Developing Class on Professionalism in Social Media for Medical Students

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Developing Class on Professionalism in Social Media for Medical Students

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ABSTRACT

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Background: Medical education in Vietnam is progressing to global standards, emphasizing professionalism early in training. However, the significantly increasing use of social media presents new challenges of professionalism nowadays, as inappropriate online behavior can negatively impact students' future careers, breach the patient's confidentiality, and damage the professional image and public trust. Despite these concerns, currently, no official guidelines or educational opportunities are available in professionalism in social media (PSM) for medical students in Vietnam or at the Hue University of Medicine and Pharmacy (Hue UMP). Therefore, this study aims to address this gap by identifying a competency list on PSM that medical students should acquire and designing a class on PSM to provide them with essential knowledge, skills, and attitudes for navigating social media responsibly.

Methods: A multiphase, modified Delphi survey comprising two rounds was conducted to identify the competency list of PSM for medical student and reach the consensus on the list among 39 experts within the Hue UMP. A questionnaire was administered electronically using Google Forms and participants used a 5-point Likert scale to rank the importance of competencies. The degree of convergence, degree of consensus, and the content validity ratio of the model were used to reach the consensus. Based on the finalized competencies, the ADDIE (Analysis – Design – Development – Implementation – Evaluation) instructional design model was applied to develop a class on PSM tailored for third-year medical students at Hue UMP. The thesis primarily focused on the first three steps, aligning with the context of medical education at Hue UMP and outlined a plan for implementation and evaluation.

Results: A list of 39 PSM competencies in five domains were identified based on literature review. After two rounds of modified Delphi survey, the list of competencies was finalized

into 23 items in five domains. The PSM domains for medical students included patient confidentiality privacy and dignity (six items), professional boundary, doctor-patient relationship, public trust (six items), practitioner's privacy (three items), health advocacy (three items), and information appropriateness (five items). The 100-minute class on PSM for medical students was developed with third-year medical students as targeted learners. During the design and development phase, the class structure with specific goals, learning objectives, class activities, and case scenarios were designed. Four case scenarios include breach of confidentiality, role misrepresentation, peer's unprofessional post, and patient's friend request. The assessment and evaluation methods were developed base on Kirkpatrick model, comprising satisfaction survey, pre-test and post-test, and short survey and reflective essay.

Conclusion: This thesis explored the importance of integrating PSM into the medical education curriculum focusing on the context of Hue UMP and provided the competency framework to develop a class on this topic. By embedding PSM education into medical training, medical schools can cultivate future doctors who are not only clinically competent, but also ethically aware and socially responsible in the online environment.

Keywords: Professionalism, social media, Delphi technique, medical students, medical education, Vietnam

1. Introduction

1.1. Background

1.1.1. Professionalism Education in Vietnamese Medical Education

In 2015, the Vietnamese Ministry of Health published Competence Standards for General Practitioners which included four fields representing the basic function of a general practitioner: competence in professional practice; competence in application of medical knowledge; competence in medical care; and competence in communication and cooperation (1). Competence in professional practice field comprises 4 standards and 22 criteria. This field refers to the manner of professional practice considering moral and legal standards and respects various cultures of general practitioners when performing medical examinations and treatment in Vietnam. This document plays a crucial role in forming the basis for developing learning outcomes and training programs on medical professionalism education in medical schools.

Efforts to further define and operationalize medical professionalism in Vietnam have been built upon these competence standards. Consequently, from August 2020 to March 2021, a group of technical experts from five universities of medicine and pharmacy (Hai Phong, Ho Chi Minh City, Hue, Thai Binh, and Thai Nguyen) collaborated and reached a consensus on 14 attributes of medical professionalism that should be taught to medical students in Vietnam: respect, honesty/integrity, altruism, responsibility/accountability, academic excellence, empathy, confidentiality, providing and receiving feedback, critical thinking, self-reflection, time management, work-life balance, teamwork, and problem-solving (2). Moreover, the expected and unexpected behaviors of each attribute are described for the convenience of observing and evaluating medical students.

Medical professionalism has only recently been introduced into the curriculum at several medical schools in Vietnam including the five medical schools aforementioned and one private school (3). Most schools offer course in Professionalism in the second or third year of the six-year curriculum. This course aims to educate medical students regarding the concepts and attributes constituting medical professionalism, and the theoretical basis for achieving professionalism in medical education environment and medical practice.

However, medical education in Vietnam is currently undergoing major reforms, with plans and preparations underway to achieve national and global accreditation, such as the World Federation for Medical Education (WFME) standards (4, 5). Consequently, there is an urgent need to develop other aspects of medical training, such as medical professionalism, in addition to the knowledge of basic sciences and clinical experiences (4, 6). Furthermore, the deterioration of medical ethics among some health professionals and the decline in public trust in health professionals (7) have highlighted the necessity of integrating professionalism courses into current curricula for physicians. Therefore, many medical schools are reforming their curriculum and to include medical professionalism to meet the national and global standards.

1.1.2. Professionalism Education at Hue University of Medicine and Pharmacy

In 2019, for the first time, Hue University of Medicine and Pharmacy (Hue UMP) integrated the content of professionalism in medical practice into the pre-clinical training program for second-year medical students. Professionalism education is introduced as part of the module "Practice in community health center – Family medicine clinic: Communication skills, Consultation skills and Professionalism." This module provides early clinical exposure to students, helping them to prepare for the appropriate competencies in the next phase of clinical clerkship. Students are equipped with the necessary knowledge and skills including basic and advanced consultation communication skills, information gathering skills, history taking, clinical examination in the context of outpatient care, applying professionalism related to professional and personal development during their studies, and clinical practice. The module includes sixteen practice sessions at the community health center or family medicine clinic. Theoretical teaching is integrated with clinical observation at these locations, combined with case-based discussion and group discussion methods. Professionalism education is provided in four sessions and its contents were developed based on the three fundamental principles of professionalism: the physician charter of 2002 (8); the Stern framework for measuring professionalism (9); and the consensus reached by five medical schools on professionalism attributes that should be taught to medical students in Vietnam (2). Accordingly, definitions, fundamental principles and 12 attributes of medical professionalism taught in this course are presented in Figure 1.

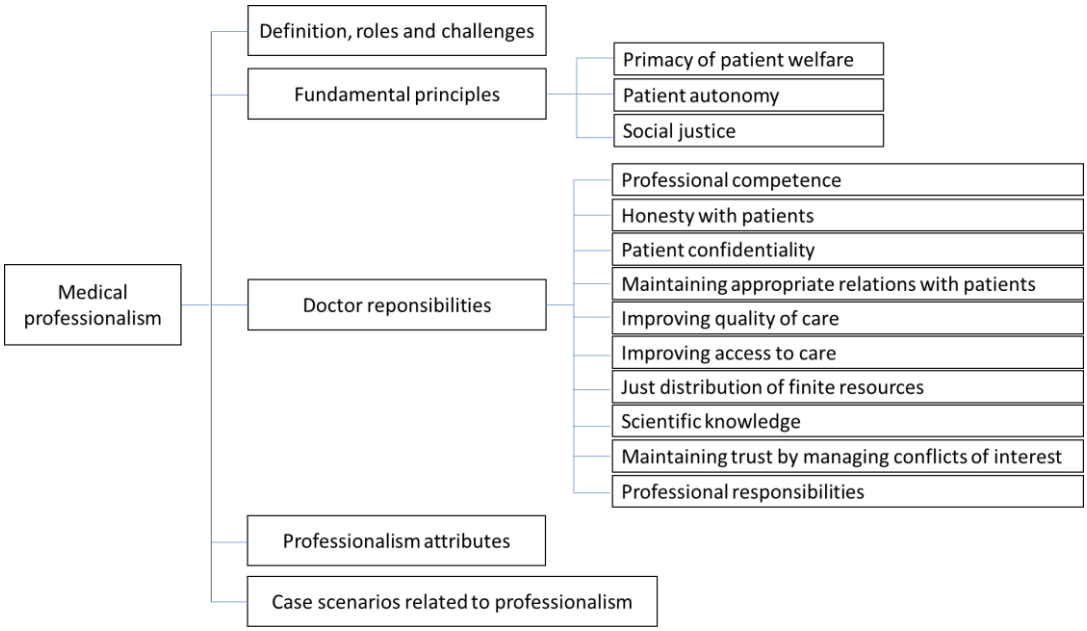

Figure 1. Structure of medical professionalism education at Hue UMP

(Adapted from https://lms.huemed-univ.edu.vn/course/view.php?id=4811#section-6)

Twelve attributes of medical professionalism included in the course are presented in Table 1.

Table 1. Twelve attributes of medical professionalism

No.	Attributes	No.	Attributes
1	Respect	7	Providing and receiving feedback skills
2	Honesty and Integrity	8	Excellence and life-long learning
3	Altruism	9	Self-reflection
4	Empathy, Caring and Compassion	10	Time management
5	Confidentiality	11	Work-life balance
6	Responsibility and Accountability	12	Team working skills

(Adapted from https://lms.huemed-univ.edu.vn/mod/page/view.php?id=67046)

1.1.3. Vietnamese Regulation on Digital Competency Framework for Learners

The Vietnamese Ministry of Education and Training published the Circular "Regulations on Digital Competency Framework for Learners" in January 2025 to establish a foundation for developing training standards and education programs on digital competencies for learners (10). This Circular applies to educational institutions, educational and training programs, and learners in the national education system; and relevant organizations and individuals. Further, it serves as a basis for assessing learners' digital competencies in educational programs, ensuring consistency in learners' digital competency requirements and comparing or referencing between educational programs and digital competency frameworks.

According to this regulation, the Digital Competency Framework for Learners includes 6 competency domains with 24 component competencies, as presented in Table 2.

Table 2. Vietnamese digital competency framework for learners

No.	Competency domain	Description	Component competencies
1	Data and information mining	Clearly identify information needs, locate and retrieve data, information, and digital content. Evaluate the relevance of sources and their content. Store, manage, and organize data, information, and digital content.	1.1 Browse, search, and filter data, information, and digital content 1.2. Evaluation of data, information, and digital content 1.3. Management of data, information, and digital content
2	Digital communication and collaboration	Interact, communicate, and collaborate digitally while being aware of cultural and generational diversity. Participate and contribute to society through public and private services and exercising citizenship rights. Manage your digital identity and reputation.	2.1. Interaction through digital technology 2.2. Sharing information and content through digital technology 2.3. Using digital technology to fulfill civic responsibility 2.4. Collaboration through digital technology 2.5. Implement the code of conduct online 2.6. Digital identity management
3	Digital content creation	Create and edit digital content. Enhance and integrate information and content into existing knowledge while understanding the licensing and copyright systems involved in the creation of digital content. Know how to provide understandable instructions to computer systems.	3.1. Digital content development 3.2. Integrate and recreate digital content 3.3. Enforcement of copyrights and licenses 3.4. Programming

4	Safety	Protect devices, content, personal data, and privacy in the digital environment. Protect physical and mental health and recognize how digital technologies enhance social well-being and social harmony. Be aware of the environmental impact of digital technologies and their use.	4.1. Device protection 4.2. Protection of personal data and privacy 4.3. Digital health and security protection 4.4. Environmental protection
5	Problem solving	Identify needs and problems and solve problems and situations in the digital environment. Use digital tools to innovate processes and products. Keep up to date with advances in digital technology.	5.1. Solving technical problems 5.2. Identify technology needs and solutions 5.3. Creative use of digital technology 5.4. Identify areas for improvement in digital capabilities
6	Applied Artificial Intelligence	Apply AI[1] in learning, working and life, ethically and responsibly.	6.1. Understanding AI (including generative AI) 6.2. Ethical and responsible Use of AI 6.3. Evaluation of AI tools

[1] Artificial Intelligence

(Adapted from Regulations on Digital Competency Framework for Learners, Circular No. 02/2025/TT-BGDDT (January 24, 2025))

Based on the provisions of this framework, educational institutions have responsibilities to conduct research, supplement and update digital competency requirements for learners in the programs. In addition, they have to provide learning materials, guidance documents, and ensure the necessary conditions for implementing the digital competency framework in their institutions.

1.1.4. Social Media Use among Health Professionals and Health Sector

The use of social media (SM) by health professionals at all levels is increasing both personally and professionally (11). A study in Canada indicated that approximately 87% of medical doctors have a private SM account, whereas 67% manage a professional one (12). In the medical field, health professionals use social networking service (SNS) for various purposes, including networking, education, marketing, promotion, patient care, and awareness campaigns (13, 14). In addition, physicians use SM to exchange information about professional problems and clinical experiences (15, 16). Platforms such as Twitter, Facebook, Instagram, LinkedIn, and WeChat help them establish professional connections and communicate with patients and their families (17-20). A previous study discovered that 48% of physicians on Twitter have shared links to their blogs (21).

SM use is also common among medical students as they belong to the "net generation" and have grown up with these platforms, particularly when they begin their professional careers (22, 23). Surveys suggest that up to 98% of medical students own mobile phones, whereas 60% to 90% have Facebook accounts (24-26). Similarly, a study at medical school in Vietnam reveals that 99.3% of medical students use SM often, the most common being Facebook, YouTube, and Zalo (27). Students engage with SM for various beneficial purposes, including sharing experiences and building supportive peer networks (23).

1.2. State of Problem

Social media use among health professionals and medical students has raised concerns about blurred professional boundaries between patient and physician, student and faculty, and patient’s privacy and confidentiality (28-35). Studies have found that some health professionals engage with others on SM and in virtual spaces in an unprofessional way (36, 37). In addition, many medical students and practicing physicians have encountered problems with inappropriate SM posts or online identities (38, 39). Multiple studies have examined the online behavior of medical and nursing students on Facebook and Twitter, revealing instances of vulgar or derogatory language, as well as the sharing of inappropriate content, such as videos and images (40-42). Studies conducted in Croatia and India among medical and dental students found that they were involved in unprofessional behaviors, including sharing sexually explicit content and posts related to alcohol consumption while using SM (43, 44). In the U.S., 60% of medical schools have reported cases of medical students sharing unprofessional content online, with 13% of schools noting breaches of

patient confidentiality (38). Moreover, studies indicate that healthcare students and clinicians have varied perceptions of professionalism in SM; some exhibit relaxed attitudes, whereas others are more conservative (36, 45-47).

To address these challenges, it is essential to develop comprehensive guidelines and recommendations on SM use for health professionals in general and medical students in specific, helping them to navigate the complexities of digital professionalism. Furthermore, integrating educational opportunities, such as courses, workshops or seminars on professionalism in SM, would be helpful in reducing unprofessional behaviors online and fostering responsible SM engagement. Notably, medical educators have highlighted the importance of creating more educational opportunities for medical students to prevent SM misuse and encourage critical reflection on online interactions (48). Similarly, medical students have expressed a strong desire for clearer and more practical guidance on SM use, particularly in navigating ambiguous situations where perspectives on appropriate behavior may differ (47). Establishing structured support systems and instructional initiatives could help bridge these gaps, ensuring that medical students develop a comprehensive and ethical understanding of professionalism on SM.

In Vietnam, although the use of SM among medical students is growing rapidly, there is a notable absence of guidance and policies addressing the appropriate use of SM. Medical schools have yet to introduce formal, structured education on digital professionalism, particularly on SM. Additionally, there are no established frameworks for teaching professionalism in SM, such as competency lists or defined learning outcomes. Another significant challenge stems from the traditional approach to medical education, which emphasizes clinical skills, theoretical knowledge, and patient care. This focus may inadvertently limit the integration of other aspects of comprehensive medical education. Furthermore, the excessive curriculum presents additional obstacles in accommodating new content, such as professionalism in social media, into the curriculum.

At Hue UMP, the content of medical professionalism has been included into the pre-clinical training program for second-year medical students since 2019. This course equips medical students with foundational knowledge and skills related to professional behavior in clinical practice. However, the current curriculum does not address the specific dimensions of professionalism related to the use of SM which leaves an important gap in the educational framework. Considering this gap, this study aims to generate a competency list on professionalism in SM and develop a corresponding class for medical students, based on the list.

1.3. The Need for Education on Professionalism in Social Media for Medical Students

The widespread use of SM among medical students today and concerns about professional issues online highlight the need to incorporate aspects of professionalism in SM into the definitions, education, and assessment of medical professionalism (37). A class on professionalism focusing on SM is essential for medical students due to key reasons.

First, this class will enable students to understand ethical and professional standards, as well as appropriate behavior when using SM, which enhances the awareness about their online presence and provides a broader understanding of online identity and opportunities for career development. Consequently, it has the potential to positively influence students' attitudes and lead to more meaningful and responsible online behavior (49).

Second, the class can provide medical students with clear guidance on how to behave appropriately on SM and address unique challenges related to professional-personal boundaries, patient privacy and confidentiality, professional image, and public trust.

Third, this class will offer medical students the knowledge and skills to deal with challenges such as cyberbullying or online harassment, ensuring their mental well-being and privacy. Students would be provided skills to form professional networks for sharing clinical experience and professional problems without compromising ethical issues online.

At Hue UMP, developing and implementing education on professionalism when using SM for medical students is essential in the context of digital age and new demands for learner’s competency. A few significant reasons highlight the necessity of incorporating this content into the curriculum.

First, integrating aspects of professionalism in SM into the existing medical curriculum is crucial to complement the current teaching of medical professionalism. Incorporating this content would ensure that students not only develop skills for interacting with patients and colleagues in person, but also learn how to engage with SM platforms responsibly and ethically.

Second, the introduction of professionalism in SM content aligns with the educational philosophy of Hue UMP, which aims to produce future excellent and professional doctors who are not only dedicated to patient care, but also exhibit the highest standards of professionalism in every aspect of their practice including in the digital realm.

Furthermore, this class aligns with current educational trends in Vietnam, as the Ministry of Education and Training has issued a digital competency framework for learners. This has provided a foundation for many educational institutions to begin developing and preparing modules and courses aimed at equipping students with digital competencies. Moreover, Hue UMP is in the process of preparing to build a digital competency module for medical students. Therefore, the content on professionalism in SM would be one of the essential digital competencies that should be incorporated into the curriculum for students.

1.4. Purpose of the Study

This study aims to design a class on professionalism in social media for medical students, to provide them with knowledge, skills, and attitudes to act and behave appropriately on social media as a doctor. The content aligns with the digital competency framework for learners and "traditional professionalism" paradigms expressed online.

Specifically, this study has two primary objectives:

(1) Identify a competency list for professionalism in social media for medical students using the modified Delphi method.

(2) Develop a class on professionalism in social media for the third-year medical students based on competency list identified using the ADDIE instructional model.

1.5. Research Questions

(1) What competencies related to professionalism in SM should be taught to medical students?

(2) What are the essential elements and requirements for designing a class on professionalism in SM?

(3) How can the class on professionalism in SM be well-developed to effectively equip medical students with the necessary skills and knowledge to navigate online platforms responsibly and professionally?

(4) How can content about professionalism on SM be seamlessly integrated within the existing medical professionalism education and the preparation of the digital competency

module at Hue UMP to provide students with a comprehensive understanding of professionalism?

(5) How impactful will be the class on professionalism in SM in enhancing knowledge about professionalism and changing students' attitudes toward their online presence?

1.6. Significance of the Study

This study offers significant contributions as outlined below:

First, this study identifies a competency list for professionalism in SM, which serves as the basis for designing the class on professionalism in SM for medical students. Currently, there is no existing framework for professionalism in SM in Vietnam, making this study a valuable contribution to scientific literature which can be referred to by other medical educators when developing such a course.

Second, this study designs and develops a class for medical students to provide them with guidance on how to behave appropriately and professionally on SM, and address ethical and professional issues they may confront online such as patient privacy and confidentiality, professional boundaries, professional image, public trust, and practitioner’s privacy. This class will complement the current professionalism education at Hue UMP, helping students uphold professionalism not only in their offline interactions, but also in their online engagements.

Finally, this class will contribute to the development of a digital competency module at Hue UMP, supporting the university's efforts to prepare medical students for the challenges of the digital age. In addition, this reflects the requirements and educational trends in Vietnam in developing digital competency for learners.

