. Retrieved from https://sadbhavnapublications.org/research-enrichment-material/2-Statistical-Books/Discovering-Statistics-Using-IBM-SPSS-Statistics-4th-c2013-Andy-Field.pdf

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Pearson. Retrieved from https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf

Jones, S. L., & Procter, R. (2023). Young peoples' perceptions of digital, media and information literacies across Europe: gender differences, and the gaps between attitudes and abilities. *Technology, Pedagogy and Education*, *32*(4), 435-456. https://doi.org/10.1080/1475939X.2023.2210152

Kameneva, N. A. (2016). Modern approach to digital literacy development in education. *Открытое образование*, *20*(1), 60-65. http://dx.doi.org/10.21686/1818-4243-2016-1-60-65

Kapustina, L. V. (2021). Digital footprint analysis to develop a personal digital competency-based profile. *Current Achievements, Challenges and Digital Chances of Knowledge Based Economy*, 591-596. Retrieved from https://link.springer.com/chapter/10.1007/978-3-030-47458-4_68

Karabatak, S., & Alanoğlu, M. (2022). Faculty Members'digital Footprint Experiences and Digital Footprint Awareness. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi*, (44), 31-41. Retrieved from http://dx.doi.org/10.54614/AUJKKEF.2022.891924

Kumar, H., & Raj, P. (2020). An indagation on experiences and awareness of digital footprint among pupils of higher education. *Acad Res Int*, *11*(3), 16-31. Retrieved from http://www.savap.org.pk/journals/ARInt./Vol.11(3)/ARInt.2020(11.3-03).pdf

Leong, J. S. Y. (2024). *Factors affecting consumers behavioral intention to share digital footprints on social media* (Doctoral dissertation, UTAR). Retrieved from http://eprints.utar.edu.my/6731/

Martin, F., Hunt, B., Wang, C., & Brooks, E. (2020). Middle school student perception of technology use and digital citizenship practices. *Computers in the Schools*, *37*(3), 196-215. https://doi.org/10.1080/07380569.2020.1795500

Micheli, M., Lutz, C., & Büchi, M. (2018). Digital footprints: an emerging dimension of digital inequality. *Journal of Information, Communication and Ethics in Society*, *16*(3), 242-251. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/jices-02-2018-0014/full/html

Miková, J., Kárníková, R., & Mičková, H. (2022). Pedagogy Students' Awareness of Their Own Digital Footprints. In *ICERI2022 Proceedings* (pp. 2136-2142). IATED. Retrieved from https://doi.org/10.21125/iceri.2022.0540

Moon, E. C. (2018). Teaching students out of harm's way: Mitigating digital knowledge gaps and digital risk created by 1: 1 device programs in K-12 education in the USA. *Journal of Information, Communication and Ethics in Society*, *16*(3), 290-302. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/jices-02-2018-0012/full/html

Liu, Z. J., Tretyakova, N., Fedorov, V., & Kharakhordina, M. (2020). Digital literacy and digital didactics as the basis for new learning models development. *International Journal of Emerging Technologies in Learning* *15*(14). http://dx.doi.org/10.3991/ijet.v15i14.14669

Masrom, M. B., Busalim, A. H., Abuhassna, H., & Mahmood, N. H. N. (2021). Understanding students' behavior in online social networks: a systematic literature review. *International Journal of Educational Technology in Higher Education*, *18*, 1-27. https://doi.org/10.1186/s41239-021-00240-7

Perchinunno, P., Bilancia, M., & Vitale, D. (2021). A statistical analysis of factors affecting higher education dropouts. *Social Indicators Research*, *156*, 341-362. https://doi.org/10.1007/s11205-019-02249-y

Petronio, S. (2010). Communication privacy management theory: What do we know about family privacy regulation?. *Journal of family theory & review*, *2*(3), 175-196. https://doi.org/10.1111/j.1756-2589.2010.00052.x

Petronio, S., Child, J. T., & Hall, R. D. (2021). Communication privacy management theory: Significance for interpersonal communication. In *Engaging theories in interpersonal communication* (pp. 314-327). Routledge. Retrieved from https://sk.sagepub.com/book/edvol/engaging-theories-in-interpersonal-communication/chpt/communication-privacy-management-theory-significance

Pingo, Z., & Narayan, B. (2019). Privacy literacy and the everyday use of social technologies. In *Information Literacy in Everyday Life: 6th European Conference, ECIL 2018, Oulu, Finland, September 24–27, 2018, Revised Selected Papers 6* (pp. 33-49). Springer International Publishing.

Spires, H. A., Paul, C. M., & Kerkhoff, S. N. (2018). Digital literacy for the 21st century. In *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 2235-2242). IGI Global. Retrieved from https://www.igi-global.com/book/encyclopedia-information-science-technology-fourth/173015

Tabuga, A. D., Domingo, S. N., Diokno-Sicat, C. J., & Ulep, V. G. T. (2020). *Innovating governance: Building resilience against COVID-19 pandemic and other risks* (No. 2020-23). PIDS Discussion Paper Series. Retrieved from https://www.econstor.eu/handle/10419/241012

Tinto, V., (November 2017). Through the Eyes of Students. Journal of College Student Retention: Research, Theory & Practice. Retrieved from https://www.semanticscholar.org/paper/Through-the-Eyes-of-Students Tinto/eae6fe16648f2982465bc7571fec07aab3f5cf48

West, M., Kraut, R., & Ei Chew, H. (2019). I'd blush if I could: closing gender divides in digital skills through education. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000367416