



Enhancing students' social network usage awareness to meet the requirements of Education 4.0

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ABSTRACT

The rapid evolution of digital technologies and the rise of social networks have significantly impacted educational practices, particularly in the context of Education 4.0. This paper explores the critical need for enhancing students' awareness of social network usage by integrating digital competence into the educational framework. By examining the challenges posed by social networks, including privacy concerns, misinformation, and mental health issues, this study highlights the importance of equipping students with the digital competencies needed to use these platforms safely and responsibly. This paper proposes a comprehensive approach to embedding digital competence across curricula, fostering a deeper understanding of ethical online behaviors, and aligning educational practices with the demands of the Fourth Industrial Revolution.

TÓM TẮT

Sự phát triển nhanh chóng của công nghệ số và mạng xã hội đã tác động đáng kể đến các hoạt động giáo dục, đặc biệt là trong bối cảnh giáo dục 4.0. Bài báo này tìm hiểu những yêu cầu cấp thiết trong việc nâng cao nhận thức của sinh viên về việc sử dụng mạng xã hội bằng cách tích hợp năng lực số vào chương trình dạy học. Bài báo xem xét những thách thức do mạng xã hội tạo ra bao gồm các vấn đề về quyền riêng tư, thông tin sai lệch, các vấn đề về sức khỏe tâm thần, ... Nghiên cứu này nhấn mạnh tầm quan trọng của việc trang bị cho sinh viên các năng lực số cần thiết để sử dụng các nền tảng mạng xã hội một cách an toàn và có trách nhiệm. Bài báo đề xuất một cách tiếp cận toàn diện để lồng ghép năng lực số vào chương trình dạy học, thúc đẩy sự hiểu biết sâu sắc hơn về các hành

vi đạo đức trực tuyến và điều chỉnh các hoạt động giáo dục theo nhu cầu của Cuộc cách mạng công nghiệp lần thứ tư.

1. INTRODUCTION

We are living in the Fourth Industrial Revolution featured by 9 characteristics: 1) Cost savings; 2) Reliability/tranferency of data; 3) Autonomous or decentralized decision making; 4) Time savings/reduction of process time, delivery time decrease; 5) Improving quality; 6) Increasing productivity; 7) Improving sustainability/Better management of resources; 8) Agility/flexibility; 9) Inventory tracking in a real-time [1].

The advent of the Fourth Industrial Revolution has led to significant transformations across various sectors including educational practices, particularly in the context of Education 4.0. Education 4.0 has been defined as learning techniques connected with the Fourth Industrial Revolution, and focuses on transforming the future of education through cutting-edge technologies including smart technologies, artificial intelligence, robotics and automation [2]. Education 4.0 highlights the integration of advanced technologies into learning environments which can be physical spaces such as classrooms, schools, or workplaces; virtual spaces such as digital platforms; or blended spaces that combine both physical and digital elements. Digital spaces comprised of digital platforms and digital elements are widely used in the context of Education 4.0. In the digital spaces, social networks have been used as powerful tools for communication, collaboration, and knowledge sharing in non-traditional learning environments [3]. However, the extensive use of

these platforms among students has led to several challenges, including privacy risks, the spread of misinformation, and the potential for negative impacts on mental health and many other problems such as decreased academic results, increased plagiarism, misperceptions about learning and research activities [4-6].

To address these challenges, it is imperative to enhance students' awareness of social network usage, particularly from the perspective of digital competence. Digital competence encompasses a range of knowledge, skills and attitudes required to effectively and responsibly use digital technologies. By fostering digital competence, educators can equip students with the necessary tools to critically engage with social networks, protect themselves, and contribute positively to online communities. This paper explores the importance of integrating digital competence into educational practices to enhance students' social network usage awareness and meet the requirements of Education 4.0.

1.1 Issues related to the use of social networks

Researchers found that social network users face a number of specific issues including personal privacy and security, misinformation and fake news, cyberbullying and harassment, mental health, content moderation, loss of control over personal data, identity theft and impersonation, as well as negative impacts. About real life relationships [7-10]. Similar to general users, students also have a number of problems related to the use of social networks that have also been shown by studies including

cyberbullying and online harassment, privacy risks and data security, mental health, misinformation and exposure to inappropriate content, social comparison and low self-esteem, overrated, decreased social communication skills, addiction and overuse, loss of concentration in studies [11-13].