2. Literature Review

2.1. Definition of Terms

a) Professionalism: Professionalism is defined as “the conduct, aims or qualities that characterize or mark a profession or a professional person” (50).

b) Professionalism in medical practice: Professionalism is described by different words and phrases in medical literature representing key qualities and behaviors aimed at sustaining public trust in physicians and preserving their esteemed role in society as sought-after healers (51, 52). According to the Royal College of Physicians, professionalism is defined as “a set of values, behaviors, and relationships that underpins the trust the public has in doctors.” Thus, professionalism represents how doctors and other healthcare professionals meet their obligations in a social contract, consequently earning patients' trust and public respect (53).

c) E-professionalism: E-professionalism has been defined as “the attitudes and behaviors (some of which may occur in private settings) reflecting traditional professionalism paradigms that are manifested through digital media” (54).

d) Online professionalism: Online professionalism refers to the demonstration of professional behaviors, attitudes, and standards in digital environments, including social media, email, forums, and other online platforms. It is broadly defined in the context of maintaining the same professional values (such as confidentiality, respect, and integrity) in online activities (55, 56).

e) Digital professionalism: Digital professionalism (DP) is the concept grounded in traditional concepts of medical professionalism while highlighting the unique opportunities and difficulties presented by professionals’ use of digital media and the ways in which the profession is changed by this use (57, 58).

The three terms digital professionalism, E-professionalism, and online professionalism are usually used interchangeably, reflecting the extension of traditional professional values into digital contexts (54, 57, 59).

f) Digital media: Digital media in healthcare include various technologies, such as mobile devices, social media platforms, educational tools, point-of-care resources (such as drug databases, clinical guidelines, and decision support systems), as well as e-health systems (60).

g) Social media: Social media is a type of digital media, referring to a type of electronic communication designed to create online communities where users can exchange information, ideas, personal messages, and other content (61). Social media can be categorized into five primary types: collaborative projects (e.g., Wikipedia), blogs and microblogs (e.g., Blogger, Twitter), content-sharing communities (e.g., YouTube), social networking sites (e.g., Facebook), and virtual game or social worlds (e.g., HumanSim). These platforms typically display a list of users who are socially connected, allowing individuals to view others' activities, interactions, and connections (62, 63).

h) Professionalism in social media: Professionalism in social media (PSM) refers to the maintenance of ethical, respectful, and responsible behavior in online environments, aligning with the standards expected in professional practice (64-66).

i) Competency: Competency is considered as an organizing framework comprising sets of knowledge skills, attitudes, and higher-order aspects of practice required to effectively perform the professional role. Competency is defined as "a cluster or related knowledge, skills and attitudes that reflect a major portion of one's job (role or responsibility), that correlates with the performance on the job, that can be measured with well-accepted standards, and that can be improved with training and development" (67). It is a framework to guide medical training, assessment, accreditation, and professional growth (68).

j) Competency domain: Competency domain incorporates an interrelated group of competencies for performing specified tasks (67).

k) Competency-Based Medical Education: Competency-Based Medical Education (CBME) is an approach to medical education and assessment that emphasizes the achievement of specific competencies or observable abilities required for medical practice (69). This approach shifts the focus away from time-based training and promotes increased accountability, flexibility, and a learner-centered approach to ensure that graduates develop the necessary competencies to fulfill the patient's needs in society (70).

2.2. Professionalism in Social Media

The concept of digital professionalism is grounded in traditional concepts of medical professionalism; however, it emphasizes the unique opportunities and challenges that professionals face when using digital media, and how this usage affects the profession (71). DP refers to how professionals use digital media and the mechanisms in which the profession is evolved by this use, including issues that potentially originate in private

settings, but are rendered public in online, digital environment (54, 72). These constructs regarding how professional students present themselves in online environment is an important topic that educators of health profession should examine (73).

Numerous theories have been introduced to better understand the concept of DP. Petronio et al.'s Communication Privacy Management (CPM) theory emphasizes that effective management of privacy is essential for balancing information disclosure, personal ownership, boundaries, and control. According to this theory, healthcare professionals (HCPs) can preserve professional boundaries with patients and protect their own privacy by adhering to strict privacy management practices. The use of privacy settings and the maintenance of clear online boundaries reflect the need for control over personal information while also honoring patient confidentiality (74). Ajzen's Theory of Planned Behavior also explains the ethical and behavioral dimensions of digital professionalism (75). According to this framework, actions such as taking responsibility for one's behavior, disclosing conflicts of interest, demonstrating respect for colleagues, and adhering to ethical standards are influenced by individuals' attitudes toward social media use, prevailing digital norms, and their perceived control over online interactions—particularly those involving patients (75).

Although the challenges of DP have been widely perceived with the widespread of digital media use, not much instruction has been provided in mainstream medical education to teach students how to safely and appropriately use digital media as a healthcare professional (76). There are growing concerns about the absence of a structured program for DP in the medical and health sciences (77). The DP framework structured around concepts of proficiency, reputation, and responsibility has been proposed to guide the practicing of DP safely (Table 3) (58). It includes fundamental values that guide teaching, learning, and clinical practice in medical fields via online platforms. This framework is built on foundational basis for DP, emphasizing that professionals should use digital media purposefully to uphold patient care, compassion, altruism, and trustworthiness. Moreover, it highlights the need for professionals to recognize how digital media shapes their relationships and consistently engage with these platforms in a deliberate, ethical, and accountable manner (58).

Table 3. A digital professionalism framework on what professionals should and should not do regarding their proficiency, reputation, and responsibility in using digital media

	Proficiency	**Reputation**	**Responsibility**
Professionals should	Establish and maintain appropriate competence in selecting and operating the technologies they use.	Maintain an appropriate online professional presence and guard against digital attack. Behave professionally and respectfully in all venues with all media at all times.	Model positive and effective digital behaviors to others. Maintain appropriate professional boundaries in communicating with and about their patients.
Professionals should not	Waste time and resources by being unprepared for the professional use of digital media. Treat healthcare data with any less regard than they would treat the patients from whom they derived the data.	Make public anything that they would not be comfortable defending in a court of law or in front of a disciplinary panel. Forget that what happens online stays online, potentially forever.	Engage in illegal or inappropriate behavior in any digital medium. Behave in reckless and ill-considered ways using digital media.

(Adapted from Ellaway RH, Coral J, Topps D, Topps M: Exploring digital professionalism. Medical teacher 2015, 37(9):844-849.)

In addition, the constructs of DP and their definitions have been developed. These constructs define the essential elements that healthcare professionals should uphold when using digital platforms, ensuring their conduct aligns with ethical standards, professional responsibilities, and the trust placed in them by patients and society (Table 4).

Table 4. Constructs of digital professionalism and their definitions

Construct	Definitions
1. Privacy settings	Part of social networking website or internet browser that allows one to control who can have access to personal information or see the content posted.
2. Self-anonymity	A condition in which the identity of healthcare professionals is not revealed to others.
3. Maintaining Confidentiality	Limit the disclosure of a patient's identity and any data entrusted to professionals during assessment, diagnosis, and treatment and protect it against unauthorized access.
4. Maintaining Boundaries	Ability to recognize and draw a line between a professional and personal relationship.
5. Conflict of Interest	A situation in which a healthcare professional is at risk of acting in a biased way because of personal, commercial, or financial interests.
6. Accountability	Extent to which healthcare professionals are answerable to patients, colleagues, employers and society for their behavior, judgment, and decisions.
7. Respect for Colleagues	Treating co-workers and colleagues with respect, kindness, courtesy, and politeness.
8. Ethics	Moral principles that govern a person's behavior.

(Adapted from Imran S, Yasmeen R, Mansoor M: Development and validation of self-assessment instrument to measure the digital professionalism of healthcare professionals using social media. BMC Medical Education 2024, 24(1):243.)

Digital media in healthcare include various technologies, such as mobile devices, social media platforms, educational tools, point-of-care resources (such as drug databases, clinical guidelines, and decision support systems), as well as e-health systems (60). Among digital media, social media stands out as a unique technology with specific characteristics, its own digital culture, global popularity, and related professional concerns (78). Social media comprises various digital platforms where users generate, modify, and share content (79). Its rapid growth has significantly changed how healthcare professionals and students communicate and engage with one another (80).

Although broader DP frameworks exist, the majority of digital media have focused on social media or online activities because SM present the potential to enable unprofessional behaviors and pose risks to the profession (71). SM use shapes interpersonal interactions and presents new opportunities to enhance life and healthcare, thus representing a significant emerging facet of professional identity formation (81). Moreover, SM can introduce individual and organizational risks such as misinformation, harassment from others online, violations of personal-professional boundaries, and legal issues such as breaches of patient privacy (82-84). Studies indicate that medical students and professionals hold varied views on professionalism in social media, ranging from more permissive attitudes to more cautious and conservative perspectives (36, 45, 47, 85).

To address the issues related to professionalism in SM, the healthcare authorities and regulatory bodies have issued professional standards, guidelines, evidence-based reports, and consensus statements related to professional use of social media (58). Although the term digital professionalism is not explicitly used as an official term in these documents, the concept is implicitly addressed when professional behavior is discussed within digital context (86). This is because the foundational principles of professionalism—such as confidentiality, accountability, respect, and integrity—are applicable across all settings, including digital environments (58). As healthcare professionals increasingly engage with digital platforms, these core values naturally extend to their conduct in virtual spaces, thereby embedding the concept of digital professionalism within broader discussions of professional behavior (58). Instead, expressions such as “ethical guidelines for SM use,” “professional and ethical use of SM,” or “professionalism and social media use” are commonly used in these guidelines. These expressions highlight the emphasis on maintaining professional conduct while navigating SM platforms, reinforcing the idea that the standards governing real-world interactions also apply in the social media context. By fostering awareness of these ethical expectations, healthcare professionals can better manage their social media presence, ensuring their behavior aligns with the established

values of the profession and mitigates potential risks associated with unprofessional conduct in online spaces (86).

This thesis, among digital media, focuses on professionalism in social media because SM use among health professionals and medical students presents significant concerns about ethical problems such as blurred professional boundaries between patient and physician, student and faculty, and patient's privacy and confidentiality (28-35). The term professionalism in social media is used because it specifically encapsulates the broader concept of maintaining professional conduct within the unique context of SM platforms (65, 87). Moreover, by using professionalism in social media, the term directly links the traditional principles of medical ethics and professionalism with the challenges that arise from the specific dynamics SM (56, 86).

Although no single, universally accepted definition of professionalism in SM is available, common principles have been consistently emphasized across professional guidelines and academic literature (56). Professionalism in SM generally refers to the maintenance of ethical, respectful, and responsible behavior in online environments, aligning with the standards expected in professional practice and medical professionalism (64-66). The American Medical Association (AMA) defines professionalism in SM as maintaining appropriate boundaries, safeguarding patient privacy, and acting with honesty and respect in online interactions (88). Similarly, the General Medical Council (GMC) states that doctors' online behavior must align with the professional standards required in face-to-face practice (89). As social media becomes increasingly integrated into healthcare communication and education, the importance of upholding professionalism in SM has been emphasized by various professional organizations and studies (38, 56, 90). Moreover, professionalism in social media has been taught to medical, nursing, and allied health students, using the frameworks and constructs of digital professionalism in general (91). Some medical institutions have made efforts to provide medical students with education on professionalism in social media with different approaches in curriculum development. For example, the University of Virginia School of Medicine developed workshop and blog-based interventions to promote professionalism for medical students using social media (92). In addition, the George Washington University designed and implemented a 90-minute educational session to raise students' awareness of their new role as medical professionals and the implications for their social media presence (49). A link between being educated about professionalism and displaying more cautious behavior online is evident (93). A recent review of how professionalism in social media is taught across medical, nursing, and allied health has identified potential issues and knowledge gaps and highlighted implications for future educational interventions (91). They proposed

recommendations to improve the quality of health education including setting clear boundaries and pedagogical instructions, understanding and applying privacy settings online, and implementing co-creation approaches with students and practitioners (91).

2.3. Global Guidelines on Professionalism in Social Media

This section reviews the global guidelines on professionalism in social media from major medical associations across both English-speaking and non-English-speaking countries. These guidelines provide essential frameworks for healthcare professionals, including physicians and medical students, to ensure their engagement on social media aligns with ethical standards and upholds medical professionalism. Specifically, it reviews the guidelines from World Medical Association and seven countries: the United States, Canada, the United Kingdom, Australia, the Republic of Korea, the Republic of South Africa, and India.

2.3.1. World Medical Association General Assembly

In 2021, the World Medical Association (WMA) General Assembly first adopted the "Statement on the professional and ethical use of social media." It was then revised at WMA General Assembly in 2022 (94). The statement examines the professional and ethical challenges associated with the growing use of SM by physicians, medical students, and patients; creates a structure that safeguards their respective interests; guarantees credibility and esteem by upholding strong ethical and professional standards; fosters the dissemination of high-quality information on SM; and opposes false and misleading information on SM.

Moreover, in the statement, the WMA urges National Medical Associations (NMA) to establish SM guidelines for their institute members to address concerns relating to the use of SM (Appendix 1). Specifically, the WMA recommends the set of objectives that should be included in the guidelines such as appropriate boundaries, patient privacy, security of the data, appropriateness of information shared on SM, practitioner's privacy, and other objectives related to education and promoting digital professionalism on SM for physician and medical students. Therefore, this statement serves as a reliable reference for medical schools and institutions when developing guidelines on SM use.

2.3.2. American Medical Association's Council on Ethical and Judicial Affairs

American Medical Association's (AMA) Council on Ethical and Judicial Affairs (CEJA) issued the guidelines on "Professionalism in the use of social media" in 2010 for the first time (Ethical Opinion E-2.3.2) (95). These guidelines outline the types of SM often used by health professionals and describe how current AMA policies address issues related to e-professionalism. Crucially, it provides a set of recommendations for physicians to maintain professionalism when using these platforms. In addition, CEJA recommends medical schools, residency programs, and other institutes to make directed efforts toward educating physicians about the benefits and pitfalls of SM with particular emphasis on the challenges of upholding professional boundaries in the digital age.

At the 2016 and 2022 Annual Meeting, this guideline was revised and modified by CEJA to reflect the fact that physicians may ethically use SM for educational and advocacy purposes and SM can now be used as a form of marketing intended to financially benefit individuals and corporations (88). In general, the guidelines comprise many recommendations that physicians should consider when maintaining an online presence. These are related to patient privacy and confidentiality; privacy settings to safeguard personal information; appropriate boundaries of the patient-physician relationship; the responsibility regarding the unprofessional posts by colleagues; and professional reputation and public trust in the medical profession (Appendix 2).

2.3.3. Canadian Federation of Medical Students

Canadian Federation of Medical Students (CFMS) published the "Guide to Medical Professionalism: Recommendations for Social Media" (96) in 2013 as a follow-up to the original "CFMS Guide to Medical Professionalism: Being a Student Professional." These guidelines were driven by a strong desire among both students and faculty for guidance in the use of SM from the learner's viewpoint and resulted from ongoing discussions among student leaders connected to the CFMS. The Guide includes four chief sections with detailed explanations: professional guidelines, best-practice recommendations, sample case-studies, and an extensive review of the academic literature on medical students and SM (Appendix 3). Professional guidelines provide medical students with foundational professionalism principles and policies that they should apply

both in person and online. Students are considered as proto-professionals with rights and responsibilities that are similar to licensed physicians. They should be aware that SM are public forums, irrespective of privacy, security, and target audience. Thus, students are urged to behave online and offline in ways that they would find acceptable if they were to observe their own doctors acting outside of clinical responsibilities. In addition, the Guide provides case studies with explanations about professional and unprofessional behaviors online and recommendations for students confronting such situations.

Other institutes in Canada also issued guidelines or policies to set out the rules and expectations of online professionalism for their practicing physicians. For instance, the College of Physicians and Surgeons of Ontario (CPSO) published the "Advice to profession: Social media" to assist physicians in managing the online environment and avoiding behavior that could damage public trust in both individual physicians and the medical profession at large (97). Accordingly, physicians must comply with expectations set out in the policies about professionalism when using SM relating to professional relationships and boundaries and privacy and confidentiality. The College of Physicians and Surgeons of Nova Scotia also released the "Professional standards and guidelines regarding physician use of social media" which provides similar recommendations for physicians to maintain professionalism online (98). Furthermore, this document presents examples of unprofessional or inappropriate use of SM from actual reported regulatory or legal cases for further understanding.

2.3.4. The General Medical Council in the United Kingdom

The General Medical Council (GMC) published the guide, "Using social media as a medical professional" in 2024. It builds on good medical practice to provide more details about their expectations of medical professionals in the use of SM (89). The standards expect medical professionals to maintain the same professional conduct when they are communicating via SM as face-to-face interactions or other methods. This guide enables them to make professional assessments in some key areas when using SM such as maintaining public trust, being honest and trustworthy in communications, behaving professionally and maintaining boundaries, respecting patient confidentiality, and privacy and dignity (Appendix 4).

Based on these guidelines, medical schools and organizations in the UK have developed guidance to support medical students to navigate online environments appropriately. For

example, British Medical Association released “Ethics toolkit for medical students: Social media as a medical student” in 2024 (99), to outline basic factors that students need to bear in mind when using SM. It explains medical student pitfalls of SM that they may encounter and how to confront it professionally. The University of Nottingham also published “Social media guidance for medical students” which presents students with the implications of inappropriate use of SM and SM principles for medical students adapted from GMC guidelines (100).

2.3.5. Australian Medical Association

Australian Medical Association issued “A guide to social media and medical professionalism” in 2020 for doctors and medical students (101). This guide aims to ensure that doctors and medical students enjoy using SM while maintaining the standards of ethical and professional conduct expected of doctors by the profession and the wider community. Accordingly, professional standards should remain the same whether communicating through social or traditional media, and SM can raise some ethical dilemmas that they need to be aware of. The guide provides key tips to address common issues when using SM including online professional identity, confidentiality matters, professional reputation online, responsible advertising, managing negative comments, and health advocacy. Furthermore, for each issue, it presents case studies on unprofessional behavior online to provide further understanding and implications for medical professionals and students (Appendix 5).

2.3.6. Korean Medical Association

Korean Medical Association announced “The proposed guideline on the use of social media for the doctors” in 2019 (102). These guidelines provide ethical principles for doctors using SM, emphasizing patient confidentiality, professionalism, and responsible communication. It includes advice on SM use about the personal (confidential) information protection, appropriateness of information, relationship between patient and doctors, decency as a professional, communication between doctors, physician education on the use of SM, and conflict of interests when using SM (Appendix 6). Although these are only proposed guidelines, they serve as a valuable reference for doctors and medical students in maintaining professional behavior online.

2.3.7. Health Professions Council of South Africa

Health Professions Council of South Africa (HPCSA) published the “Ethical guidelines on social media” in 2019 (103). The guideline was developed to help health practitioners understand their obligations when using SM and applied to all health practitioners registered with the HPCSA. It outlines regulations that health practitioners must follow when engaging online, covering patient confidentiality and privacy, practitioner-patient relationship, health practitioner image and conflict of interest. Furthermore, this guide emphasizes the risk of online activity on professional reputation and privacy and the importance of caution when health practitioners use SM. Further, it provides precautionary measures that enable them to avoid risks and unprofessional behaviors online, protecting both patients and themselves (Appendix 7).

2.3.8. The Indian National Medical Council

The National Medical Council (NMC) published the “Guidelines for doctors on social media usage” in 2023 as part of the “National Medical Commission registered medical practitioner (professional conduct) regulations” (104). By adhering to these guidelines, they believe doctors can contribute to ethical and professional conduct in their online presence, enhancing the integrity of medical practice on SM platforms. The guide includes three key principles and eleven conducts that should be followed by doctors using SM. Three principles include patient’s confidentiality, respect for colleagues, and anonymity and conflicts of interest. The conducts were developed based on key principles which provide more detailed explanations of professional behaviors online such as sharing appropriate information, avoiding discussing patient treatment details on SM or refraining from posting patient’s photographs or scanned images on SM (Appendix 8).

2.4. The Digital Health Competencies in Medical Education Framework

The Digital Health Competencies in Medical Education (DECODE) framework was developed to address the growing need for digital health education and training among

medical students and physicians (105). This international consensus statement was reached through a two-round modified Delphi study involving 211 experts from 79 countries and territories. The final framework comprises 19 competencies categorized into 4 key domains: professionalism in digital health, patient and population digital health, health information systems, and health data science. Each competency is accompanied by mandatory and discretionary learning outcomes to guide curriculum development. This study aims to develop an evidence-informed, consensus-guided applicable set of competencies and associated learning outcomes that can be adapted for the design and development of digital health curricula in medical schools globally.

