DIGITAL CITIZENSHIP: IMPORTANCE OF EDUCATION AND TRAINING FOR MEDICAL TEACHERS AND STUDENTS

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ABSTRACT

The concept of digital citizenship relates to the responsible, ethical and safe use of digital technologies by all of us as members of society and citizens of the global community. In recent times, digital technologies have had an enormous impact on the students' learning in medical education. Digital literacy is important now-a-days in current medical education whether being a medical teacher or a student. With the rise of technology users, this shows the importance of being knowledgeable about fraud, misinformation, and disinformation. We sometimes fail to choose credible and valid sources across different online media. We also spread news and information unknowingly or ignoring their hidden agenda. Moreover, we share some interesting medical cases or incidents violating our country's legislation or without proper consent or maintaining privacy or denouncing institutional policy. Many of us have already experienced internet fraud or cyberbullying. Hence, digital citizenship education is necessary to protect ourselves from being vulnerable to those above-mentioned issues. Digital citizenship education can be implemented face-to-face, or online or in hybrid format, which provides medical educators and students with the skills needed to make use of current technology and social media tools to support teaching and learning as well as their personal presence in the digital world. We are convinced that our medical teachers and students need to use new technologies in an appropriate manner to create better learning environments, materials, and networks. Digital citizenship education can be achieved by coordination of BM&DC, medical colleges and higher training institutions implementing programs which will encourage faculties and students to expand proper knowledge, skill and attitude towards digital citizenship.

Key words: Digital citizenship, Digital literacy, Medical education

Introduction

The near-total integration of digital technology into our daily lives changes how teachers and students interact with and respond to the world[1]. Since the use of technology in medical education has been developing over many years, recently we have observed a boom in using online technologies, particularly the presence of social media in medical education. Those tools are

helpful in facilitating basic knowledge acquisition, improving decision making, enhancement of perceptual variation, improving skill coordination, practicing for rare or critical events, learning team training, and improving psychomotor skills[2-5]. Besides, those offer us spaces for sharing information as well as publicly discuss interests, ideas, and issues[4]. However, those technologies are also simultaneously exposing us to complex algorithmic and surveillance mechanisms[6]. Digital literacy is important now-a-days in current medical education whether being a medical teacher or a student. It also remains important in the future professional world. In our workplace, we require to interact with people in digital environments, use information in appropriate ways, and create new ideas and products collaboratively. Above all, we need to maintain our digital identity and wellbeing as the digital landscape continues to change at a fast pace in the modern world[7-9]. In simple language, digital literacy means "the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies" like internet platforms, social media, and mobile devices[10].

Although we live and interact in the digital world in a similar way to the offline world, we are not always as thoughtful of our actions online. We can sometimes act without realizing how it could affect our reputation, safety, and growth as digital citizens. Moreover, the uses of digital technologies (especially social media) have raised cyber security concerns, and fueled a global infodemic rooted in mis-, dis-, and mal-information, violent ideologies, hate speech, prejudice, bias, division and confusion[1,11,12]. In the meantime, everything we do online continues to affect and define our digital world as well as

our selves[1]. Digital citizenship is a term we do not hear as much as expected in our educational environment. While some of us may hear the term "digital citizenship", we hardly comprehend the value or importance of digital citizenship skill set. Since most of the medical teachers have grown up in a resource-poor environment without the internet, our newer generation has grown up in a fully digital world. In the current world, digital technologies have enormous potential to shape our lives. The concept of "digital citizenship" relates to the responsible, ethical, and safe use of digital technologies by all of us as members of society and citizens of the global community[1]. Ribble stated that "digital citizenship describes the norms of appropriate, responsible behavior with regard to technology"[11]. Heick defined digital citizenship as "the quality of an individual's response to membership in a digital community"[13]. Generally speaking, good digital citizenship for teachers and students engage them and show them how to connect with one another, enhance teaching and learning process, empathize with each other, and create lasting relationships through digital tools. In contrast, bad digital citizenship entails cyberbullying, irresponsible social media usage, and a general lack of knowledge about how to safely use the internet. Therefore, a sense of etiquette, responsibility and, above all, professionalism is essential. In short, digital citizenship means the continuously developing knowledge, skills and attitude towards appropriate, responsible, and empowered technology use among individuals in today's digital world.