1.2 Education 4.0

Education 4.0 is the current stage, where educational institutions apply new management tools, classroom organization methods, teaching and learning methods, smart and sustainable infrastructure supplemented by the development of information and communication technology to improve the process of knowledge creation and knowledge transfer. In other words, Education 4.0 is the stage where educational institutions apply digital transformation solutions in educational activities [2],[14] Education 4.0 has the five following characteristics:

- 1) Content, processes, activities, and educational services are designed based on digital platforms;
- 2) Combining digital-based classroom forms;
- 3) Teaching and learning are independent of location and time, personalized in teaching and learning, teaching and learning behaviors are reflected through data;
- 4) Education must be continuously improved, teaching and learning become more flexible;
- 5) Learners can participate in the process of forming teaching programs.

Education 4.0 requires educational institutions change their training methods including using synchronous online learning and asynchronous online learning besides the traditional face-to-face classrooms, using online teaching platforms and tools for teaching and learning activities. Furthermore, schools need to encourage teachers to

change their teaching strategies and methods, and guide students in learning strategies and methods. To use social networks as essential tools or learning environments, students need to equipped digital competencies to help them critically engage with social networks, protect themselves, and contribute positively to online communities [14-17].

1.3 Digital skills and digital competencies

Digital skills for workers in general are a range of abilities to use digital devices, communication applications and networks to access and manage information, create and share digital content, communicate and work collaboratively in digital environments effectively and creatively [18]. UNESCO defines digital skills comprised being equipped with the necessary skills to use digital devices and online applications in a basic way; and, having advanced skills to use digital technologies professionally in the process of performing jobs in the digital environment.

However, having digital skills is not enough, but digital competencies are also required. Digital competencies include the knowledge, skills, beliefs, abilities, and perceptions that enable us to use technology meaningfully to create knowledge, communicate, collaborate, perform tasks, manage information, solve problems, and create, and share digital content. People with digital competencies use digital knowledge and skills with a positive attitude to work effectively, appropriately, safely, creatively and independently at work and in life. Digital competencies are related to logical thinking, critical thinking, high-level information management skills, effective communication skills and ethical rules in the digital environment [19]. Therefore, people with digital competencies

use digital technology confidently and cautiously in work, entertainment, communication and must ensure ethical rules as well as comply with legal regulations. To meet the requirements of Education 4.0, teachers and students need four core digital competences: 1) Basic skills in information technology and communication; 2) Abilities to use information technology applications; 3) Learning capacity to meet the requirements of digital transformation and Education 4.0; 4) Pedagogical capacity in the digital environments [17],[18]. Bećirović (2023) [19] has synthesized alot of research results on students' digital competencies and those studies have drawn a general conclusion that students

still lack digital competencies. Nowadays, students are participating in the process of social industrialization but lack of digital competencies affecting their studies, employment after graduation and future success. So, educational institutions need to develop the necessary digital competencies for students in the context of education 4.0 and the Fourth Industrial Revolution.

1.4 Digital competencies for Education 4.0

Tondeur (2023); Tzafilkou et al. (2022) found that students need 28 essential digital competencies categorized into 6 groups as in the following table [20],[21].

Table 1. Digital competencies necessary for Education 4.0

Groups	Digital competencies
1. Search, Find, Access	1.1. Search and find a specific object or similar objects using various search engines, appropriate keywords and advanced criteria and filters. 1.2. Search and find a specific person on various social networks using various techniques and filters. 1.3. Search and find groups on a specific on various social media. 1.4. Navigate in the real-world using the advanced features of a navigator. 1.5. Watch (read, listen, view) content in various formats on various smart devices.
2. Develop, Apply, Modify	2.1. Create an event and set notifications using a digital calendar. 2.2. Creatively design and/or develop a website using various digital tools. 2.3. Create a document with text, diagrams, tables, reports, and advanced formatting. 2.4. Apply Creative Commons licenses to content or software that one created. 2.5. Apply statistical techniques using appropriate software to make forecasting or predictions. 2.6. Convert content from one format to another format.
3. Communicate, Collaborate, Share	3.1. Collaborate with people using various smart devices, platforms, and digital tools. 3.2. Teach an e-course or an e-seminar, give a lecture or make a presentation using various digital tools.