The domain professionalism in digital health involves two competencies which are digital medical professionalism, ethical, legal, and regulatory considerations in digital health; and digital identity, safety, and security. These competencies are accompanied with definition and associated learning outcomes, ensuring that medical graduates uphold ethical, legal, and professional standards in digital health (Appendix 9). The competency digital medical professionalism, ethical, legal, and regulatory considerations in digital health focuses on responsible handling of digital health information, emphasizing data security, privacy regulations, and ethical conduct; whereas the competency digital identity, safety, and security highlights the importance of maintaining a professional online presence and recognizing cyber risks. In general, these competencies prepare future physicians to navigate digital health responsibly and ethically.

2.5. Learning Theories

Educational philosophy and learning theory serve as the foundation for all educational practices, as they provide the conceptual frameworks that describe how individuals acquire knowledge, skills, and attitudes to effect changes in behavior, performance or potential and help educators in making more informed decisions about selecting the right instructional strategies (10, 106). Learning theories offer instructional designers established strategies and methods to enhance learning while also serving as a basis for making informed decisions when selecting appropriate instructional approaches (107). Moreover, learning theories hold practical value for learning and teaching in medical education. Comprehending and harnessing learning theories enable medical educators to address common teaching challenges by designing effective instruction grounded in principles that have undergone empirical testing, as opposed to those derived from tradition and ritual (108, 109).

Although no single theory provides a complete explanation for the learning engagement in aspiring health professionals and medical students, adult learning theories play an important role in medical education (110). Understanding these learning theories in healthcare professional education programs is important for several key reasons. First, learning theories constitute a key component of evidence-based educational practice. Second, knowing various learning theories can aid educators in selecting the most suitable teaching methods, learning goals, and assessment and evaluation strategies according to the specific context and environment of learning (110). Third, educators ought to combine learning theories, subject content, and student comprehension to enhance student learning (106). Finally, using learning theories to elucidate how individual student differences affect their learning outcomes could potentially relieve educator's burden of sole responsibility for all aspects of the learning process (111).

The term "andragogy" (andr- meaning "man") was first introduced by Alexander Kapp to differentiate adult learning from pedagogy (peda or paida meaning "child") (112). This concept was further developed by Malcolm Knowles who argued that adults are differently experienced, motivated, and oriented to learn than children (113). Knowles's concepts are significant for professional education, as they center on recognizing and addressing the gaps between learners' prior knowledge and what they acquire through the experiential component of their programs (114). Knowles' Andragogy is based on six fundamental principles, guiding practitioners of andragogy in delivering learner-centered education (Table 5).

Table 5. The six principles of Knowles' Andragogy theory

Principle	Description
Self-concept	Adult learners have a self-concept. This means that they are autonomous, independent, and self-directed.
Learning from experience	Experience as a rich resource of learning. Adults learn from their previous experiences. Thus, it is a good repository for learning.
Readiness to learn	Adults tend to gravitate toward learning matters that matter to them. Their readiness to learn is highly correlated with their relative uses
Immediate applications	The orientation of adult learning is for immediate applications rather than future uses. The learning orientation of adults tends to slant toward being task-oriented, life-focused, and problem-centric.
Internally motivated	Adults are more motivated by internal personal factors rather than external coaxes and pressures.
Need to know	Adult learners have the need to know the value of what they are learning and know the why's behind the need to learn them.

(Adapted from Knapke JM, Hildreth L, Molano JR, Schuckman SM, Blackard JT, Johnstone M, et al. Andragogy in Practice: Applying a Theoretical Framework to Team Science Training in Biomedical Research. British journal of biomedical science. 2024;81:12651.)

2.5.1. Behavioral Learning Theories

Behavioral learning theories focus on how stimulus in the environment leads to change in an individual's behavior through conditioning and reinforcement, and one of its consequences is learning (107). Positive consequences or reinforcers strengthen behavior by increasing the likelihood of repetition and ultimately improving learning, while negative consequences or punishers weaken behavior by reducing its occurrence (110). This concept of learning emerged in the early 20th century and was first systematically described by

John B. Watson, regarded as the founder of behaviorism. According to Watson, psychology should be an objective science focused on observable behaviors instead of internal mental processes (115). Within the behaviorist paradigm, educators assume the responsibility of managing the learning environment to elicit a specific response, which reflects a teacher-centered approach to teaching (116). This learning orientation emphasizes the mastery of prerequisite steps before progressing to subsequent actions, seeking to strengthen the actions the teacher expects from the learner.

Three fundamental assumptions that form the basis of behaviorism include: learning centers on observable behavior, behavior is shaped by the environment, and reinforcement plays a crucial role in the learning process (117). The behaviorist approach forms the basis of many competency-based curricula and training programs by defining clear learning objectives, specifying expected behaviors, conditions for performance, and evaluation criteria (116). Applying these theories generally leads to learning that promotes consistency and standardization in the outcomes, ensuring uniformity in achievement across learners (110).

2.5.2. Cognitive Learning Theories

Cognitive learning theories emphasize mental and psychological processes rather than behavior, focusing on learner's internal environment and cognitive structures (118). According to this theory, learning occurs by attributing meaning to events such as insight, information processing, perceptions, reflection, metacognition, and memory. This suggests that the chief context for learning is formal education, where it occurs through demonstrations or written or verbal guidance, involving a clear and identifiable accumulation of knowledge (119). Learning is considered as a change in knowledge state rather than behavioral response, with learners actively engaging in internal coding and structuring of knowledge. It aims to develop learners' capacity for self-directed learning, with teachers facilitating cognitive processing and skill development for broader application across various learning contexts (120). Within the cognitivist learning orientation, memory is essential for learning, as it organizes and stores information in a meaningful manner. Teachers and designers assist in refining this process through strategies such as advance organizers and analogies and reducing the forgetting process which happens because of interference, loss of memory, or lack of retrieval cues (107).

Key principles of cognitive learning theories include hierarchical analysis to identify prerequisite knowledge, cognitive strategies such as summarization and advance organizers,

and creating learning environments that encourage connections with prior knowledge (121). Ausubel argues that individuals think and learn with concepts which are defined as "objects, events, situations, or properties that possess common criteria/attributes and that these are designated by some sign or symbol" (122). Accordingly, meaningful learning results from relating new knowledge to existing knowledge in memory (122).

A crucial component of the cognitivist learning orientation is reflection which helps to develop critical thinking skills (123). Boud and Walker describe the reflective process as comprising three stages: returning to and replaying the experience, focusing on the feelings that the experience provoked, and reevaluating the experience (124). This reflective process can occur either during or after the experience in question. Reflection on action involves contemplating a situation once it has occurred while reflection in action refers to the process of contemplating actions while they are being carried out (124).

2.5.3. Experiential Learning Theory

Experiential Learning Theory (ELT) explains how individuals acquire knowledge in unique ways based on their personal experiences, perceptions, and interactions with the world around them (125). According to ELT, the learning and knowledge construction are facilitated and created through a process of obtaining and transforming experiences. ELT was developed by David A. Kolb, drawing from the previous works of scholars such as John Dewey, Kurt Lewin, and Jean Piaget, who emphasized the role of experience, reflection, and active engagement in the learning process (126). In Kolb's model, learning occurs in a four-stage cycle: (1) concrete experience, in which learners engage in an experience; (2) reflective observation, whereby learners observe and reflect on the experience; (3) abstract conceptualization, whereby learners integrate their observations with prior knowledge to form conclusions; and (4) active experimentation, in which learners test their new conceptual understanding (126). This cycle allows apprehension, comprehension, intention, and extension (127) (Figure 2).

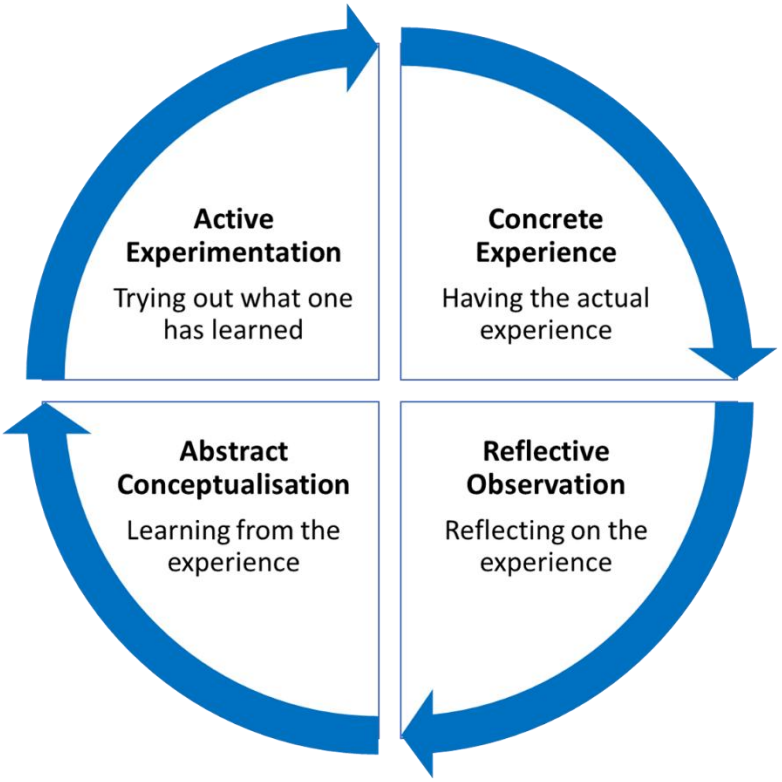

Figure 2. Kolb's experiential learning cycle

(Adapted from https://www.simplypsychology.org/learning-kolb.html)

Experiential learning has impacted adult learning by making educators responsible for creating, facilitating access to and organizing experiences to facilitate learning process. Furthermore, experiential learning acts as an effective means of enhancing metacognition beyond the classroom and promotes lifelong learning (128). However, it has faced criticism for its primary focus on the development of individual knowledge while limiting consideration of the social context (129). ELT's application in medical education is particularly relevant because it emphasizes the development of competencies and the practical application of skills within specific contexts (127).

2.5.4. Constructivism Learning Theory

Constructivism Learning Theory (CLT) emphasizes the active role of learners in their knowledge construction process. According to this theory, learners do not passively absorb information but actively participate in building knowledge and understanding based on their prior experiences and interactions with the external environment (107). Knowledge transfer occurs when learners engage in authentic tasks within meaningful contexts linking the knowledge to real-world scenarios. Effective learning occurs when learners use tools in real-world situations, and the measure of success lies in how well their knowledge aids problem-solving and performance in those situations (107). CLT's foundation was developed by Jean Piaget, emphasizing the importance of an individual's cognitive adaptive capabilities which occur through accommodation or assimilation (130). Moreover, Lev Vygotsky significantly contributes to this theory by emphasizing social, language, and cultural aspects, and how they play a key role in the learning process (131). However, Vygotsky had a different viewpoint from Piaget, asserting that all learning originates from social interactions and stressing the necessity of student engagement and support from others for learning to occur (131).

CLT comprises five key principles, emphasizing the learner-centered approach and active role of learners, which are: (1) construction of knowledge occurs on already existing knowledge; (2) learning occurs in an active process; (3) acquiring knowledge is fundamentally a social construct; (4) value everyone's perspectives and that every learner has a different viewpoint; and (5) meaningful learning occurs through reflection and the integration of new experiences with existing knowledge (132).

Educators must act as facilitators, developing an environment where problem-solving activities actively engage the learners throughout their learning process which is key to building on learner's existing knowledge (10). Scaffolding is a crucial instructional strategy that enables educators to adjust their level of support according to students' performance. Educators are responsible for modifying their teaching approaches to align with learners' needs, establishing an open and collaborative learning environment that fosters student engagement and discussions (131).

2.6. Educational Methods

In medical education, educational methods refer to structured approaches and strategies employed to facilitate the acquisition of medical knowledge, skills, attitudes and professional behaviors among learners (133). The evolution of medical education and training has resulted in various educational structures and techniques with the primary essence of assisting students acquire, retain, and apply knowledge; cultivate their abilities to critique, synthesize, and analyze issues; and develop their patterns and perspectives. Each educational method possesses unique characteristics and advantages that influence learning outcomes (134). They provide the means by which a curriculum's objectives are achieved, therefore, they should be consistent with the principles of learning sciences and theories (135). Furthermore, the selection of educational methods should follow additional principles including maintaining congruence between the type of objectives and methods, using multiple educational methods and considering the feasibility in terms of resources (135).

2.6.1. Lecture

Lecture is a commonly used teaching method and key strategy to pass knowledge to learners, referring to the systematic presentation of facts and information from a qualified teacher. In medical education, lectures are used to deliver foundational knowledge and complex concepts, explain physiological mechanisms, and convey the latest research findings relating to medicine and medical practice (136).

Traditional aspects of lectures that make them effective in medical education include communicating the importance of the topic, clearly stating goals and learning outcomes, presenting information in a clear and organized manner, using audiovisual aids, monitoring learner's understanding, and providing a summary or conclusion (137). In addition, lectures provide the advantage of access to experts and thoughtfully curated information to several learners at once and easing in-person delivery and during remote synchronous sessions (135). Furthermore, as teachers can draw upon various resources while preparing their content and change the pace of their teaching based on responses from students, they can offer students a rich and profound understanding of knowledge, making their contributions valuable while emphasizing important points and common mistakes or confusions (136). Lecture is effective when achieving three objectives of conveying useful information, sparking curiosity in learners that leads them to make independent learning choices, and

demonstrating practical relevance enabling learners to establish a connection between provided knowledge with its benefits for patient care practices (138). Moreover, teachers can apply testing effect to enhance active learning by polling students using audience response systems or online software (139).

The limitation of lecture lies in promoting passive learning with limited student engagement and no immediate feedback, making it difficult for students to identify learning gaps (140). Additionally, lectures may become ineffective because of short attention spans, fail to address all learning styles of learners, and focus primarily on the cognitive domain (141, 142). However, combining this method and other interactive teaching methods is essential, considering the merits of lectures and the attributes which lectures add to the medical curriculum delivery (140).

2.6.2. Flipped Learning

Flipped learning has emerged as a transformative instructional approach in medical education, aiming to encourage higher-order thinking and active participation from learners (143). The flipped classroom methodology incorporates behavioral learning theory, which emphasizes traditional teacher-centered instruction, and constructivist learning theory, which focuses on active, experience-based knowledge construction via student-teacher collaboration (144). It is defined as "a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (145). Unlike conventional lecture approach, flipped learning reverses the traditional classroom structure by allowing students to independently learn foundational concepts as required homework outside class, and then use this acquired knowledge during class to engage in critical contemplation, problem-solving, and application of knowledge (146). Foundational knowledge is achieved by student's self-paced learning prior to class, typically through pre-recorded lectures, readings, or online modules (147). In the flipped classroom, students perform active learning activities such as exercises, projects, discussions or problem-based learning (148).

The flipped classroom approach has been adopted into various health professions education curricula, replacing teacher-led in-class instruction with individual homework or group activities and being considered as a "new paradigm" of medical education (143, 149). Flipped learning encourages students to actively participate in seeking knowledge and

understanding before engaging in collaborative discussions and practical exercises with instructors and peers (150). This approach has proven to be effective in enhancing knowledge retention and critical thinking skills; and improving learners' motivation, engagement, and satisfaction compared with traditional lecture-based methods (151). Moreover, it fosters the development of self-directed learning habits and offers time flexibility, allowing each learner to assimilate the educational material at their own pace (152).

Although there is no single model for flipped classrooms, common activities and assignments are usually organized before, during, and after class hours (153, 154) (Table 6).

Table 6. Common activities organized before, during, and after flipped learning classroom

Phase	Common activities
Pre-class	Reading assigned textbook chapter or other materials
	Watching short prerecorded/online lectures
	Self-assessing by online quizzes or activities
In-class	Working in collaborative groups with peers for problem-solving task or project
	Discussing with instructors to clarify misunderstandings
	Participating in review of quiz answer
	Listening to short lectures on pertinent topics
	Delivering or observing relevant presentation
	Participating in role-playing
Post-class	Revisiting difficult concepts
	Attending tutorial sessions
	Visiting instructors for help

(Adapted from Moraros J, Ashrafi A, Yu S, Banow R, Schindelka B. Flipping for success: Evaluating the effectiveness of a novel teaching approach in a graduate level setting. BMC medical education. 2015;15:317.)

2.6.3. Case-based Learning

Case-based learning (CBL), also referred to as case study teaching and case method learning is a teaching approach that engages learners through active learning in small, collaborative groups to solve problems that mimic real-world examples (155). Although there is no universal definition for CBL, Thistlewaite et al. excellently define it as, “The goal of CBL is to prepare students for clinical practice, through the use of authentic clinical cases. It links theory to practice, through the application of knowledge to the cases, using inquiry-based learning methods” (156). CBL involves the use of a realistic case to provide a framework to deliver content, offering students opportunities to explore by identifying,

learning, and making clinical decisions and diagnoses based on the specific case (156, 157). In medical education, the specific case scenario and problems would be derived from contextualized patient cases which can real, simulated, virtual or text-based cases (156). Such cases are believed to increase the relevance of the subject matter, by emphasizing real life and the actual performance of health professionals. Consequently, student learning is connected to real-life scenarios as the basic, social, and clinical sciences are examined in relation to the case and integrated with clinical presentations and conditions.

CBL is an active learning strategy that moves away from a didactic approach, focusing on students as the center of the learning environment, encouraging the community-based, student-centered, and patient-oriented exploration of realistic and specific situations (158). CBL is aligned well with adult learning theories, particularly constructivism, where learners actively participate in the knowledge and understand construction process based on prior knowledge and experiences (159). In addition, teaching points and resource references are incorporated throughout cases, allowing learners to perform self-directed learning as required to master the material (158). Learners build their knowledge and work together in small group or large group settings with a facilitator over one or more sessions (160). The facilitator is ideally an expert in subject matter and corrects misconceptions or reroutes learners to the targeted learning objectives (161). CBL provides a practical model for learners to develop skills in communication and critical thinking while receiving feedback from their peers and facilitators to improve learning through a case-based approach (162). Currently, CBL is globally used as a prominent educational method in multiple healthcare settings because of its effectiveness in fostering deeper learning and preparing health professionals for real-world challenges (163).

2.6.4. Simulation-based Medical Education

Simulation-based medical education (SBME) is recognized as a key component of medical education, transforming the way healthcare professionals are trained by offering realistic, immersive learning experiences that closely resemble clinical scenarios (164). This educational method uses medical simulation technology to produce simulated patients and clinical scenarios for instruction and practice rather than employing real patients (165). SBME allows learners to hone both technical and non-technical skills in a safe, practical, and controlled environment, enhancing their preparedness for real-life challenges while not ensuring the patient's safety (166). Additionally, this approach provides learners with opportunities for deliberate practice, which is essential for developing proficiency and

ensuring skills retention (167). SBME has been proven to enhance learner's performance in both simulated and clinical situations and outperform problem-based learning in critical assessment and management skills teaching (168). Furthermore, the advantages of SBME lie in its ability to provide learners with immediate feedback, adjust the difficulty level, offer a high degree of flexibility and opportunities for individualize learning, and enable the integration of diverse types of learning strategies (169).

A key aspect of SBME is experiential learning—an active learning process where learners construct knowledge by linking new information and experience with previous knowledge and understanding. In SBME, clinical scenarios, typically conducted by interprofessional teams in a realistic simulated environment, serve as the foundation for learning. Another important component and cornerstone of the learning experience in SBME is debriefing after a scenario. It is an intentional discussion following the simulation experience to provide learners time and space to reflect on and understand their actions, promoting learning outcomes and enhancing future clinical performance (170).

Among different existing simulation techniques, role play is the preferred method to enhance clinical, diagnostic, and communication skills among healthcare students (171, 172). Role play requires the participation of a facilitator—simulated patient or standardized patient to play the role of the patient. Role play approach has been proven to facilitate students to apply their skills and knowledge into practice in real-time, enhancing clinical competency, problem-solving, and communication skills (173). A systematic review revealed that peer role-play (PRP) is valued by students and improves interpersonal skills (174). Careful planning and structure must be ensured, to implement role-play effectively and successfully. To create a meaningful learning experience, guidelines recommend establishing clear learning objectives, including all the students, establishing ground rules, and allotting sufficient time for the activity, feedback, and reflection (175, 176).