On an international scale, the International Society for Technology in Education (ISTE) has compiled a list of standards for students and teachers, that outline the technology-related skills that provide the competencies for learning,

teaching and leading with technology, and help develop digital citizenship skills[14,15]. However, digital citizenship is not given the proper focus in medical education or in the healthcare sector. Medical colleges and higher training institutions in Bangladesh along with communities of medical professionals need to commit to weaving digital citizenship as part of medical curriculum and training to build a strong digital culture among current and future physicians. To our knowledge, no research or reports has been published to date on digital citizenship in the medical education sector in our country. Therefore, this review paper aims to focus on what digital citizenship is and why digital citizenship education and training are important for medical teachers and students of our country.

Components of digital citizenship

Ribble described how technology influences the way people interact and the concept of digital citizenship[16]. He also described nine elements of digital citizenship, related to technology usage inside and outside the school environment- digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and lastly digital security and privacy[11,16-19]. He further extends his definition into three categories: respect, educate and protect (Fig 1), and continues to make distinctions into two aspects-one's individual use of technology and one's respect of other's technology usage[11,16].
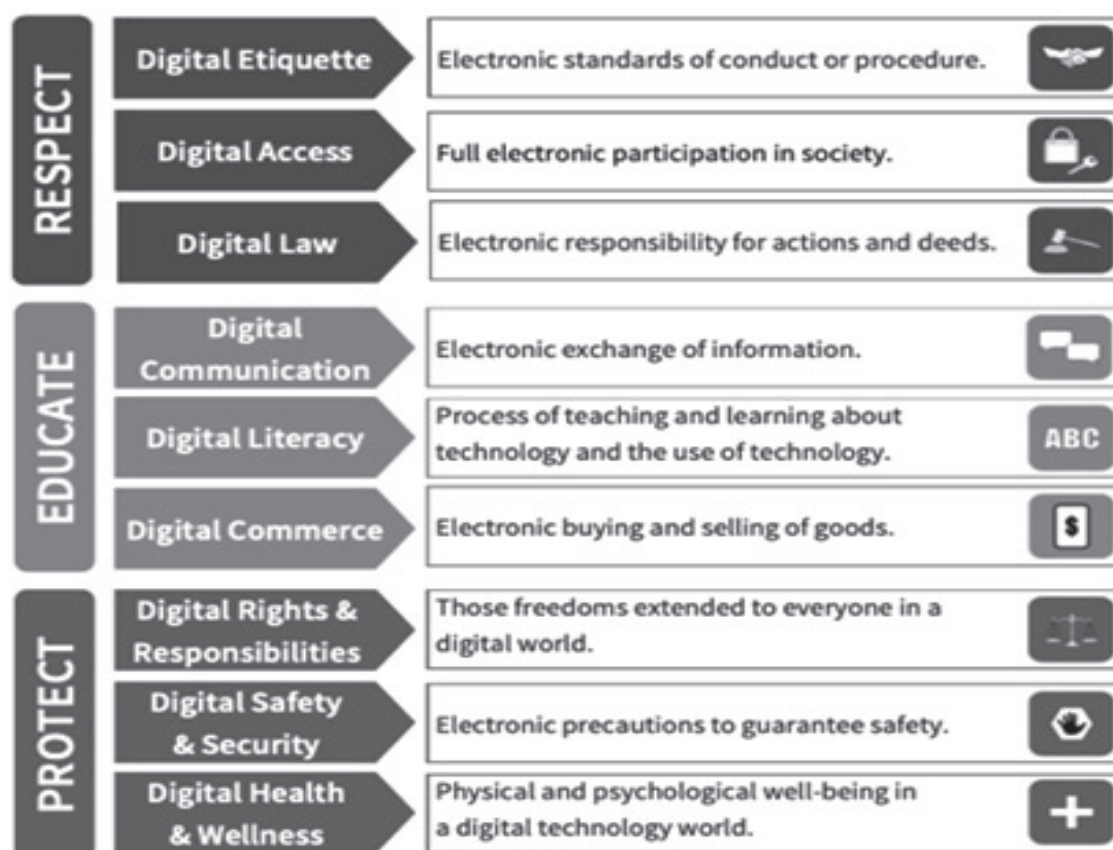

Fig 1. The nine elements of digital citizenship (according to Ribble)[16]

1. Digital Access is about the equitable distribution of technology and online resources. Teachers and administrators need to be aware of their community and who may or may not have access, not only in medical colleges/institutions but at home as well. Educators need to provide options for lessons and data collection such as free access in the community or provide resources for the home.