Groups	Digital competencies
	3.3. Upload and share software or app that one has developed on various social media.
4. Store, Manage, Delete	4.1. Take a photo or a video and save it in various formats using various smart devices and digital recording tools. 4.2. Download content and save it directly to the relevant folder. 4.3. Copy and save the screenshot from various smart devices. 4.4. Delete some of my connections/friends in various social networks. 4.5. Organize the files on my computer into a hierarchical folder structure.
5. Evaluate	5.1. Evaluate an object and/or a smart device using appropriate quality criteria. 5.2. Critique an object and/or a smart device on relevant social media. 5.3. Evaluate whether some information is hoax, fake, scam, or fraud. 5.4. Evaluate whether a website is secure and trusted. 5.5. Identify the intellectual property rights of content that I have found on Internet. 5.6. Evaluate whether an email is spam, adware, phishing, or fraud.
6. Protect	6.1. Regularly change passwords and settings of smart devices and Internet accounts. 6.2. Protect various smart devices and e-accounts using different passwords and frequently changing them. 6.3. Protect myself and others against identity theft, harassment, bullying, or slande.

The European Commission has issued a digital competence framework for citizens and educators. The digital competence framework for citizens was established in 2016 including 21 competencies grouped into 5 categories of

competencies (information and data technology, communication and collaboration, professional engagement, digital resources, teaching, and learning, creating digital content, safety, problem-solving) [22] to be updated in 2022 [22].

Table 2. Digital competencies framework citizens [22]

Categories	Digital competencies
1. Information and data literacy	1.1. Browsing, searching and filtering data, information and digital content. 1.2. Evaluate data, information and digital content. 1.3. Managing data, information and digital content.
2. Communication and collaboration	2.1. Interacting through digital technologies. 2.2. Sharing information and content through digital technologies.

Categories	Digital competencies
	2.3. Engaging in citizenship through digital technologies.
	2.4. Collaborating through digital technologies.
	2.5. Using correct or acceptable ways of communicating on the Internet.
	2.6. Managing digital identity.
3. Digital content creation	3.1. Developing digital content.
	3.2. Integrating and re-elaborating digital content.
	3.3. Copyright licenses.
	3.4. Programming.
4. Safety	4.1. Protecting devices.
	4.2. Protecting personal data and privacy.
	4.3. Protecting health and well-being.
	4.4. Protecting environment.
5. Problem solving	5.1. Solving technical problems.
	5.2. Identifying needs and technical responses.
	5.3. Creatively using digital technologies.
	5.4. Identifying digital competence gaps.

2. RESEARCH METHODS

A survey was designed and sent to students of Tien Giang University and some students of Nam Can Tho University. Doing this survey, we would like to know students’ behaviours, problems when using social networks and their digital competencies to solve the problems.

Questions related to:

- 1) Gender,
- 2) School or faculty,
- 3) Learning status,
- 4) Name of social networks they are using,
- 5) Name of social networks they like the most,
- 6) Whether they are interested in other users' personal information or not,
- 7) Whether they let other users seeing their personal information or not,

8) Kind of data they used to share on social networks,

9) Afraid of others knowing their personal information or not,

10) Afraid of their personal information used for malicious purposes or not,

11) Were victims of misused personal information,

12) Experiences to avoid social network usage problems.

First of all, responses’ awareness about personal information including actual full name, birth day, gender, working or studying place, ... are recorded and analyzed. A number of responses want to see personal information of other social network users (“Want to see”), let other social network users seeing their personal information (“Let others see”), and are afraid of

others knowing their personal information (“Afraid of others”) are in the table below.

3. RESULTS AND DISCUSSION

Table 3. Number of responders “Want to see”, “Let others see”, “Afraid of others”

Criteria	Answer is “Yes”		Answer is “No”	
	Numbers	Percentage	Numbers	Percentage
Want to see	121	59.61	82	40.39
Let others see	74	36.45	129	63.55
Afraid of others	167	82.27	36	17.73

It is clear that responders not only more concern about information of other people when interacting with on the social networks but also more concern about self-protect on the cyberspace. Moreover, 82.27% of responders afraid of social network users knowing their

personal information, and only 36.45% of responders let others seeing their profiles. To deeper understanding, numbers of responders afraid of users and let others seeing their profiles have been analyzed for male and female.