2.6.5. Team-based Learning

Team-based learning (TBL) is an active and collaborative learning instructional strategy promoting critical thinking and teamwork skills, which are essential for future career development of medical students (177). It is defined as "an active learning and small group instructional strategy that provides students with opportunities to apply conceptual knowledge through a sequence of activities that includes individual work, teamwork, and immediate feedback" (178). TBL has become increasingly popular in medical education over the past decade because of its ability to address the challenges of accommodating

increasing class sizes and the need for more engaging learner-centered educational methods (179). TBL has an advantage over other active-learning techniques because of its distinct structure and blend of small- and large-class interactions, making it both resource-efficient and manageable—in terms of planning and scheduling (180). In addition, TBL provides learners opportunity to engage actively in the class, receive immediate feedback, and participate in decision-making (181). It has been proven to be an effective instructional approach in enhancing learner's engagement, satisfaction, and examination scores. Moreover, TBL helps promote peer interaction and collaboration, and higher-order thinking skills such as problem-solving and clinical reasoning (182).

TBL is structured around a sequence of events including individual preparation, assessment of preparation's quality with immediate feedback from team members, feedbacks, and collaborative group work to solve authentic problems (183) (Figure 3). This sequenced format provides learners opportunities to apply and build on conceptual knowledge while learning how to prepare well independently, explain their beliefs and choices, and engage in argument which is crucial to learning sciences (184). The instructors play an important role in the TBL process, focusing on creating and facilitating learning activities that encourage collaborative problem-solving, critical thinking, and application of knowledge (185).

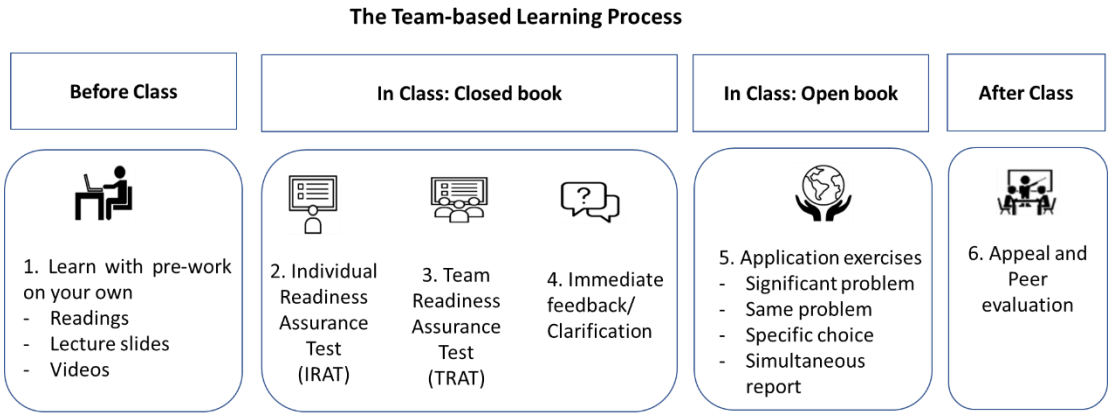

Figure 3. The team-based learning process

(Adapted from Lang D, Walker E, Steiner R, Woodruff R. Implementation and Mixed-Methods Evaluation of Team-Based Learning in a Graduate Public Health Research Methods Course. Pedagogy in Health Promotion. 2017)

2.7. Instructional Design Model in Medical Education

2.7.1. Definition

Instructional design (ID) is defined as “creating instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing” making decisions based on sound learning and educational theory (186). The ID process comprises all necessary steps to ensure the development of high-quality of learning experiences and instruction through the identification of learning needs and goals, development of a delivery system to satisfy those needs, development of educational resources and activities and evaluating whether the desired learning occurred (187). The ID model is based on a few fundamental ideas about education and learning. First, learning occurs within an individual and involves cognitive and motor processes that result in behavior. Second, the official process of promoting learning is called instruction. Therefore, it is necessary to plan the instruction or learning experience to maximize learning (188).

ID process is systematic, with cohesive, interconnected, and outcome-based components to ensure the alignment of essential learning elements. Therefore, it serves as a blueprint to ensure clear learning objectives, instruction and learning experiences that support them,

similar learning activities for all learners, and appropriate assessments to evaluate competency (189). In addition, ID provides a guide for curriculum developers and instructors, specifying the type, amount, and order of learning events that will occur within a learning program (190).

In medical education, using ID supports medical educators in maximizing the effectiveness and efficiency of instruction by integrating evidence-based practices to create high-quality, aligned instruction (191). Medical educators may use ID models as sound framework or guidance when developing their classes, online modules, courses, simulation scenarios, continuing education conferences, or clinical teaching sessions (192). ID principles and theories can be applied to improve teaching in the context of formal large-group classes, small-group discussions, workshops, laboratory teaching, online learning or clinical settings such as bedside teaching or learning procedural skills (192). Integrating ID principles ensures that medical education is competency-based, learner-centered, and aligns with the demands of real-world clinical settings (133).

2.7.2. The Analysis – Design – Development – Implementation – Evaluation Model

The Analysis – Design – Development – Implementation – Evaluation Model (ADDIE) is an instructional systems design model aligned with the behavioral approach to designing instruction (193). ADDIE model presents a series of iterative steps for building effective education and training in five phases: analysis, design, development, implementation, and evaluation. It is considered as the basic framework of most instructional designs and the standard model for technology-based education (194). The ADDIE model offers a structured framework for designing and developing learning experiences, where the outcomes of each phase guide and refine the next, ensuring a cohesive and iterative instructional process (Figure 4) (193).

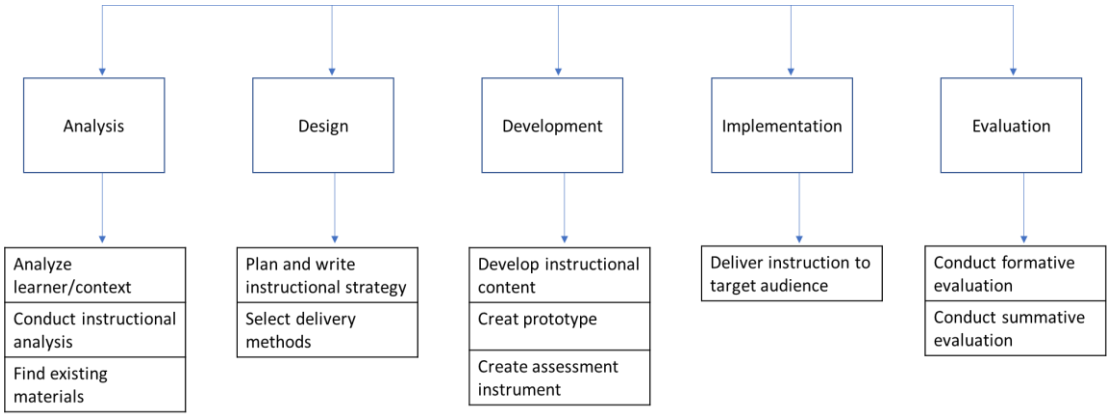

Figure 4. Analysis, design, development, implementation, and evaluation model phases and the steps during each phase

(Adapted from Khalil MK, Elkhider IA. Applying learning theories and instructional design models for effective instruction. Advances in physiology education. 2016;40(2):147-56)

During the analysis phase, the instructional problem is clarified; the learner, context, and instructional materials are analyzed, to identify the characteristics of the target learner, determine instructional goal, and establish the learning context/environment. During the design phase, learning objectives, delivery methods, types of learning activities, assessment instruments, exercises, content, subject matter analysis, lesson planning, and media are selected based on the findings from the analysis phase. In addition, the instructional flow, course structure, and content sequencing are also carefully planned to ensure optimal knowledge acquisition and skill development. The development phase includes creating and assembling the instructional content assets described in the design phase, a prototype, and assessment instruments. An imperative pilot test should be conducted after this phase by involving key stakeholders and rehearsing the course material. During the implementation phase, the actual delivery of instructional materials to support students' mastery of the learning objectives is performed and a procedure for training the facilitators and the learners is developed. The evaluation phase plays an important role in the beginning and at the end of the process. This phase assesses the effectiveness of the instructional design by measuring learning outcomes and gathering feedback from learners and instructors. Evaluation occurs at two levels: formative evaluation (ongoing assessments

and feedback) and summative evaluation (final assessments and overall program effectiveness).

2.7.3. The 4C/ID Model

The Four-Component Instructional Design (4C/ID) Model is a task-centered instructional theory developed by Van Merriënboer and colleagues for designing a course, block or module which aims to achieve complex capabilities, particularly in domains requiring problem-solving and critical thinking (195). The 4C/ID model comprises four major components assumed to constitute educational experiences that are (1) learning tasks; (2) supportive information; (3) procedural information; and (4) part-task practice. These components are interconnected, each of which uniquely contributes to the development of complex skills (196). This model is aligned with cognitivist learning theories and is guided by cognitive load theory in designing instruction for learning complicated tasks (193).

The sequence of learning tasks serves as the backbone of educational program. According to this model, learning occurs in the full context of the operation, therefore the learning tasks are called whole-task experiences or training tasks if performed in the workplace settings (195). These tasks are concrete and authentic, mirroring real-world professional tasks and helping learners develop integrated knowledge and skills. The tasks are organized based on scaffolding concept, from simple to complex activities in which learners receive high level of support and guidance at the beginning and reduced level of support as learners acquire more expertise by the end of the task. Furthermore, learners are provided opportunities to reflect on the quality of their task performance to acquire deeper conceptual understanding and develop self-directed learning skills. Reflection activities may include self-assessment checklists, peer feedback, or guided discussions with instructors, all of which foster metacognitive awareness and critical thinking (195).

Supportive information facilitates the learning and performance of non-routine aspects of learning task that require problem solving, reasoning, and decision making. Supportive information comprises mental models, cognitive strategies, and cognitive feedback, providing bridge between learners' prior knowledge and experiences and learning tasks. Mental models present cognitive structures that supports learners to understand underlying principles, mechanisms, cause-effect relationships of a task or system and predict real-world scenarios (197). Cognitive strategies including problem-solving heuristics, self-regulation techniques, and metacognitive skills play a crucial role in guiding learners to

process, organize, and apply new information effectively (195). Cognitive feedback which focuses on learner's thinking patterns encourages learners to develop more effective problem-solving and decision-making by analyzing and evaluating their reasoning processes. In the 4C/ID model, cognitive feedback is usually provided through instructor comments, self-assessment exercises, peer discussions, and automated feedback in digital learning environments (198).

The procedural information or just-in-time information is prerequisite information to the learning and performance in the 4C/ID model, helping learners to perform "recurrent" aspects of a task which is performed as routine after the completion of an educational program. This information is presented based on scaffolding model and embedded within learning environments as step-by-step instructions, corrective feedback mechanisms, or demonstration. It is an important component to facilitate the process of managing intrinsic cognitive load and reduces the need for learners to discover procedural aspects on their own (195).

The last component of 4C/ID model is part-task practice offering learners with additional practice opportunities for certain aspects of the whole-task experiences to promote the achievement of expected learning outcomes and fluency in specific subskills that require repetition. It typically involves extended repetitive practice, aiming to strengthen schema automation and master recurrent task elements. Additionally, at the end of the practice series, a reflection task may be added to part-task practice to enhance metacognitive awareness, allowing learners to analyze their performance, identify areas for improvement, and reinforce their understanding of key concepts (195).

2.7.4. The Dick and Carey Model

Dick and Carey model was first introduced in 1978 by Walter Dick and Lou Carey in their book, "The Systematic Design of Instruction." The Dick and Carey model provides detailed, step-by-step processes that are easy to follow, making it particularly helpful for novice instructional designers to understand the principles of the systemic approach to instructional design. It focuses on the interrelationship between elements in the design process and aligns with behavioral approach such as the ADDIE instructional model (193). This model includes all five stages of the ADDIE model, but adds further depth and structure, with a greater emphasis on design and less focus on implementation, while incorporating iterative development through ongoing revision of instruction (193). The systematic approach is effective in instructional designing by providing emphasis on setting

clear goals upfront to guide the design of instruction, establishing careful linkage between each component and offering an empirical and replicable process (199). The elements of the system work together to produce the desired outcomes, involving the instructors, learners, instructional activities and materials, delivery system, and learning environment (199). These elements are executed iteratively and in parallel with each other (Figure 5).

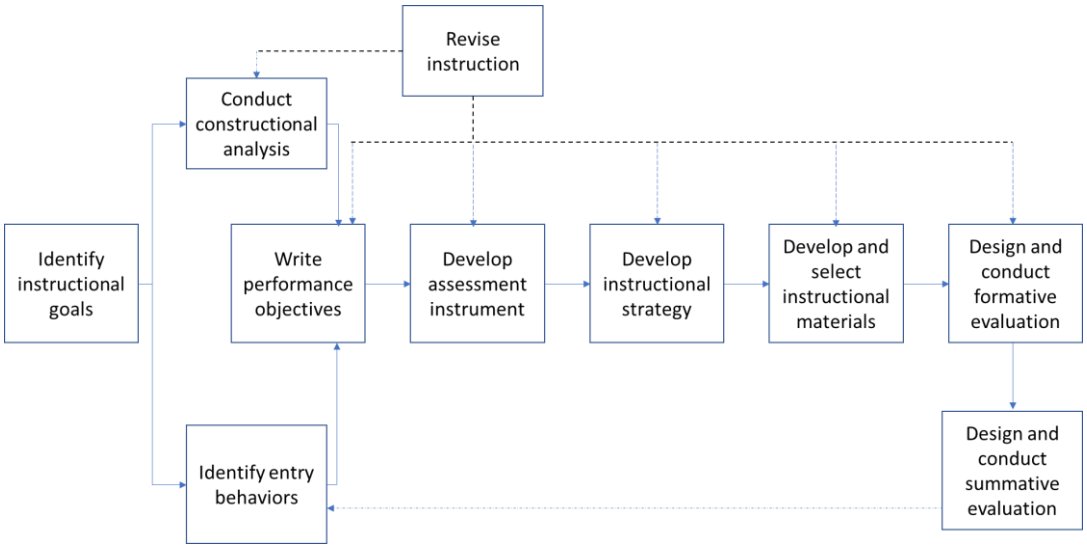

Figure 5. Dick and Carey design model

(Adapted from Dick, W., & Carey, L. (1996). The systematic design of instruction. 4th ed. New York, NY: Harper Collin Gustafson, K. and Branch, R. (1997) Revisioning Models of Instructional Development. Educational Technology, Research and Development, 45 (3), 73-89)

The Dick and Carey model includes nine distinct steps, each contributing to the systematic development of instruction, as follow:

(1) Identify the instructional goals: Determine the expected outcomes of instruction by specifying the skills, knowledge, or attitudes that learners should acquire.

(2) Conduct instructional analysis: Analyze the tasks and sub-tasks learners must perform to achieve the instructional goals, identifying the requisite knowledge and skills required for particular tasks.

(3) Analyze learners and contexts: Examine the general characteristics of the learners including prior knowledge, skills and experiences, demographics, and the contexts in which they will learn and apply the new skills.

(4) Performance objectives: Write clear and measurable objectives, including the behavior, condition, and degree.

(5) Develop the assessment tools: Develop assessments aligned with the performance objectives such as pre/post-test, practice items to evaluate learner's achievement of learning outcomes.

(6) Develop instructional strategies: Design the instructional approach by selecting appropriate methods and media to facilitate learning, considering factors such as pre-instruction activities, content presentation, learner participation, feedback mechanisms and assessment.

(7) Develop and select instructional materials: Produce or select instructional materials that effectively support the selected strategies and help learners meet the performance objectives.

(8) Design and conduct formative evaluation: Implement evaluations during the instructional development process to gather feedback for identifying and improving the instructional materials.

(9) Revise instructions: Make any necessary adjustments to the instructional materials, based on insights obtained from formative evaluations to ensure that they effectively meet learners' needs.

(10) Design and conduct summative evaluation: Assess the overall effectiveness of the instructional program after it has been implemented through learner's achievement of learning outcomes and multiple sources feedback.

2.7.5. Gagne's Theory of Instructional Events

Gagne's Theory of Instructional Design is a widely recognized framework that describes the cognitive processes involved in learning and offers a structured approach to designing successful instruction (200). This theory is based on a processing model of the mental events that occur when adult learners are exposed to different stimuli, focusing on the learning outcomes and the way to arrange specific instructional events to achieve those outcomes. According to this view, there are five types or levels of learning. Each requires

different types of instruction, including verbal information, intellectual skills, cognitive strategies, motor skills, and attitudes (200). Furthermore, each type of learning needs different internal and external learning conditions. External conditions deal with the stimuli that are presented to the learner, whereas internal conditions deal with the learner's knowledge before receiving the instructions (190). In Gagne's theory, lesson planners must first identify the type of learning outcome required for learners, and then construct and organize the instructional events necessary to achieve this outcome (201). In medical education, this model has been used to develop instructional plans to teach a range of procedural and cognitive skills (202, 203).

The theory outlines nine instructional events and corresponding cognitive processes (Table 7) (204). These events should satisfy the prerequisites for learning conditions and form the foundation for creating lesson plans and selecting relevant and appropriate educational methods.

Table 7. Gagne's nine instructional events

Instructional event	Internal Mental Process
1. Gain attention	Stimuli activate receptors
2. Inform learners of objectives	Creates level of expectation for learning
3. Stimulate recall of prior learning	Retrieval and activation of short-term memory
4. Present the content	Selective perception of content
5. Provide "learning guidance"	Semantic encoding for storage long-term memory
6. Elicit performance (practice)	Responds to questions to enhance encoding and verification
7. Provide feedback	Reinforcement and assessment of correct performance
8. Assess performance	Retrieval and reinforcement of content as final evaluation
9. Enhance retention and transfer to the job	Retrieval and generalization of learned skill to new situation

(Adapted from Gagne R. Gagne's Nine Events of Instruction: An Introduction [Available from: http://www.e-learningguru.com/articles/art3_3.htm.])

3. Research Methods

3.1. Ethical Statement

This study obtained ethical approval from the Institutional Review Board (IRB) of Yonsei University, Wonju Severance Christian Hospital (IRB Approval No. CR325003) (Appendix 10) and from Ethics Committee in Biomedical Research of Hue UMP (Approval No. H2025/053) (Appendix 11).

As the survey was conducted using an online survey service, the procedure of signing a written consent form was omitted. Instead, an explanation was provided as part of the online survey to explain the purpose and process of the study, roles of the panelists, and the personal information to be collected in detail. Participants indicated their consent by clicking on the consent to the survey and the collection of personal information on the online survey form (Appendix 12). Personal information was collected to the minimum extent necessary for data processing, so that it could not be used to identify the individual.

3.2. Delphi Survey

3.2.1. Study Design

This is a cross-sectional descriptive study employing a modified two-round Delphi method to develop a competency list for professionalism in social media (PSM) for medical students.

The Delphi method is a group facilitation technique designed to convert individual opinions into a collective consensus. Consensus is obtained from the opinions of selected experts in specific fields through multiple rounds of structured questionnaires in an interactive process. This approach is commonly employed for consensus building and is widely used in social sciences and health-related research, particularly in medical education (205).

A multiphase, modified Delphi survey was conducted from April to May 2025 to identify competencies related to PSM for medical students and reach a consensus on the most important competencies. Each panelist completed the online survey using Google Forms.

Panelists conducted survey questionnaires via anonymized emails to avoid bias. The following research procedures were conducted to reach a consensus on PSM competencies (Figure 6). First, the literature review was conducted to construct the initial draft of the items for PSM competencies. During the classic Delphi method, initially, an unstructured questionnaire is used to explore and converge survey items before commencing the actual survey; the modified Delphi method establishes list of items by reviewing relevant literature beforehand, bypassing this exploratory phase. Second, a two-round survey was performed in which panelists evaluated the validity of PSM competencies. Only those who completed Round 1 of the Delphi survey were invited to Round 2. Finally, the researchers concluded the survey and achieved consensus.