2. Digital Commerce is the electronic buying and selling of goods and focuses on the tools and safeguards in place to assist those buying, selling, banking, or using money in any way in the digital space. Such technical education to use the specific tools of technology shows students the path for their future

3. Digital Communication is the electronic exchange of information. All users need to define how they will share their thoughts so that others understand the message helping communication and collaboration. For students struggling to understand their place in the world, technology can help them find their own voices and express themselves.

4. Digital Literacy is the process of understanding technology and its use. Having better knowledge of the digital world and being tech.savvy students are more likely to make good decisions online, collaborate, and support others. Digital literacy includes the discussion of media literacy and the ability to discern good information from poor, such as "fake news" from real news.

5. Digital Etiquette refers to electronic standards of conduct or procedures and has to do with the process of thinking about others when using digital devices. Teachers can include 'digital etiquette' as part of the classroom rules or academic goals. Whether in the classroom or online, being aware of others is an important idea for everyone.

6. Digital Law deals with legal rights and restrictions governing technology usage. To prevent any kind of online crime, no matter how serious, teachers and students as digital citizens need to know the law and how it applies to them in particular.

7. Digital Rights and Responsibilities are those requirements and freedoms extended to everyone in a digital world. The online world has its regulations, and a user has rights and responsibilities. However, the Internet can also be used for harmful purposes, and anyone needs protection against cyberbullying, for instance. Medical college authorities should approach this subject in classrooms, hold students accountable for their actions and also report any misconduct in the virtual environment.

8. Digital Health and Wellness refers to the physical and psychological well-being in a digital world. Technology provides many opportunities and enjoyment, but knowing how to segment use with the needs of ourselves and others is key to a healthy, balanced life. Educators, especially in classrooms, need to ask the question of how much screen time is appropriate for students. Mental health support from the student counselling department or peer support group for issues such as cyberbullying and sexting should be available. Administrators need to come up with positive approaches to these issues as well.

9. Digital Security and Privacy are the electronic precautions to guarantee safety of the device and personal accounts. Viruses,

malwares and other bots can be passed along from one system to another just like a physical illness. When using devices in classroom, library or at home, understanding and being aware of attacks and how to prevent them are important skills for today and tomorrow.

Ribble sorted these nine areas of digital citizenship under three key factors from the students' perspective[16-19]. Similar observations were reported by Isman & Canan Gungoren[20] (Fig 2). For medical students, as digital citizen, they must have some characteristics such as understand human, cultural, and social issues related to technology and practice legal and ethical behaviour; advocate and practice safe, legal, and responsible use of information and technology; exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity; demonstrate personal responsibility for lifelong learning; and exhibit leadership for digital citizenship not only in classroom, but also outside the classroom environment and at home[11,20].
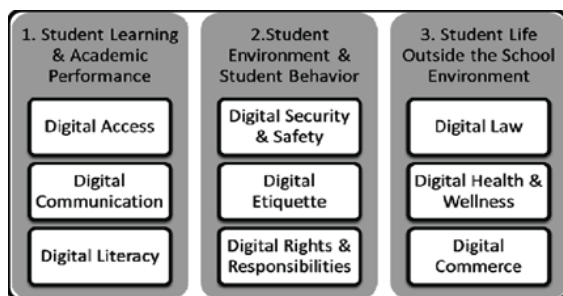

Fig 2. Digital citizenship touchpoints from the students' perspective (adopted from Isman & Canan Gungoren)[20]