Table 4. Percentage the of responders saying Yes or No for questions “Let others see”, “Afraid of others”

Criteria	Gender	Answer is “Yes” (%)	Answer is “No” (%)
Let others see	Male	18.23	32.02
	Female	18.23	31.53
Afraid of others	Male	37.44	12.81
	Female	44.83	4.93

Numbers in the above table show that female students are more afraid of others knowing their personal information. These numbers tell us the truth that female students are more concern about safety when using social networks. Next, the identification of respondents about their personal information that can be used by others for malicious purposes, victims of misuse of personal

information, and experience to solve network usage problems society.

Table 5 shows that most of students afraid of their personal information used for malicious purposes, 17.61% of responders were victims of misused personal information by others, while, 21,59% of responders do not know how to avoid social network usage problems.

Table 5. Number of responders “Want to see”, “Let others see”, “Afraid of others”

Criteria	Answer is “Yes” (%)	Answer is “No” (%)
Afraid of their personal information used for malicious purposes	96.59	3.41
Were victims of misused personal information	17.61	82.39

Criteria	Answer is “Yes” (%)	Answer is “No” (%)
Experiences to avoid social network usage problems	78.41	21.59

Table 6. Some experiences to avoid social network usage problems suggested by victims

Experiences suggested by victims	Experience (translated into English)
Bảo vệ thông tin cá nhân	Protection of personal information
Đừng bao giờ chia sẻ thông tin cá nhân của bản thân cho người khác biết	Never share your personal information to others
Không nên truy cập vào link lạ, không nhận công việc làm online (vì nhiều người đã bị lừa/ là nạn nhân vì việc làm này)	Do not access strange links, do not accept online jobs (because many people have been victims of this behavior)
Hạn chế chia sẻ những thông tin về đời sống hằng ngày lên mạng xã hội	Less sharing information about your daily life on social networks
Hạn chế chia sẻ hình ảnh gia đình, công việc, thông tin cá nhân và thời gian biểu, lịch trình cá nhân	Less sharing family photos; personal information, work ,schedules and itineraries
Cần bảo mật thông tin cá nhân nhiều hơn, không nên tiết lộ địa chỉ nhà, nơi làm việc, số, người thân gia đình quá nhiều	Protect personal information; do not share home address, workplace, phone number, information of family members too much
Không sử dụng mạng xã hội nữa	No more use social networks
Đặt mật khẩu dài	Set a long password
Quản lý chặt chẽ lại	Tightly manage

Last but not least, experiences to avoid social network usage problems of students were analyzed. Among students who know how to avoid social network usage problems, there is only about 70% of them can give effective methods to avoid the problem while about 30% of them give ineffective or unspecific suggestions.

As education continues to evolve in response to the demands of the fourth industrial revolution, it is essential to prioritize the development of digital competencies among students. Enhancing students' social network usage awareness is a

critical aspect of this process, ensuring that students are equipped to navigate the complexities of digital environments. This paper suggests the following strategies for integrating digital competencies into educational practices: (i) Curriculum integration: Embed digital competencies across subjects, ensuring that students develop a comprehensive understanding of digital tools and platforms. First, students must be equipped digital skills in a particular subject such as Information Technology Skills. Next, it should be integrated across the curriculum. This includes embedding digital literacy into many

subjects, teaching and learning environments and methodologies; (ii) teacher training and professional development: Provide ongoing professional development for educators to enhance their digital competencies and equip them with the skills to guide students in responsible social network usage; (iii) empower educators with digital tools: Teachers must be equipped with the knowledge and skills to integrate digital competencies into their teaching practices. This requires ongoing professional development focused on digital tools, resources, and pedagogies; (iv) digital citizenship education: Implement digital citizenship programs that focus on the ethical and responsible use of social networks, emphasizing the importance of privacy, online behavior, and critical thinking; (v) collaborations with technology providers: Partner with technology companies to access the latest digital tools and resources, and to provide training and support for both educators and students. By adopting these strategies, educational institutions can effectively enhance students' social network usage awareness, meeting the requirements of Education 4.0 and preparing students for the challenges and opportunities of the digital age.

4. CONCLUSION

In conclusion, this study highlights the significant need to enhance students' awareness of social network usage by integrating digital competencies into the educational programs. This research highlights the necessity of equipping students with essential digital competence to use social network platforms safely and responsibly. By embedding digital competence across curricula, educators can foster a deeper understanding of ethical online behavior,

ensuring that students are prepared to meet the demands of the Fourth Industrial Revolution.

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