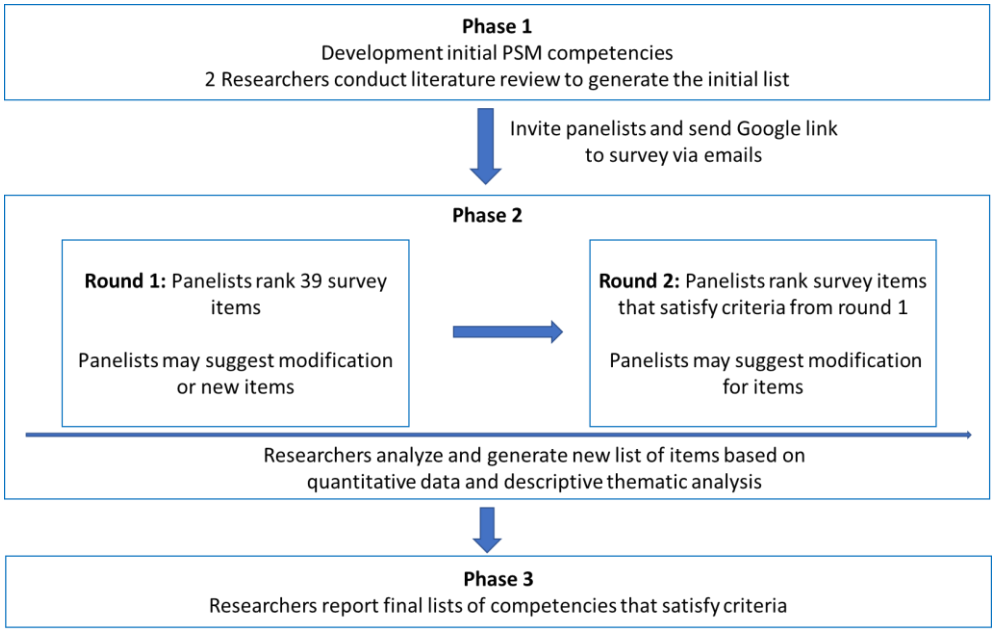

Figure 6. Overall research design

3.2.2. Research Subjects

The purposive sampling method was used to select the panelists for this study. The consensus was sought from panelists engaging in teaching and training medical students at Hue UMP and the teaching hospital of Hue UMP, including full-time lecturers, lecturers–doctors, administrators, medical education specialists, nurses, and residents. To obtain a comprehensive perspective, candidates were invited with varied expertise and training experience from the Department of Internal Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Oncology, Psychiatry and Emergency; Faculty of Family Medicine; Faculty of Public Health; Undergraduate Training Office, and Student Affairs Office.

(a) Sample size:

Although the number of panelists in the Delphi method is not clearly defined, it is often recommended to include around 20 panelists for consensus-building in healthcare (206). Emails were sent to 32 candidates, who matched these conditions, to explain the study and receive confirmation of their agreement to participate in the research as panelists.

(b) Inclusion criteria

- Candidates engage in teaching and training medical students at Hue UMP and the teaching hospital of Hue UMP
- Candidates fully understand the purpose and method of the study and the survey.
- Candidates provided informed consent and volunteered to participate in this study.

(c) Exclusion criteria

- Candidates refused to provide informed consent

Additionally, responses that were expected to have an inaccurate effect on the research results because of insincere responses were excluded (Figure 7).

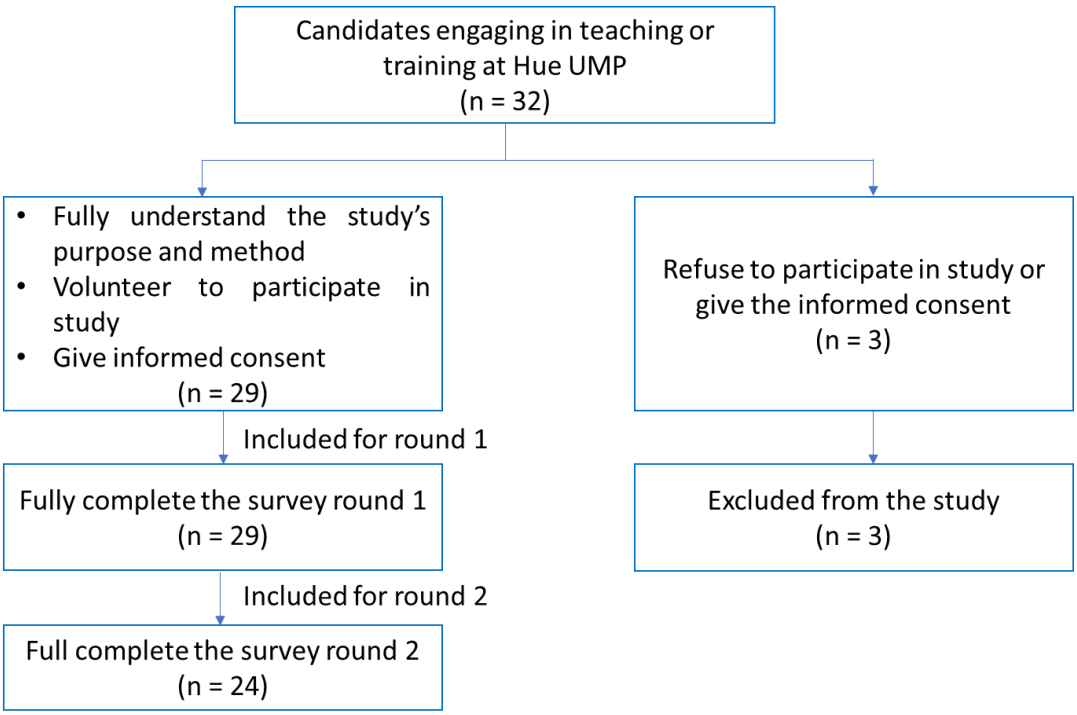

Figure 7. Delphi panelist selection and participation process

3.2.3. Survey Development

The survey comprised two categories, including (1) socio-demographic data, and (2) competency in professionalism in social media. The survey components were developed from previous studies and assessed by researchers and the supervisor (Kyung Hye Park).

(a) Socio-demographic data

Information about participant's gender, current professional role, working experience in the current role, and the current department were collected.

(b) Initial competency list on professionalism in social media

First, a list of PSM competencies for medical students from the literature search, global guidelines on SM uses for medical students and medical doctors, Vietnamese regulations on digital competency framework for learners, and previous studies were generated (105). Thereafter, guidelines from both English-speaking and non-English-speaking countries were reviewed, including those issued by the World Medical Association (94); The American Medical Association's Council on Ethical and Judicial Affairs (88); The Canada Federation of Medical Students (96); The General Medical Council (89); The Australia Medical Association (101); The Korean Medical Association (102); The Health Professions Council of South Africa (103); and The Indian National Medical Council (104).

The list of 39 competency items was extracted based on the literature review, categorized into 5 domains including Patient confidentiality, privacy and dignity; Professional boundary, doctor-patient relationship and public trust; Practitioner's privacy; Health advocacy; and Information appropriateness (Appendix 13). Each item comprised a description of the competency followed by a 5-point Likert scale (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree) indicating the strength of agreement regarding whether medical students should have the competency. In addition, after each domain of competency, panelists were provided the opportunity to use their discretion to include additional competencies or suggestions for modification.

3.2.4. Data Collection

(a) First round

In the first round, a web-based questionnaire was sent to the panelists via email. They were asked to evaluate the validity of 39 PSM competencies on a 5-point scale, detect redundancies, propose additional items, and suggest changes in wording or integrating competencies. Subsequently, the free-text suggestions were qualitatively analyzed by two researchers, and based on the panelist's opinions, revisions or exclusion of competency items that did not satisfy the criteria to be included were discussed. Items that met the standards for inclusion in the first round were thematically analyzed and incorporated as new items in the second round.

(b) Second round

As in the first round, emails were sent to panelists with an attached link to the online survey. The panelists were asked to evaluate the validity (on a 5-point scale) of new list of items derived according to the results of the first round and write down their opinions regarding modification. In addition to the list of items, the detailed thematic analysis and a summary of results from the first round were also provided in a PDF file, allowing the panelists to review details about the items and their corresponding codes. Subsequently, a post-meeting was conducted again by two researchers to discuss and determine the final list of competencies based on the inclusion criteria and thematic analysis as in the first round.

3.2.5. Data Analysis

The collected data were exported and stored in Microsoft Excel ver. 16.0 (Microsoft Corp, Redmond, USA) for initial organization, cleaning and statistical analysis. To determine the adequacy of the panelist's evaluation of validity for the competencies in each domain, the mean, standard deviation, degree of convergence, degree of consensus, and content validity ratio were analyzed.

The formula for calculating the degree of convergence is as follow:

$$(Q3–Q1)/2$$

Q3 = the 3rd quartile coefficient

Q1 = the 1st quartile coefficient

The degree of convergence is an index that indicates whether the response results gathered from the Delphi survey are converging (207). The convergence degree increases when it is closer to 0; when it is between 0 and 0.5, the opinions of panelists are considered to be converging.

The formula for calculating the degree of consensus is as follow:

$$1–(Q3–Q1)/\text{Median}$$

The degree of consensus increases when it is closer to 1; when it is 0.75 or higher, the opinions of panelists are considered to reach a consensus.

The content validity ratio (CVR) was calculated as follow:

$$CVR = (ne-N/2)/(N/2)$$

ne = the number of panel members indicating that an item is essential

In this study, ne is the number of respondents who rate an item as “Agree (4 points)” and “Strongly agree (5 points)” on a 5-point Likert scale.

N = the number of panel members.

CVR is the value that evaluates whether the items included in a survey truly reflect the content that is relevant to the concept being measured (208). As 32 panel members are expected to participate in the modified Delphi survey, the items with a CVR of 0.31 or higher were considered to have content validity (208).

In addition, descriptive analysis of panelists’ opinions such as integration or exclusion of each competency was also conducted to reflect the results. The results of the first-round and second-round modified Delphi survey were analyzed according to the inclusion criteria as follows: (1) CVR threshold is 0.37 or higher; (2) degree of convergence from 0–0.5; and (3) degree of consensus is 0.75 or higher. Items that satisfied all three criteria were included for the second round and final list of competencies or modified according to panelists opinions. Or, items were deleted from the list for next round or final list.

3.3. Class Development

For the development of class on professionalism in social media for third-year medical students, the ADDIE model was selected as the instructional design framework for several reasons.

First, the ADDIE model stands out among instructional designs used in health professional education because of its simplicity, high adaptability, and elaboration on instructional design phases (193). This approach has been employed as an effective method for the knowledge transfer process in adult learning, facilitating the development of structured and impactful educational programs (209). In recent years, the adoption of the ADDIE is increasing in the healthcare sector and has proven to be effective in changing practice behaviors in the management of a multitude of medical conditions when applied in medical education and training (210).

Second, current studies have revealed that applying and optimizing the ADDIE model can enhance the quality and efficiency of curriculum development, reduce resource costs, significantly advance educational advancement, and enhance training quality (211, 212).

Third, combining the ADDIE framework with a flipped classroom approach has significantly improved the clinical competencies, theoretical knowledge, critical thinking, and autonomous learning skills of neurology residents (213). Additionally, in the field of healthcare simulation, the ADDIE model serves as a valuable guide for developing and refining simulation-based educational programs, ensuring a systematic approach to curriculum development (214).

Finally, the ADDIE model was selected for the development of a class on PSM because of its adaptability, learner-centered approach, and emphasis on continuous evaluation (215). Its flexibility allows the class to be modified in real time in response to feedback, keeping it current with the changing landscape of digital platforms and the unique requirements of medical students. ADDIE provides more flexibility for iterative changes during the development process than other instructional designs such as Dick and Carey approach, which is more structured and focuses primarily on achieving specific learning outcomes (199). Furthermore, the ADDIE model is effective in addressing a broad, foundational concept—PSM through the comprehensive, straightforward, and scalable framework, compared with the 4C/ID model which is better suited for teaching intricate skills and procedures (216).

The ADDIE model comprises five sequential stages: Analysis, Design, Development, Implementation, and Evaluation, with each stage involving specific processes tailored to the unique requirements of the project and aligned with learning theories (Figure 8). This study specifically examines the initial stages of the ADDIE framework, including the analysis, design, and development stages. Although the detailed implementation and evaluation phases of the ADDIE model are beyond the scope of this study, preliminary plans have been outlined to guide the PSM class's implementation and assessment in an action plan after the completion of this thesis.

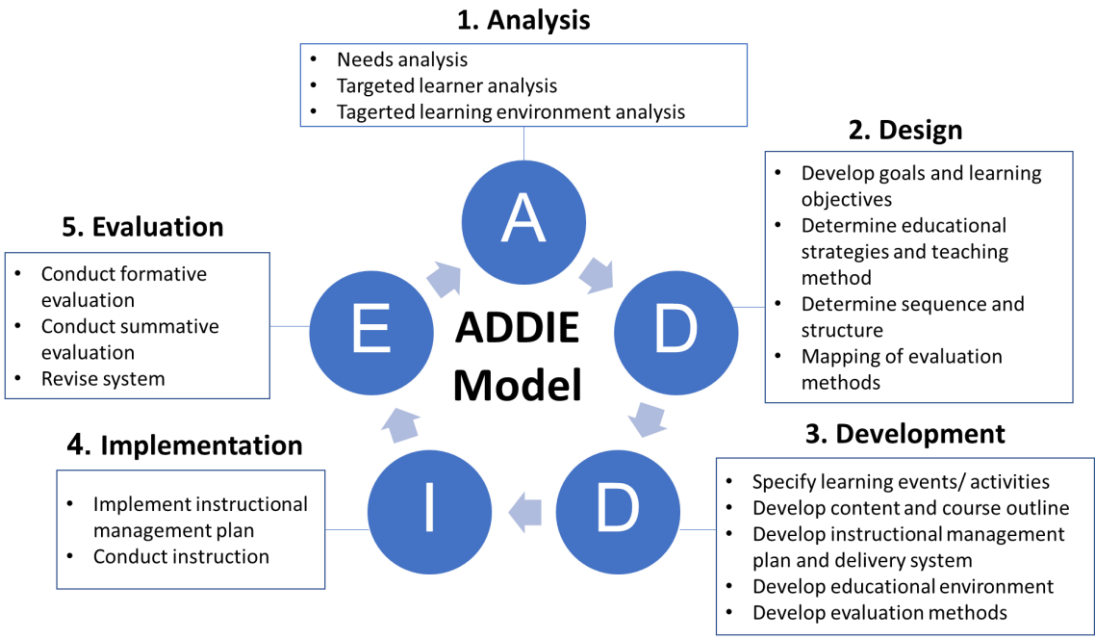

Figure 8. Five steps in ADDIE instructional design for class development

3.3.1. Analysis

The analysis stage was conducted using two methods: comprehensive literature review and examining current situation in Vietnam and Hue UMP. This multifaceted approach ensured that the class is tailored to meet the specific needs of the targeted learner, aligning with best practices in educational class development. Specifically, an assessment of general training needs, targeted learners, and targeted learning environment were conducted (Table 8). This stage is essential for determining the unique needs of the targeted learner, setting goals, identifying resources, and selecting appropriate delivery methods (215).

Table 8. Analysis of general needs, targeted learners, and targeted learning environment

Analysis	Methods	Content
General needs	Examining current situation	Current approach to PSM*, ideal approach and the gaps
	Comprehensive literature review	Pertinent content and information for the development of the PSM[1] class
Targeted learners	Examining current situation Comprehensive literature review	Expectation regarding extent of knowledge and skills Previous training and experience Already planned training and experiences relevant to the curriculum Existing characteristics/proficiencies/practices Experience regarding different learning strategies
Targeted learning environment	Examining current situation	Related existing curricula Resources

[1] Professionalism in social media

(a) General training needs analysis

General training needs assessment was conducted through a literature review and by examining current situation of medical education in Vietnam and Hue UMP which focused on identifying the current and ideal approach to professionalism in social media and the gaps between these two approaches; and pertinent content and information for the development of the PSM class. It included a comprehensive review of guidelines on social media use for medical doctors and medical students, professionalism in social media studies, existing educational materials such as courses, workshops, and modules from reputable institutions and organizations, and current curriculum for medical students at Hue UMP.

(b) Targeted learner analysis

First, the literature review of the public report of Hue UMP and existing curriculum in other institutions was conducted to identify targeted learners for our curriculum. Next, information about characteristics of targeted learners most essential for class development was analyzed, including:

- Expectations regarding the extent of knowledge and skills required
- Previous training and experiences relevant to the curriculum
- Already planned training and experiences relevant to the curriculum
- Existing characteristics/proficiencies/practices
  + Cognitive: knowledge, problem-solving abilities
  + Affective: attitudes, values, beliefs, role expectations
  + Psychomotor: skills/capabilities
- Preferences and experiences regarding different learning strategies
-

(c) Targeted learning environment

A review of curriculum for medical students at Hue UMP and the annual report was conducted to identify any relevant existing curriculum, instructional resources, and potential gaps in professionalism education related to social media use. Additionally, availability of resources, including teaching personnel, facilities, technological infrastructure and potential funding sources were examined. This analysis provided insights into the institutional capacity to support the implementation of the PSM class and helped determine the feasibility of incorporating it into the curriculum.

3.3.2. Design and Development

Based on results from the Analysis phase, the Design and Development phases were conducted in an integrated manner to transform identified needs into a structured and effective learning experience. In the Design phase, the emphasis was on planning the structure, description, and contents of the class which were then translated into tangible

instructional materials and interactive learning activities during the Development phase. Specifically, during these phases, the structure, instructional materials, and learning experience for the PSM class were systematically developed, including goals and learning objectives, class content, class outline, educational strategies, teaching methods, assessment tools, communication process, learning environment, and process management (Table 9). The iterative nature of these phases ensured that the class was not only well-planned, but also adaptable for the learning context at Hue UMP, incorporating expert feedback and pilot testing to enhance its effectiveness before full implementation.

Table 9. Specific tasks in Design and Development phases

Task	Design phase	Development phase
Goals and learning objectives	Set the goals and define competencies and learning objectives	Create key content and materials based on the goals and learning objectives
Class outline	Develop class outline including topics, structure and sequence of learning activities	Develop detailed materials (e.g., case studies, slides, readings) and specific learning activities
Educational strategies	Determine the educational strategies	Develop class structure to be aligned with educational strategies
Teaching methods	Plan appropriate instructional and delivery methods	Develop actual content that aligns with teaching methods
Assessment methods	Determine how learners will be assessed, including formative and summative assessments	Develop assessment tools based on the design phase
Communication process	Plan the communication methods to inform the stakeholders about the class	Develop clear statement and explanation, and series of blueprints
Educational environment	Specify the environment in which students will learn	Develop strategies to foster educational environment
Process management	Develop structured plan to manage and oversee the class development and implementation	Establish timelines and milestones and ensure alignment with institutional policies and accreditation standards

First, to identify the list of competencies on professionalism in social media for medical students, a modified Delphi survey was developed and conducted. The results of the Delphi survey helped shape the learning objectives of the course, ensuring that it addresses the specific challenges and needs of medical students in a digital environment Next, the goals and learning objectives were defined based on the competency list developed from the Delphi survey, ensuring the alignment with the program's educational goal at Hue UMP. Learning objectives were developed in three domains: cognitive, psychomotor, and affective to ensure a structured progression from foundational knowledge to higher-order thinking skills, emphasizing the application and evaluation of professionalism social media concepts. Based on these, the key content and materials for the class were developed. Case studies were developed as the key aspect and content of the class, serving as the foundation for interactive discussions and application of digital professionalism principles in real-world scenarios. These case studies were carefully designed to reflect common challenges related to professionalism faced by medical students when using social media, promoting critical thinking and ethical decision-making. Additionally, interactive lectures, group discussion and role-playing exercises were developed to facilitate engagement and active learning. The class structure and sequence of learning activities were developed based on the Gagné's nine instructional events (118). The assessment methods were designed to evaluate students' understanding, critical thinking, and ability to apply digital professionalism principles, using a comprehensive approach aligned with the Kirkpatrick Model of evaluation (217). To ensure smooth class delivery, a supportive learning environment and process management framework and communication system that facilitates seamless interaction between learners, faculty, and stakeholders were fostered

The following principles in the Design and Development phases were adhered to ensure that the course was systematically structured, aligned with educational goals, and designed for maximum engagement and effectiveness:

First, design allows learning activities that enable learners to discover knowledge by themselves and build on what they already know and can do. Teachers play the role of facilitators rather than knowledge providers (218).