Importance of digital citizenship training

Now-a-days digital technologies have had an enormous impact on a student's learning in medical education. To make medical education efficient, interactive, and innovative, new dimensions of teaching are being explored and digital technologies are providing new opportunities in this regard. For example, these allow them to have easy access to a larger amount of resources, encourage self-paced learning. These tools also help improve their multitasking and problem-solving skills and enhance student-centred learning in many new ways[20-22]. Moreover, digital access prepares them for further education and careers in the developed countries[8]. Recently, due to closures of the medical colleges due to the COVID-19 pandemics, we have moved to an online format from our traditional face-to-face learning and students reverted to that online platform, which ultimately led to an increase in technology use. With the rise of technology users, social media and networks have become hubs of large number of news and information; eventually there is a rise in fraud, misinformation and disinformation[16,21]. We, medical teachers, and our students sometimes fail to choose credible and valid sources across different online media and platforms. Truly speaking, we hardly know how to verify an online source's credentials. Therefore, in many cases, fraudsters and sources spread misinformation and disinformation taking advantage of people without sound technological knowledge and skill. Similar happen when we spread news and information unknowingly or ignoring their hidden agenda. Besides, we share some interesting medical cases or incidents violating country's legislation or without proper consent or maintaining privacy or denouncing institutional policy. Many of us have already experienced internet fraud or cyberbullying. Digital citizenship education is necessary because it protects us from being vulnerable to those above-mentioned issues. Those also show the importance of being knowledgeable about fraud, misinformation and disinformation[16,21].

We, as medical professionals and educators, have a responsibility in a civilized society to communicate in a manner that is respectful and understanding of others. We have a responsibility to teach effective communication skills to our students. Students in the twenty-first century are in a very different world than even twenty years ago. The internet and digital communications have become a normal way of life for most medical students in the classroom, in the medical college campus or at home. Our teachers and students are communicating in a world that is ever changing. They need the tools to navigate the new landscape. Students, teachers, parents, administrators- all of us need to have a firm grasp and understanding of digital citizenship, i.e., what it means, why being a good digital citizen is important, and how to proceed in teaching and learning important citizenship concepts in classes daily, or even weekly is of utmost importance.

The developments in digital technologies and their wider access offer a series of new challenges and opportunities to medical education. To achieve the UN Sustainable Development Goals (SDGs), in particular SDG 4 (inclusive and equitable quality education and lifelong learning opportunities for all) and SDG 16 (just, peaceful and inclusive societies for sustainable development), students and educators must be empowered with the knowledge, values, capacities, and dispositions needed to address both the opportunities and the challenges of the modern digital revolution[12].

The International Society for Technology in Education (ISTE) encourages teachers to be the main guide for students and their families into developing their safety awareness in the digital world[14,15]. To summarize, digital citizenship education and training encourages us to use our knowledge, skills and understanding to protect and promote human rights online, e.g.,

freedom, privacy and security[19]. Besides, our teachers and students may become more aware of internet safety, i.e., how to use the internet responsibly, and safely, how to get credible information, and how to protect ourselves from fraudsters and predators in the online world. Moreover, as the regulatory authority of the country, Bangladesh Medical and Dental Council (BM&DC) should have guidelines on how to construct and communicate ideas of digital citizenship in medical colleges and higher training institutions.

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Digital citizenship training

When it comes to the digital world, it is within our power as responsible members of the physicians' society to help teach our teachers and students to develop healthy, compassionate, and safe habits in all aspects. Teaching and learning activities related to digital citizenship can be implemented face-to-face, or online or in hybrid format, which provides medical educators and students with the skills needed to make use of current technology and social medial tools to support teaching and learning as well as their personal presence in the digital world.[8] Through such training, participants will learn how to use technology to create learning environments and materials, filters to manage information overload and customize online searchable repositories as well as how to leverage Web 2.0 and social

medial tools to create professional learning networks. Courses may offer interactive learning modalities, including small group sessions with peers, question and answer sessions, games and role play.[8,12,19] It can, therefore, be integrated into the curriculum in a holistic, cross-curricular approach that should not be dependent on the digital know-how of teachers/students, or the amount of time they spend online.[19,21,22] The goal is to help our faculties and students develop strategies they can employ in their own practice environment.[8] Our team is currently working on designing a course on digital citizenship for our medical teachers and students.

Conclusion

Digital citizenship is an area of trending interest and discussion. We are convinced that our medical teachers and students need to use new technologies in an appropriate manner to create better learning environments, materials, and networks. Hence, a digital citizenship education is necessary for all. This can be achieved by coordination of BM&DC, medical colleges and higher training institutions implementing programs which will encourage medical teachers and students to expand proper knowledge, skill and attitude towards digital citizenship. We are also hopeful that digital citizenship will be a significant area of expertise for our physicians in the near future.

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