Second, design considers the learner's background and uses their experience, fosters active learning engagement in learning process and establishes a positive learning environment where learners feel safe and can express themselves (218).

Third, learning methods are consistent with the theory on how information is processed, stored and retrieved (219).

Fourth, congruence between objectives and methods should be maintained. Furthermore, using multiple educational methods to accommodate learner preferences, enhance learner interest and commitment, and reinforce learning is essential. Moreover, educational methods should be selected based on their feasibility in terms of resources (135).

Finally, design allows reflection, self-assessment, and explicit modeling of teacher in reflection or on action. Teachers reinforce motivation to learn by demonstrating benefit of usefulness, exploring expectations, linking theory and practice, and using motivating assessment and feedback (218).

3.3.3. Implementation and Evaluation

During these stages, the pilot class was prepared and scheduled to be launched at Hue UMP, Clinical Skills-Lab Center. The goal was to test the class materials, instructional methods, and overall structure to ensure the class met its learning objectives and identify any adjustments necessary for future iterations. Feedback was collected from students to assess engagement and learning effectiveness, with adjustments made as necessary. Monitoring and evaluation helped refine the class for full implementation in the future. The Kirkpatrick Model was used to evaluate the program's effectiveness.

4. Results

4.1. Delphi Survey

4.1.1. Results of the First-Round Delphi Survey

(a) Panelist demographics

The first-round survey was sent to 32 participants on April 22, 2025. Of these, 29 participants completed Round 1 of the Delphi survey (91% response rate) between April 22 and April 29. The panel was nearly gender-balanced, with 15 (51.7%) female and 14 (48.3%) male participants. The most common professional role was doctor-lecturer (n=17, 58.6%), followed by administrator (n=4, 13.8%), lecturer (n=3, 10.3%), resident (n=3, 10.3%), and nurse (n=2, 6.9%). Participants were affiliated with various departments, faculty and offices, most frequently the Departments of Pediatrics with 5 (17.2%) participants, followed by the Department of Obstetrics and Gynecology, and Internal Medicine with 4 participants (13.8%) from each department. Regarding professional working experience, 24 participants (82.8%) had more than five years of experience (Table 10).

Table 10. Demographic characteristics of the panelists in the first round

Characteristics	Frequency (%)
Gender	
Male	14 (48.3)
Female	15 (51.7)
Current professional role	
Lecturer	3 (10.3)
Doctor-Lecturer	17 (58.6)
Administrator	4 (13.8)

Resident	3 (10.3)
Nurse	2 (6.9)
Affiliation	
Department of Internal Medicine	4 (13.8)
Department of Surgery	2 (6.9)
Department of Obstetrics and Gynecology	4 (13.8)
Department of Pediatrics	5 (17.2)
Department of Oncology	1 (3.4)
Department of Psychiatry	1 (3.4)
Department of Emergency	2 (6.9)
Faculty of Public Health	2 (6.9)
Faculty of Family Medicine	3 (10.3)
Undergraduate Training Office	2 (6.9)
Student Affairs Office	1 (3.4)
No response	2 (6.9)
Working experience	
< 2 years	1 (3.4)
2-5 years	4 (13.8)
5-10 years	12 (41.4)
>10 years	12 (41.4)

(b) Competencies

The results of the first-round Delphi survey were analyzed according to the inclusion criteria as follows: (1) CVR threshold is 0.37 or higher; (2) degree of convergence from 0–0.5; and (3) degree of consensus is 0.75 or higher. Descriptive opinions such as integration, rewording or exclusion of each competency were all reflected (Table 11). After Round 1,

32 items reached criteria for inclusion. Among these items, 15 items were retained as they were, whereas 17 items with similar meaning were combined into 8 items, 7 items were removed from the list as they did not satisfy the inclusion criteria. Thus, 39 competencies in 5 domains were restructured to 23 competencies in 5 domains.

Specifically, in the domain “Patient confidentiality, privacy and dignity,” 1 out of 10 competencies was excluded, 6 competencies were integrated into 3, and thereby this domain was modified into 6 competencies. According to qualitative analysis, competencies “I understand that ethical guidelines and laws related to patient privacy and confidentiality must be maintained online” and “I maintain patient confidentiality and privacy online” were integrated into the new competency “I maintain ethical guidelines and laws related to patient privacy and confidentiality online” as panelists considered knowledge and practice in this area as inseparable. Experts emphasized that understanding relevant legal and ethical frameworks is a foundational prerequisite for practicing confidentiality online, and therefore, these aspects should be represented as a unified competency rather than separate items. Competencies “I refrain from sharing identifiable patient information on social media without explicit consent” and “I obtain explicit written consent before sharing patient information online” were integrated into the new competency "I share identifiable patient information on social media only when I obtain explicit written consent from the patient." Based on the opinions of panelists, the two original competencies addressed the same ethical principle from different perspectives of prevention and action. By merging them, the revised competency emphasizes both the necessity of patient consent and the professional responsibility to act only within that boundary. Competencies “I disclose patient’s information only when it aligns with court order, patients consent and in terms of the law” and “I limit the disclosure of patient information to the minimum necessary to maintain patient’s privacy” were incorporated into the new competency “I disclose patient's information to the minimum necessary like when it aligns with court order or when patients consent.” The panelists suggested this integration to enhance clarity and reduce redundancy as both original competencies addressed closely related legal and ethical principles related to situations where a physician can disclose patient’s information.

In the “Professional boundary, doctor-patient relationship and public trust” domain, 2 of the original 9 competencies were removed, and 2 competencies were consolidated into 1, resulting in a revised total of 6 competencies in this domain. The competency “I am aware of the risk where social and professional boundaries become unclear when using social media” was integrated with competency “I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance” as panelists

explained that simply being aware of boundary risks is insufficient and “being aware” can be considered as part of broader competency of “maintaining.”

The domain “Practitioner’s privacy” originally had 7 items, however, 1 item was excluded after Round 1. Three competencies “I use privacy settings to safeguard personal information and content,” “I understand that privacy settings on social media are not absolute,” and “I understand that content I share online can be published without my intention” were integrated into the new competency “I use privacy settings to protect my personal information, while recognizing their limitations and the risk of unintended content disclosure.”. Based on panelist’s opinions, these three competencies all addressed the theme of managing personal privacy on social media, therefore they should be integrated and modified to provide a comprehensive competency. Similarly, two competencies “I know how to limit the disclosure of my personal information” and “I know how to control the extent of my social media post” were integrated into the new item “I know how to manage visibility and disclosure of my personal information and social media contents." Consequently, this domain was revised to include 3 competencies.

In the “Health advocacy” domain, 2 out of 5 items were excluded and the remaining 3 items were retained without modification resulting in 3 competencies.

Finally, in the domain “Information appropriateness,” 1 out of 8 competencies was excluded and 4 competencies were modified and integrated into 1. The competencies “I ensure that all medical information I post on social media is accurate and evidence-based” and “I ensure that all medical information I post on social media is contextually appropriate to support public understanding and trust” were integrated into the new item “I ensure that all medical information I post on social media is accurate, evidence-based, and contextually appropriate to support public understanding.” Panelists recommended this integration to eliminate redundancy and streamline the competencies and reflect a more comprehensive approach when posting health information on SM. Similarly, two competencies “I include sufficient context in my content to help the audience verify claims” and “I include sufficient context in my content to help the audience understand the implications of the information shared” were integrated into the new item “I include sufficient context in my content to help the audience understand the implications of the information shared.” Consequently, this domain included 5 competencies after the first round.

Table 11. Content validation index of the professionalism in social media competency and expert's consensus in the first round

Domain	Competency	Mean ± SD	Degree of Convergence	Degree of Consensus	CVR[1]	Experts' consensus
I. Patient confidentiality, privacy and dignity	1. I understand that ethical guidelines and laws related to patient privacy and confidentiality must be maintained online.	4.62±0.49	0.5	0.8	1.00	Included (integrated with Competency 2)
	2. I maintain patient confidentiality and privacy online.	4.66±0.48	0.5	0.8	1.00	Included
	3. I refrain from sharing identifiable patient information on social media without explicit consent.	4.38±0.68	0.5	0.75	0.93	Included (integrated with Competency 5)
	4. I understand that even non-identifiable information, when	3.45±1.18	0.5	0.75	0.24	Excluded

combined, can lead to breaches of confidentiality.					
5. I obtain explicit written consent before sharing patient information online.	4.17±0.66	0.5	0.75	0.72	Included
6. I disclose patient's information only when it aligns with court order, patient's consent, and in terms of the law.	4.69±0.47	0.5	0.8	1.00	Included (integrated with Competency 10)
7. I use social media responsibly for academic exchange or education, ensuring patient information is anonymized and shared ethically.	4.52±0.63	0.5	0.8	0.86	Included
8. I keep patient information confidential even after the patient dies.	4.14±0.79	0.5	0.75	0.66	Included

	9. I am aware that there is always a risk that the information online can be disseminated even in “invisible groups.”	4.00±0.80	0.5	0.75	0.52	Included
	10. I limit the disclosure of patient information to the minimum necessary to maintain a patient’s privacy.	4.41±0.68	0.5	0.8	0.79	Included
II. Professional boundary, doctor-patient relationship, public trust	11. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance.	4.48±0.57	0.5	0.8	0.93	Included
	12. I am aware of the risk where social and professional boundaries become unclear when using social media.	4.17±0.60	0.5	0.75	0.79	Included (integrated with Competency 11)
	13. I distinguish between personal and professional content online.	3.62±1.32	1	0.5	0.31	Excluded

14. I take steps to separate personal and professional content when necessary.	3.90±1.21	0.5	0.75	0.52	Included
15. I communicate with patients on social media with mutual respect, professionalism, and trust.	4.79±0.41	0	1	1.00	Included
16. I can communicate with colleagues on social media with mutual respect, professionalism, and trust.	4.83±0.38	0	1	1.00	Included
17. I avoid abusive, discriminatory, or harmful behavior online.	4.83±0.38	0	1	1.00	Included
18. I redirect patients seeking medical advice on social media to appropriate in-person care.	3.83±1.44	1	0.6	0.24	Excluded
19. I handle inappropriate contact professionally.	4.45±0.74	0.5	0.8	0.72	Included
20. I use privacy settings to safeguard personal information and content.	4.34±0.48	0.5	0.75	1.00	Included (integrated

						with Competencies 21 and 22)
III. Practitioner's privacy	21. I understand that privacy settings on social media are not absolute.	4.14±0.83	0.5	0.75	0.79	Included
	22. I understand that content I share online can be published without my intention.	4.24±0.64	0.5	0.75	0.79	Included
	23. I understand that content I share online can be permanent even I delete it from my account.	3.55±1.30	0.5	0.75	0.24	Excluded
	24. I separate personal and professional social media accounts to maintain appropriate boundaries.	4.10±0.86	0.5	0.75	0.72	Included
	25. I know how to limit the disclosure of my personal information.	4.24±0.87	0.5	0.75	0.79	Included (integrated with

						Competency 26)
	26. I know how to control the extent of my social media post.	4.34±0.94	0.5	0.8	0.72	Included
IV. Health advocacy	27. I understand that the use of social media may cause the conflict of interest.	3.59±1.32	1	0.5	0.24	Excluded
	28. I manage the sites based on understanding about conflict of interest caused by social media use.	3.59±1.27	1	0.5	0.17	Excluded
	29. I disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media.	4.45±0.74	0.5	0.8	0.86	Included
	30. I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media.	4.66±0.48	0.5	0.8	1.00	Included

	31. I use social media responsibly for public health advocacy while maintaining professionalism and trust.	4.45±0.69	0.5	0.8	0.79	Included
V. Information appropriateness	32. I ensure that all medical information I post on social media is appropriate, accurate, and evidence-based.	4.76±0.51	0	1	0.93	Included (integrated with Competency 33)
	33. I ensure that all medical information I post on social media is contextually appropriate to support public understanding and trust.	4.66±0.55	0.5	0.8	0.93	Included
	34. I include sufficient context in my content to help the audience verify claims.	4.62±0.62	0.5	0.8	0.86	Included (integrated with Competency 35)

35. I include sufficient context in my content to help the audience understand the implications of the information shared.	4.59±0.57	0.5	0.8	0.93	Included
36. I do not misrepresent my qualifications, experience, or expertise.	4.72±0.45	0.5	0.8	1.00	Included
37. I actively monitor medical information on social media.	3.66±1.59	1	0.5	0.31	Excluded
38. I endeavor to correct or supplement inaccurate or inappropriate content posted by myself.	4.59±0.73	0.5	0.8	0.86	Included
39. I endeavor to correct or supplement inaccurate or inappropriate content posted by my colleagues.	4.38±0.82	0.5	0.8	0.59	Included

[1] CVR: Content Validity Ratiob) Results of the Second-Round Delphi Survey

4.1.2. Results of the First-Round Delphi Survey

(a) Panelist demographics

The second-round survey was sent to 29 participants who participated fully in Round 1 on April 30, 2025. Of these, 24 participants completed Round 2 of the Delphi survey (83% response rate) between April 30 and May 7. The panel had a slight female majority, with 14 participants (58.3%) identifying as female and 10 (41.7%) as male. The predominant professional role was doctor-lecturer, accounting for 66.7% (n=16) of participants, followed by administrator (n=3, 12.5%), lecturer (n=2, 8.3%), resident (n=2, 8.3%), and nurse (n=1, 4.2%). Participants were affiliated with various departments and offices, with the Department of Pediatrics being the most represented (n=4, 16.7%), followed by the Departments of Internal Medicine, Obstetrics and Gynecology, and the Faculty of Family Medicine (each with 3 participants, 12.5%). Other affiliations included the Departments of Surgery and Emergency (n=2 each, 8.3%), the Faculty of Public Health (n=2, 8.3%), Undergraduate Training Office (n=2, 8.3%), and single participants from the Departments of Oncology, Psychiatry, and the Student Affairs Office (n=1 each, 4.2%). Regarding professional working experience, the majority had over five years of experience, with 11 participants (45.8%) reporting 5–10 years and 8 participants (33.3%) reporting more than 10 years. Four participants (16.7%) had 2–5 years of experience, and only one participant (4.2%) had less than two years of experience (Table 12).

Table 12. Demographic characteristics of the panelists in the second-round

Characteristics	Frequency (%)
Gender	
Male	10 (41.7)
Female	14 (58.3)
Current professional role	
Lecturer	2 (8.3)
Doctor-Lecturer	16 (66.7)
Administrator	3 (12.5)

Resident	2 (8.3)
Nurse	1 (4.2)
Affiliation	
Department of Internal Medicine	3 (12.5)
Department of Surgery	2 (8.3)
Department of Obstetrics and Gynecology	3 (12.5)
Department of Pediatrics	4 (16.7)
Department of Oncology	1 (4.2)
Department of Psychiatry	1 (4.2)
Department of Emergency	2 (8.3)
Faculty of Public Health	2 (8.3)
Faculty of Family Medicine	3 (12.5)
Undergraduate Training Office	2 (8.3)
Student Affairs Office	1 (4.2)
Working experience	
< 2 years	1 (4.2)
2-5 years	4 (16.7)
5-10 years	11 (45.8)
>10 years	8 (33.3)

(b) Competencies

The results of the second-round Delphi survey were analyzed according to the inclusion criteria as follows: (1) CVR threshold is 0.42 or higher; (2) degree of convergence from 0–0.5; and (3) degree of consensus is 0.75 or higher. Panelists' descriptive feedback—such as suggestions for integration, rewording, or exclusion of competencies—was thoroughly considered (Table 13). By the end of Round 2, all 23 items met the inclusion threshold. Of these, 22 items were retained without changes, whereas one item required modification. Specifically, the item “I do not misrepresent my qualifications, experience, or expertise” was revised to use active voice, as recommended by the panel. The revised version reads: “I accurately represent my qualifications, experience, and expertise.”

Finally, after two rounds, 23 items in 5 domains were generated as competencies on professionalism in social media for medical students (Table 14).

Table 13. Content validation index of the professionalism in social media competency and experts' consensus in the second round

Domain	Competency	Mean ± SD	Degree of Convergence	Degree of Consensus	CVR[1]	Experts' consensus
I. Patient confidentiality, privacy and dignity	1. I maintain ethical guidelines and laws related to patient privacy and confidentiality online.	4.79±0.41	0.00	1.00	1.00	Included
	2. I share identifiable patient information on social media only when I obtain explicit written consent from a patient.	4.79±0.41	0.00	1.00	1.00	Included
	3. I disclose patient's information to the minimum necessary like when it aligns with court order or with a patient's consent.	4.83±0.38	0.00	1.00	1.00	Included
	4. I use social media responsibly for academic exchange or education,	4.67±0.48	0.50	0.80	1.00	Included

	ensuring patient information is anonymized and shared ethically.					
	5. I keep patient information confidential even after the patient dies.	4.71±0.46	0.50	0.80	1.00	Included
	6. I am aware that there is always a risk that the information online can be disseminated even in “invisible groups.”	4.83±0.38	0.00	1.00	1.00	Included
II. Professional boundary, doctor-patient relationship, public trust	7. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance.	4.88±0.34	0.00	1.00	1.00	Included
	8. I take steps to separate personal and professional content when necessary.	4.75±0.44	0.13	0.95	1.00	Included

	9. I communicate with patients on social media with mutual respect, professionalism, and trust.	4.88±0.34	0.00	1.00	1.00	Included
	10. I can communicate with colleagues on social media with mutual respect, professionalism, and trust.	4.67±0.48	0.50	0.80	1.00	Included
	11. I avoid abusive, discriminatory, or harmful behavior online.	4.88±0.45	0.00	1.00	0.92	Included
	12. I handle inappropriate contact professionally.	4.88±0.34	0.00	1.00	1.00	Included
III. Practitioner ’s privacy	13. I use privacy settings to protect my personal information, while recognizing their limitations and the risk of unintended content disclosure.	4.75±0.44	0.13	0.95	1.00	Included

	14. I separate personal and professional social media accounts to maintain appropriate boundaries.	4.83±0.38	0.00	1.00	1.00	Included
	15. I know how to manage visibility and disclosure of my personal information and social media contents.	4.79±0.41	0.00	1.00	1.00	Included
IV. Health advocacy	16. I disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media.	4.75±0.61	0.00	1.00	0.83	Included
	16. I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media.	4.88±0.45	0.00	1.00	0.92	Included
	17. I use social media responsibly for public health advocacy while	4.88±0.45	0.00	1.00	0.92	Included

	maintaining professionalism and trust.					
V. Information appropriateness	18. I ensure that all medical information I post on social media is accurate, evidence-based, and contextually appropriate to support public understanding and trust.	4.88±0.34	0.00	1.00	1.00	Included
	20. I include sufficient context in my content to help the audience verify claims and understand the implications.	4.92±0.28	0	1	1	Included
	21. I do not misrepresent my qualifications, experience, or expertise.	4.92±0.28	0	1	1	Modified and included
	22. I endeavor to correct or supplement inaccurate or inappropriate content posted by myself.	4.96±0.20	0	1	1	Included

23. I endeavor to correct or supplement inaccurate or inappropriate content posted by my colleagues.	4.79±0.41	0	1	1	Included

[1] Content Validity Ratio

Table 14. Final competency list on professionalism in social media

Domain	Competency
I. Patient confidentiality, privacy and dignity	1. I maintain ethical guidelines and laws related to patient privacy and confidentiality online.
	2. I share identifiable patient information on social media only when I obtain explicit written consent from a patient.
	3. I disclose patient's information to the minimum necessary like when it aligns with court order or with a patient's consent.
	4. I use social media responsibly for academic exchange or education, ensuring patient information is anonymized and shared ethically.
	5. I keep patient information confidential even after the patient dies.
	6. I am aware that there is always a risk that the information online can be disseminated even in "invisible groups."
II. Professional boundary, doctor-patient relationship, public trust	7. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance.
	8. I take steps to separate personal and professional content when necessary.
	9. I communicate with patients on social media with mutual respect, professionalism, and trust.
	10. I can communicate with colleagues on social media with mutual respect, professionalism, and trust.
	11. I avoid abusive, discriminatory, or harmful behavior online.
	12. I handle inappropriate contact professionally.
III. Practitioner's privacy	13. I use privacy settings to protect my personal information, while recognizing their limitations and the risk of unintended content disclosure.
	14. I separate personal and professional social media accounts to maintain appropriate boundaries.
	15. I know how to manage visibility and disclosure of my personal information and social media contents.

IV. Health advocacy	16. I disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media.
	17. I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media.
	18. I use social media responsibly for public health advocacy while maintaining professionalism and trust.
V. Information appropriateness	19. I ensure that all medical information I post on social media is accurate, evidence-based and contextually appropriate to support public understanding and trust.
	20. I include sufficient context in my content to help the audience verify claims and understand the implications.
	21. I accurately represent my qualifications, experience, and expertise.
	22. I endeavor to correct or supplement inaccurate or inappropriate content posted by myself.
	23. I endeavor to correct or supplement inaccurate or inappropriate content posted by my colleagues.

4.2. Class Development

4.2.1 Analysis

(a) General training needs analysis

- **Problem identification**

The literature revealed that the widespread and increasing use of social media among medical students and healthcare professionals has raised significant concerns about digital professionalism. Common issues included breaches of patient privacy and confidentiality, blurring of professional boundaries, erosion of public trust, posting of unprofessional or inappropriate content, and sharing of medical misinformation (28-35). This problem

affected multiple stakeholders involving medical students, patients, medical educators, institutions, and the medical profession. Medical students may face academic disciplinary action or career consequences owing to unprofessional online behavior (38, 56). Patient's privacy and dignity can be compromised through online disclosures or misrepresented personal and medical information (32, 38, 66). Furthermore, this problem posed challenges for medical institutions and educators in developing curriculum for medical students to address professional identity and uphold ethical standards online (66, 220). Additionally, it potentially undermined trust in healthcare providers and damaged the profession's image and reputation (28, 30).

- **Current approach**

The analysis revealed that some medical associations in the world have developed comprehensive guidelines and recommendations on SM use for health professionals, particularly, medical students, helping them to navigate the complexities of digital professionalism. However, limited information and guidance is available to teach these guidelines to students and help them apply principles of professionalism to SM use (92). Some medical schools designed curriculum to address this problem with different approaches in curriculum development. For example, workshop and blog-based interventions were developed at the University of Virginia, School of Medicine to promote professionalism for medical students using SM (92). The George Washington University designed and implemented a 90-minute educational session to raise students' awareness of their new role as medical professionals and the implications for their social media presence (92).

Notably, in Vietnam, there is an absence of guidance and policies addressing the appropriate use of SM, despite the growing use of SM among medical students. Medical schools have yet to introduce formal, structured education on digital professionalism, particularly on SM. Additionally, there are no established frameworks for teaching digital professionalism on SM, such as competency lists or defined learning outcomes. At Hue UMP, although the content of medical professionalism has been included in the curriculum, it does not address the specific dimensions of digital professionalism related to the use of SM. This content was introduced in the pre-clinical phase of curriculum, which extends from the first year to the third year (first semester) within the six-year curriculum (Figure 9). This phase is important for medical students to develop basic clinical skills that are integrated with basic science knowledge through system-based modules such as

cardiovascular, respiratory, and musculoskeletal system modules and so on. Moreover, during pre-clinical phase, the Module Practice of Medicine (POM) was offered, providing medical students with communication, consultation, and medical professionalism skills. The pre-clinical phase is essential in equipping students with necessary knowledge and skills to enter the clinical clerk-ship phase.

- **Ideal approach**

The findings suggested that developing comprehensive guidelines and recommendations on SM use for medical students is essential to help them behave appropriately and professionally online. Moreover, medical educators have highlighted the importance of creating more educational opportunities for medical students to prevent SM misuse such as courses, workshops or seminars on digital professionalism focusing on SM (48). Considering the gap between the ideal and current approach, there is a need to develop a curriculum on professionalism in social media to address the aforementioned challenges at Hue UMP.

	Pre-clinical phase						Clinical phase					
Year	First		Second		Third		Fourth		Fifth		Sixth	
Semester	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**11th**	**12th**
Course	Basic Science	From molecules to cells	Immunity and immune response	Cardiovascular system	Digestive system	Reproductive system	Family medicine	Obstetrics and Gynecology			Practice of Pathology and Treatment in Internal Medicine	
		From cells to tissues	Respiratory system	Musculoskeletal system	Renal and urinary system	Internal Medicine					Practice of Pathology and Treatment in Surgery	
			Practice of Medicine (POM)		Nervous and endocrine system	Surgery					Practice of Pathology and Treatment in Obstetrics and Gynecology	
						Community Health 1		Pediatric			Practice of Pathology and Treatment in Pediatric	
							Community Health 2					
									Hematology and Oncology			
									Emergency Medicine, Anesthesia and Resuscitation			
									Vietnamese Traditional Medicine, Rehabilitation			
									Infectious Diseases, Tuberculosis, Dermatology			
									Psychiatry, Neurology			
									Ophthalmology, Dentistry and Maxillofacial Surgery, Otorhinolaryngology			

Figure 9. Curriculum map for medical students at Hue UMP

(b) Targeted learner analysis

Third-year medical students in their first semester at Hue UMP, with a sample size of 467 students, were identified as an appropriate target group for the class on professionalism in social media. This cohort was selected based on the rationale that the third year represents a critical juncture for fostering professionalism. First, at this stage, students have already received foundational training in medical professionalism during the second semester of the second year through the POM module. They possess knowledge and skills related to the principles and values of professional conduct, which provides a solid basis for understanding how these principles translate into the digital environment. Therefore, they are well-positioned to further develop their awareness of professional behavior in online contexts. Second, during the POM module, they undergo clinical clerkship experience at community health centers, providing them with real-world opportunities to apply their knowledge in patient interactions. During these encounters, they not only communicate with patients, but also observe the behavior of physicians and peers. This exposure allows them to become aware of potential professionalism issues, including those related to the use of social media. Third, they are about to fully enter the clinical phase of their education, where they will encounter increased responsibilities and more frequent patient contact. This transition presents greater risks of unprofessional behavior, particularly in handling patient information and maintaining boundaries, both offline and online. Therefore, equipping medical students at this stage with knowledge and skills in professionalism in social media use is both timely and essential.

The key information about characteristics of targeted learners necessary for designing and developing the class on PSM were identified (Table 15).

Regarding the expectations about the extent of knowledge and skills required, the literature review revealed that medical students have expressed a strong desire for clearer and more practical guidance on SM use and educational opportunities on professionalism on SM (47). Such educational opportunities are expected in earlier phases of the curriculum, providing a foundational understanding of medical professionalism, including principles such as confidentiality, ethical practice, and effective communication in digital space. Furthermore, they are expected to achieve competencies in the Vietnamese digital competency framework for learners.

Third-year medical students at Hue UMP have acquired knowledge and skills regarding medical professionalism in the POM module and initial clinical experiences at community health centers. In addition, they enter their third year with a range of existing characteristics,

proficiencies, and practices developed during their pre-clinical phase. Cognitively, students have acquired foundational medical knowledge in basic sciences, pathology, clinical reasoning, and problem-solving abilities. Affectively, students have begun forming their professional identity, influenced by institutional values, role models, and early clinical experiences. Psychomotor-wise, students have developed technical skills in using digital platforms for education, including navigating learning management systems, participating in online discussions, and engaging with medical resources such as virtual cases and simulations. They have acquired experience in basic clinical skills, such as history-taking and physical examination, however, they may have limited hands-on patient interaction. In the digital space, their proficiency in using social media differs for academic and professional engagement (36, 45-47).

Third-year medical students enter the clinical phase acquiring experience in different departments including internal medicine, surgery, pediatrics, obstetrics and gynecology, family medicine, and psychiatry. Currently, Hue UMP is planning to develop a module on digital competency for medical students spanning from the first to fourth year. Each year, students are introduced to a distinct set of competencies at progressively advanced levels, ensuring alignment with the existing curriculum. This student cohort has experienced various active learning strategies such as team-based, case-based, problem-based, and flipped learning. In addition, they have engaged in simulation-based learning at Clinical Skills-Lab Center with standardized patient and simulators. Furthermore, they are familiar with learning aids such as learning management systems, digital resources, and online assessment tools, which support their academic and clinical training.

Table 15. Targeted learner analysis

Learner characteristics	Results
Expectations regarding the extent of knowledge and skills required	Desiring clearer and more practical guidance on SM[1] use and educational opportunities on professionalism on SM[1]
	Expecting to obtain foundational understanding of digital medical professionalism in early phase of medical education
	Being expected to achieve competencies in the Vietnamese digital competency framework for learners

Previous training and experiences relevant to the curriculum	Medical professionalism education in the POM[2] module Initial clinical experiences at community health centers
Already planned training and experiences relevant to the curriculum	Clinical experiences in the upcoming clerkship phase in the hospital and family medicine clinic Planned digital competency module
Existing characteristics/proficiencies/practices	Having acquired knowledge and skills regarding medical professionalism Having acquired foundational medical knowledge in basic sciences, pathology, clinical reasoning, and problem-solving abilities Having formed their professional identity Having developed technical skills in using digital platforms for education Having limited hands-on patient interaction Proficiency in using social media differs for academic and professional engagement
Preferences and experiences regarding different learning strategies	Having experienced various active learning strategies such as team-based, case-based, problem-based, simulation-based, and flipped learning Being familiar with learning aids such as learning management systems, digital resources, and online assessment tools

[1] Social media

[2] Practice of Medicine

(c) Targeted learning environment

The analysis revealed the institutional capacity at Hue UMP to develop and implement class on PSM for third-year medical students in terms of instructional and program staff, facilities, technological infrastructure, and potential funding sources (Table 16).

Table 16. Targeted learning environment

Learning environment information	Results
Instructional and program staff	**Program director**
	Oversees curriculum development
	Collaborates with educational team and consistently reports to School Council and Board of Directors
	Core groups of curriculum developers
	Include heads and faculty members from different basic science and clinical science departments
	Collaborate to design and structure the module content and educational method
	Heads of modules
	Comprise 32 heads of module and corresponding core groups of curriculum developers
	Communicate with faculty members of that module and report to the program director
	Faculty members
	In charge of delivering lectures, facilitating small-group learning, supervising clinical rotations, developing and evaluating curriculum, conducting research, and mentoring students
	Include 476 members in total, with 138 faculties working at clinical science departments and 338 faculties in basic science and other departments
	+ 7 faculty members with expertise in medical professionalism and ethics
	+ 3 faculty members with expertise in digital health.

	Program coordinators/administrators Responsible for coordinating of tasks and resources, being aware of training policies of Hue UMP; assisting in program accreditation and incorporating quality improvement measures; and communicating with medical student Include 4 staff members working in Undergraduate Training Office, 3 in Office of Assessment and Quality Assurance and 3 in the Office of Student Affairs 2 staff members have formal expertise in medical education
Facilities	**Clinical Skills-Lab Center** 7 skills labs, 2 debriefing rooms, 1 administrative room and 1 equipment room + Specialized facilities: models, manikins, medical devices and equipment + Teaching aids: projectors, audio-visual systems
Technological infrastructure	Internet access, digital libraries, e-learning platforms, and learning management system
Funding sources	**Institutional budget** Medical service revenue, student tuition fees, and income generated from CME[1] courses **Government funding** Funding for public medical schools **External grants or collaborative projects** International organizations, collaboratives projects, other funds

[1] Continuing medical education

Regarding the instructional and program staff at Hue UMP, medical education program was developed and operated by the educational team of program director, core groups of curriculum developers, heads of modules, faculty members, and program coordinators/administrators. The medical program director is responsible for overall

organization, conduct and accountability of medical education program at Hue UMP. This includes overseeing curriculum development and alignment with national standards and school's mission and vision. Additionally, the director collaborates with educational teams and consistently reports to the School Council and Board of Directors to ensure the program is responsive to evolving educational needs and healthcare demands. The core groups of curriculum developers are the multidisciplinary groups, including heads and faculty members from different basic science and clinical science departments. At Hue UMP, the medical curriculum is developed and delivered using an integrated approach that combines basic science and clinical knowledge, organized into modules. Therefore, to develop the curriculum for each module, faculty members from various departments in the core groups collaborate to design and structure the module content and educational method. The heads of modules are the leaders of each module and core group, having responsibility to communicate with faculty members of that module and report to the program director. Overall, for medical education curriculum at Hue UMP, there are 32 heads of module and corresponding core groups of curriculum developers for 32 modules, including clinical practice modules. Currently, at Hue UMP, there are 476 faculty members in total, with 138 faculties working at clinical science departments and 338 faculties in basic science and other departments. They are in charge of delivering lectures, facilitating small-group learning, supervising clinical rotations, developing and evaluating curriculum, conducting research, and mentoring students across various stages of the medical education program. Particularly, 7 faculty members in the Department of Family medicine with expertise in medical professionalism and ethics were identified. They are currently dedicated to Module Practice of Medicine (POM), "Practice in community health center – Family medicine clinic: Communication skills, Consultation skills and Professionalism." Additionally, 3 faculty members in the Faculty of Public Health were identified with expertise in digital health. The program coordinators/administrators are held accountable for managing day-to-day operation of medical education program. Their duties include coordinating of tasks and resources, being aware of training policies of Hue UMP, assisting in program accreditation and incorporating quality improvement measures, and communicating with medical students. Currently, there are 4 staff members working in Undergraduate Training Office, 3 in Office of Assessment and Quality Assurance and 3 in the Office of Student Affairs who serve as program coordinators or administrators. Among them, 2 staff members have formal expertise in medical education.

Regarding the facilities available, the Clinical-Skills Lab Center provides appropriate venues for interactive and experiential learning of this class. The center comprises 7 skills labs, 2 debriefing rooms, 1 administrative room, and 1 equipment room. This center is

equipped with a range of specialized facilities designed to support experiential and skills-based learning, including models, manikins, and various medical devices and equipment. Additionally, the skills labs and debriefing rooms are integrated with essential instructional technologies such as projectors, audio-visual systems, and other teaching aids to enhance the learning experience.

Concerning technological infrastructure at Hue UMP, the internet access, digital libraries, and e-learning platforms, learning management system (LMS) was found to be sufficient to support the implementation of the PSM class. The LMS serves as a central platform for organizing and delivering video lectures, reading assignments, quizzes, and discussion forums. These resources create a supportive environment for the flipped classroom model, where students are expected to engage with content before class and apply their knowledge during interactive, instructor-facilitated sessions in the PSM class.

Regarding the potential funding sources, the medical education program at Hue UMP is financed through various channels, including institutional budgets, government funding, and external grants or collaborative projects. The institutional budget is primarily derived from medical service revenue, student tuition fees, and income generated from Continuing Medical Education (CME) courses. Similar to other public medical schools in Vietnam, Hue UMP receives funding from the government as part of its institutional budget. This government support contributes to the overall operation of the university, including faculty salaries, infrastructure maintenance, and partial funding for educational activities and program development. Furthermore, Hue UMP benefits from external grants and international organizations through collaborative projects, Official Development Assistance (ODA), such as Asian Development Bank (ADB), Korea Foundation for International Healthcare (KOFIH), Korea International Cooperation Agency (KOICA), United States Agency for International Development (USAID), World Bank (WB) and other funding sources.

As part of the curriculum development process, a projected budget was developed to estimate the operational cost of delivering the PSM class at Hue UMP. The funding plan focused on ensuring the class could be effectively implemented with sufficient resources to support faculty preparation, student engagement, and instructional delivery (Table 17). The estimated total cost for a single implementation of the PSM class, designed for 16 expected students, was 22 million VND (approximately 843 USD). The budget covered key components, including faculty development, teaching materials, student motivation, and evaluation activities.

Table 17. Estimated budget for implementing the class

Category	Description	Estimated cost (VND[4])	USD[5]
1. Faculty development	Workshop for instructors on PSM[1] concepts and teaching methods	12,000,000	460
	Printing of materials for faculty such as learning materials, case scenarios, and class structure	1,000,000	38
2. Teaching materials	Case scenario handouts, role-play and group discussion instructions	1,000,000	38
3. Student engagement	Small prizes for best group participation and incentives for students who actively engage in class-discussion section	1,000,000	38
4. Monitoring and evaluation	Printings of IRAT,[2] GRAT,[3] post-test and satisfaction surveys	500,000	19
	Small incentive for student's feedback and participation	6,500,000	250
Total		22,000,000	843

[1] Professionalism in social media

[2] Individual readiness assurance test

[3] Group readiness assurance test

[4] Vietnamese Dong

[5] United States Dollar

4.2.2. Design and Development

(a) Goals and Learning objectives

Based on competency list on professionalism in social media established through Delphi survey, a 100-min educational session was developed with the objective of raising students' awareness and decision-making skills regarding core aspects of professionalism in social media. This class focuses on nine competencies in three key domains in the list: (1) patient confidentiality, privacy and dignity; (2) professional boundary, doctor-patient relationship, public trust; and (3) information appropriateness (Table 18).

The learning objectives were developed based on the selected competencies from the list and designed to include various learning domains, ensuring the comprehensive development for students. These domains include cognitive, psychomotor, and affective aspects, each playing a significant role in fostering a comprehensive understanding of professionalism in social media (221) (Table 18).

Table 18. Learning objectives in cognitive, psychomotor, and affective domains with corresponding addressed competencies

Learning domain	Learning objectives	Competency items
Cognitive	1. Analyze ethical guidelines related to patient confidentiality and privacy in the context of social media	1. I maintain ethical guidelines and laws related to patient privacy and confidentiality online.
	2. Apply principles of professional boundary and doctor-patient relationship when engaging with patients on social media	7. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance.
	3. Evaluate the appropriateness of information shared in social media platforms	8. I take steps to separate personal and professional content when necessary.

	4. Explain the potential consequences of misrepresentation for public trust and professional accountability	21. I accurately represent my qualifications, experience, and expertise.
Psychomotor	5. Perform constructive conversations with peers to address unprofessional behavior on social media 6. Perform appropriate and professional communication with patients to maintain boundaries on social media 7. Perform ethical decision-making in simulated social media dilemmas 8. Perform self-reflection and verbally describe ways to improve their own online presence to align with professional standards	9. I communicate with patients on social media with mutual respect, professionalism, and trust. 12. I handle inappropriate contact professionally. 13. I use privacy settings to protect my personal information, while recognizing their limitations and the risk of unintended content disclosure.
Affective	9. Demonstrate respect when communicating with patient 10. Show mutual respect for peers when discussing in group and communicating problems related to unprofessional use of social media	9. I communicate with patients on social media with mutual respect, professionalism, and trust. 10. I can communicate with colleagues on social media with mutual respect, professionalism, and trust.

Cognitive domain: In the cognitive domain, students are expected to acquire knowledge and understanding related to ethical guidelines on patient confidentiality and privacy, professional boundary, doctor-patient relationship, public trust, and information appropriateness. These learning objectives were designed based on Levels 3 and 4 of Bloom's Taxonomy, to ensure a progression foundational knowledge to higher-order thinking skills, such as application, evaluation, and reflection on key concepts (222).

Psychomotor domain: In the psychomotor domain, students are expected to demonstrate practical skills related to professionalism in social media, particularly in online interactions with patients, colleagues, and the public. These learning objectives are designed to develop students' abilities to effectively engage in role-playing scenarios and address the issues regarding professionalism in social media in real-life settings.

Affective domain: In the affective domain, students are expected to develop appropriate attitudes, values, and professional behaviors related to their use of social media, demonstrating respect for ethical standards, patient dignity, and public trust.

(b) Case scenario development

The case scenarios were developed in collaboration with one lecturer from the Faculty of Family Medicine, one lecturer from the Faculty of Public Health, and one administrator from the Undergraduate Training Office. A comprehensive literature review was conducted to identify common unprofessional behaviors on social media and related professionalism issues, using databases such as PubMed and Google Scholar, as well as online platforms including social media sites and electronic articles. Based on this analysis, the team engaged in in-depth discussions to select and adapt four case scenarios that closely reflect current practices and align with the previously developed competency framework on professionalism in social media. The finalized scenarios address: (1) breaches of patient confidentiality and privacy in social media posts; (2) a medical student misrepresenting their role online; (3) a student witnessing a peer post unprofessional images; and (4) a student receiving a friend request from a patient on Facebook (see Appendices 14–17). Following the selection, the content and details of each case were developed and subsequently reviewed by one physician from the Department of Emergency and one physician from the Faculty of Family medicine to ensure clinical relevance, authenticity, and educational value (Figure 10).

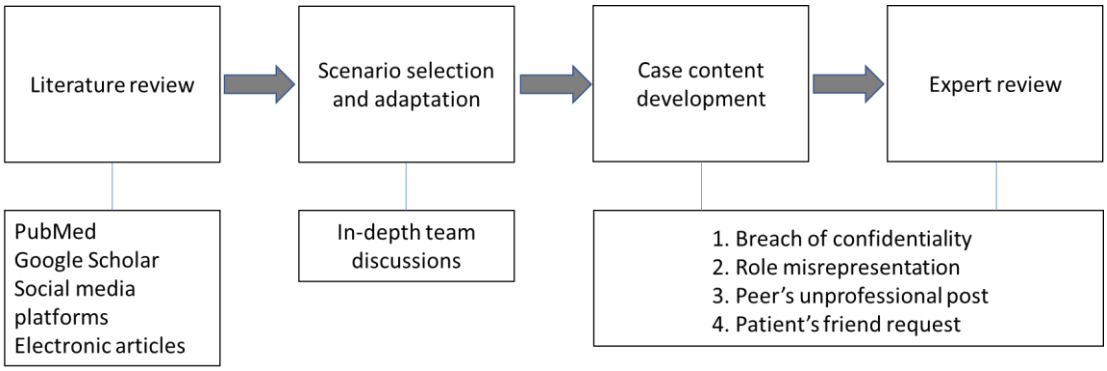

Figure 10. Case scenario development process for class on professionalism in social media

(c) Class structure, educational strategies, and teaching methods

The class structure and sequence of learning activities were developed based on the Gagné's nine instructional events. These activities were linked with learning theories, educational strategies, and teaching methods (Table 19).

Table 19. Structure of class on professionalism in social media

Phase	Instructional event	Time	Learning activities	Learning theories and methods	Learning outcomes	Competency
Before class	Learning materials are delivered to students via Learning Management System of Hue UMP two weeks before the class					
In class	**1. Gain attention**	20 mins	**Ice-breaking activity/Pre-test** Assessing student's knowledge, attitudes and behaviors related to professionalism in social media through IRAT[1] and GRAT[2] Students discuss and deliver presentation on their opinions	Constructivism/ metacognition Team-based learning	1, 2, 3, 4, 10	1, 7, 8, 10, 21
	2. Inform students of objectives	3 mins	**Explanation of learning objectives**	Lecture		

		Lecturer clearly explains what students will learn and the purpose of the class			
3. Stimulate recall of prior learning	15 mins	**Case-based discussion** Students discuss in group about Case Scenario 1 Students deliver presentation on their opinions Lecturer links understanding about professionalism in previous course and PSM[3] concepts	Cognitivism Case-based discussion	1, 10	1, 10
4. Present the content	15 mins	**Lecture/Case-based discussion** Lecturer delivers interactive lecture with real-life examples to introduce values and principles of professionalism in social media	Constructivism/ Cognitivism Interactive lecture	3, 4, 8	8, 13, 21

		Lecturer presents Case Scenario 2 and invites students to share their opinions			
5. Provide learning guidance **6. Elicit performance**	28 mins	**Role-playing** Students engage in role-playing with Case Scenarios 3 and 4 + Students are divided into 2 groups; 2 groups perform role-playing with Case 3 and 2 groups perform role-playing with Case 4 + Students discuss and provide peer feedback after role-playing	Experiential learning Constructivism/ Cognitivism Role-playing	3, 5, 6, 7, 8, 9, 10	8, 9, 10, 12, 13
7. Provide feedback/ Debriefing	10 mins	**Instructor feedback** Lecturer clarifies key points and helps students refine their decision-making through debriefing	Reflective practice	8	
8. Assess performance/	9 mins	**Conclusion of class**	Cognitivism		

	Wrap up class		Lecturer recaps and summarizes key points of PSM principles and values **Evaluation of class** Students complete the survey regarding class satisfaction	Reflective practice Metacognition	
After class	**9. Enhance Retention and Transfer**	Three months after class, students submit reflective essay about their cognitive and behavior changes on PSM	Reflective practice Metacognition		8

[1] Individual readiness assurance test

[2] Group readiness assurance test

[3] Professionalism in social media

Two weeks before the class, learning materials will be delivered to medical students via Learning Management System of Hue UMP. The learning materials include (1) statement on the professional and ethical use of social media from the World Medical Association (WMA); (2) competency list on professionalism in social media; (3) practical suggestions for best practices; and (4) example scenarios of professionalism and social media use and relevant guidelines for example scenarios (Appendix 18). This content is developed based on the list of competencies on professionalism in social media built through Delphi survey and documents from WMA, providing medical students reading resource to help them understand international standards and expectations regarding physicians' conduct online.

The class will begin with an Individual Readiness Assurance Test (IRAT) and Group Readiness Assurance Test (GRAT) session. First, students will complete a paper-based IRAT to assess their understanding of the pre-class learning materials. Thereafter, they will form small groups of 4 students to complete the same test as a GRAT (Appendix 19). As this pilot class includes 16 medical students, there will be a total of four groups. Students will remain in the same groups throughout the entire class. During this group activity, students will discuss each question collaboratively and reach a consensus on the best answers. The GRAT will be conducted using the Socrative (Showbie Inc., Canada) platform, which allows one representative from each group to select and submit their team's answers via a mobile phone or tablet. The platform provides immediate feedback, letting teams know whether their selected answer is correct. Following the GRAT, the lecturer will facilitate a whole-class discussion. Selected groups will be invited to share their reasoning behind answers, particularly for questions where there was disagreement or confusion. This step allows the lecturer to clarify key concepts and address any misconceptions or misunderstanding.

In the following stage, students will engage in small-group discussions to analyze Case Scenario 1. The learning objective of this case is to analyze ethical implications related to patient confidentiality, privacy and dignity in the context of social media, and explore how social media use can affect public trust in the medical profession. After the discussion, a representative from each group will share their group's perspectives with the entire class. The lecturer will then summarize the key points and connect the discussion to previously learned concepts of professionalism, as well as principles from the professionalism in social media framework in the last 3 minutes.

Next, the lecturer will deliver interactive lecture with real-life examples to introduce values and principles of professionalism in social media. During this session, the lecturer will present Case Scenario 2 by showing the slide, allowing students to contemplate individually and then invite students to share their opinions.

The next stage of the class will be dedicated to a role-playing activity followed by debriefing and feedback. In this segment, Groups 1 and 2 will role-play using Case Scenario 3, whereas Groups 3 and 4 will use Case Scenario 4. The session will begin with a briefing from the lecturer to clarify expectations and learning goals. Each group will then assign roles and discuss their cases. Following this, two groups will perform their respective scenarios, while the remaining groups will observe and prepare feedback. Finally, a debriefing session will be led by the lecturer to facilitate reflection and consolidate key lessons. The debriefing will be conducted using GAS model (Gather, Analyze, Summarize).

At the end of the class, the lecturer recaps and summarizes key points of PSM principles and values. Finally, students will complete a student satisfaction survey, post-test, and peer evaluation. Three months after the class, students will submit a reflective essay describing any cognitive and behavioral changes they have experienced regarding PSM.

(d) Assessment methods

The effectiveness of the class is assessed and evaluated using the Kirkpatrick model, which comprises four levels—reaction, learning, behavior, and results—to ensure a comprehensive evaluation of educational impact in medical education (223) (Figure 11).

Level 1 (Reaction): Learner satisfaction and feedback will be assessed by collecting anonymous written comments at the end of the class. A satisfaction survey was developed by reviewing and adapting items from a previous study (92) (Appendix 20). Qualitative analysis of the comments will be performed and common themes will be extracted. In addition, the lecturer will observe students' engagement and participation level throughout the class as a supplementary indicator of learner reaction. The evaluation level aims to gather formative feedback during the pilot phase of the class. This will help determine whether the session meets learners' expectations, fosters a positive and engaging learning environment, and highlights areas that may require refinement for future iterations.

Level 2 (Learning): The pre-test and post-test questions were developed based on the pre-class learning materials, which covered core concepts and competencies related to professionalism in social media. To ensure content validity, key themes and learning objectives were identified from the materials and used to draft multiple-choice questions that assessed both knowledge recall and application of principles. Each question includes one best answer and requires the student to write down their reflective essay (Appendix 21). After drafting, the questions were reviewed and refined in collaboration with one

lecturer from the Faculty of Family Medicine and one from the Faculty of Public Health. Their feedback helped improve the clarity, relevance, and alignment of the questions with the learning outcomes. The final set of pre-test and post-test questions will be pilot-tested informally with a small group of peers to confirm timing and appropriateness before implementation in the class.

Level 3 (Behavior): This level aims to evaluate whether learners apply the knowledge and skills acquired in the class to their real-world behavior or professional judgment over time. Students will be asked to complete short surveys and reflective essays three months after the class, describing changes in students' behaviors and attitudes toward professionalism in social media (Appendix 22).

Level 4 (Results): This evaluation level refers to the broader, long-term outcomes that the training may contribute to, such as improvements in clinical practice, institutional culture, or patient trust. Considering the scope and scale of this pilot class, direct measurement at this level was not feasible. However, the foundations laid through Levels 1–3 offer the potential for future longitudinal studies or institutional follow-up to assess the sustained impact of professionalism in social media training on real-world outcomes, including reduced incidents of online misconduct and strengthened professional identity among medical students.

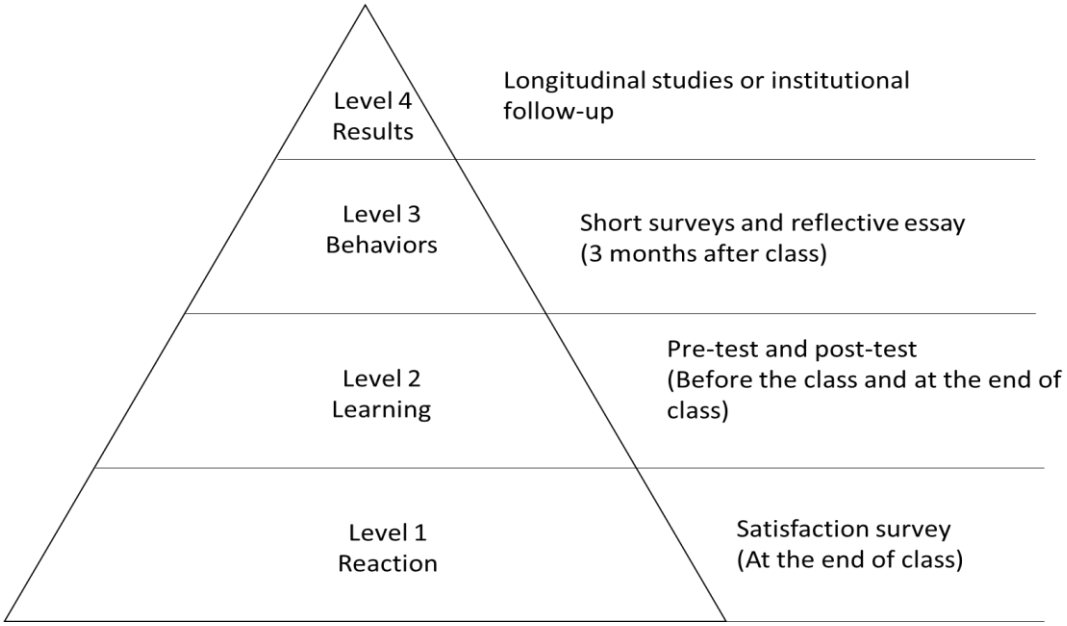

Figure 11. Evaluation methods based on Kirkpatrick's model in the class

(e) Communication process

To ensure students are fully informed about the class structure, objectives, and requirements, the syllabus will be communicated to the student. The syllabus will be uploaded to the Hue UMP's LMS two weeks before the class together with learning materials. Students will be notified via LMS announcement and email once the syllabus is available. This syllabus will remain accessible on the LMS throughout the duration of the class for students to review at any time. Any changes or updates to the syllabus will be clearly communicated through both LMS and email, with an explanation of the reason for the changes.

The syllabus includes key components of class such as learning outcomes, class format, teaching and learning methods, assessments, and grading criteria (Table 20).

Table 20. The class syllabus for medical students

Class syllabus		
Class title	Professionalism in social media for medical students	
Date and time	Tuesday, January 27, 2026 9:00 AM – 10:40 AM (100 minutes)	
Location	Skills Lab 3, Clinical Skills-Lab Center, C building	
Instructor(s)	Lecturer	Nguyen Thi Thanh Huyen Faculty of Family Medicine Email: ntthuyen@huemed-univ.edu.vn
	Facilitator	Tran Dai Tri Han Faculty of Public Health Email: tdthan@huemed-univ.edu.vn
	Operator/Facilitator	Dang Thi Kim Chi Clinical Skills-Lab Center Email: dtkchi@huemed-univ.edu.vn
Class description	This class is designed to enhance medical students' awareness and decision-making regarding core aspects of professionalism in social media. Through interactive learning activities, students will engage with real-world scenarios to explore challenges and responsibilities in maintaining professional behavior online.	
Learning objectives	Cognitive - Analyze ethical guidelines related to patient confidentiality and privacy in the context of social media - Apply principles of professional boundary and doctor-patient relationship when engaging with patients on social media - Evaluate the appropriateness of information shared in social media platforms - Explain the potential consequences of misrepresentation for public trust and professional accountability	

	Psychomotor - Perform constructive conversations with peers to address unprofessional behavior on social media - Perform appropriate and professional communication with patients to maintain boundaries on social media - Perform ethical decision-making in simulated social media dilemmas - Perform self-reflection and verbally describe ways to improve their own online presence to align with professional standards - Demonstrate respect when communicating with patient Affective Show mutual respect for peers when discussing in group and communicating problems related to unprofessional use of social media
Teaching methods	Interactive lecture, case-based discussion, simulation (role-playing), team-based learning
Assessment method	IRAT[1]: 10% GRAT[2]: 10% Peer evaluation: 20% Reflective essay: 60%
Resources	Learning materials are provided in LMS system, including: (1) statement on the professional and ethical use of social media from the World Medical Association (WMA); (2) competency list on professionalism in social media; (3) practical suggestions for best practices; (4) example scenarios of professionalism and social media use and relevant guidelines for example scenarios
Attendance obligation	Attendance is compulsory for this class. Students are expected to be present for the entire duration of the class. In cases of unavoidable absence, prior notification and appropriate justification must be submitted to the instructor.

[1] IRAT: Individual readiness assurance test
[2] GRAT: Group readiness assurance test

(f) Educational environment

The supportive, interactive, and learner-centered learning environment will be fostered during this class to help students feel safe to explore, question, and reflect on complex issues related to professionalism in social media. Throughout this class, students will be the center of all activities, contributing to all elements of learning process (Table 21) (161). Through team-based learning, group discussions, case-based analysis, and simulation (role-playing), students will engage with realistic scenarios in a safe space that values diverse perspectives and thoughtful reflection. A psychologically safe atmosphere where students feel comfortable expressing their views, challenging assumptions, and learning from one another will be emphasized. All learners are expected to demonstrate professionalism in communication, maintain confidentiality during case discussions, and contribute meaningfully to group activities. The instructor will serve as a facilitator to guide discussion, support peer learning, and provide feedback and reflection for students.

Table 21. Learner-centered learning environment for class on professionalism in social media

Elements of learning	Learner-centered environment
Knowledge	Co-created by learners through case-based discussion and role-playing activities
Role of lecturer	Facilitate learning through guiding group discussion, providing feedback, and reflection
Learner's participation and engagement	Learners actively participate in all class activities
Emphasis	Developing learner's in-depth understanding about professionalism in social media
Assessment	Learning support, assessment for learning through pre-test, post-test, IRAT,[1] GRAT,[2] and reflective essay
Physical space	Shallow room, group setting at Clinical Skills-Lab Center

Culture	Collaborative through group activities, supportive environment formed by facilitators

[1] IRAT: Individual readiness assurance test

[2] GRAT: Group readiness assurance test

(g) Management process

To ensure the systematic and efficient development of the class, process management strategies were applied throughout the ADDIE framework. A detailed timeline was established to guide each phase, from analysis to evaluation, with clearly defined milestones and deliverables. Tasks such as defining competency list, competency mapping and learning objectives establishment, case scenario development, activity design, and material preparation were tracked using a project log to maintain progress and consistency (Table 22). Stakeholder feedback, including input from medical educators and students, was incorporated iteratively to enhance the relevance and practicality of the class.

Table 22. Management process of class development based on project-log

Date	ADDIE[1] phase	Task/Activity	Person in charge	Output/Notes
March 1 – April 21, 2025	Analysis	Review literature and examine the current situation of medical education in Vietnam and Hue UMP	Author	Learner's training needs and characteristics Learning's environment characteristic
April 22 - April 30, 2025	Design and Development	Conduct Delphi survey	Author	List of competencies including 23 items
April 30 – May 10, 2025	Design and Development	Develop goal and learning objectives	Author	Learning objectives in three domains: cognitive, psychomotor, and affective
		Develop case scenarios	Author Lecturers from Faculty of Family Medicine and Public Health Physician from Department of	4 Case Scenarios

	Emergency Medicine and Family Medicine	
Develop class structures, learning and assessment methods, and learning materials	Author Physician from Department of Emergency Medicine	Class structure Class activities Learning materials IRAT,[2] GRAT[3] questions Satisfaction survey Reflective essay

[1] ADDIE: Analysis – Design – Development – Implementation – Evaluation Model

[2] IRAT: Individual readiness assurance test

[3] GRAT: Group readiness assurance test

4.2.3. Plan for Implementation, Assessment, and Evaluation

(a) Implementation

The pilot class on professionalism in social media is scheduled to be introduced in January, 2026. Participants will be recruited on a voluntary basis. Invitation emails will be sent to third-year medical students, outlining the class objectives, schedule, and potential benefits of participation. A total of 16 students is expected to join the pilot. Registered students will be enrolled in a dedicated module on the LMS of Hue University of Medicine and Pharmacy, where the class syllabus will be available to help them understand the structure and expectations in advance. Two weeks prior to the class, all learning materials will be uploaded to the LMS. In addition, a faculty meeting will be held one week before the session to review the class content and schedule, ensuring smooth and effective implementation. The class will be held at Clinical Skills-Lab Center with participation of 16 third-year medical students, educational team including one lecturer from the Faculty of Family Medicine, one lecturer from Public Health of Hue UMP, and one operator from Clinical Skills-Lab Center.

During the pilot class, the educational team will actively monitor the implementation process and student engagement. This includes observing student participation in group discussions, managing transitions between activities, and providing real-time technical support as required. It aims to ensure smooth facilitation and promptly address any logistical or instructional challenges that may arise. Feedbacks will be collected from students and facilitators immediately following the class. This feedback will be systematically reviewed by the class developer to identify strengths, limitations, and areas for improvement, which will help in future implementations of the class (Table 23).

Table 23. Implementation process for the class on professionalism in social media

Timeframe	Activity	Person in charge
Twenty days before class	Send invitation emails to third-year medical students	Operator
Two weeks before class	Confirm participation and enroll students in LMS[1]	Operator, LMS administrator
Two weeks before class	Upload syllabus and learning materials to LMS	Operator, LMS administrator
One week before class	Faculty meeting to review content and schedule	Operator Lecturers from Hue UMP[2]
Three days before class	Send reminders and instructions to students	Operator
During class	Conduct pilot class at Clinical Skills-Lab Center at Hue UMP	Operator Lecturers from Hue UMP

	Monitor implementation and student engagement	
	Collect feedback from students and facilitators after class	

[1] LMS: Learning management system

[2] UMP: University of Medicine and Pharmacy

(b) Assessment and Evaluation

The assessment and evaluation will be conducted during and after class based on four levels of Kirkpatrick's model (Table 24). Level 1 (Reaction) of evaluation will be conducted immediately after the class to gather formative feedback during the pilot phase of the class. Level 2 (Learning) of evaluation will be implemented via IRAT and GRAT set of questions during class. Level 3 (Behavior) will be assessed three months after the class through a reflective essay, which will explore how participants have applied the knowledge and skills acquired to their real-life behavior and professional judgment over time. Data from all levels will be analyzed systematically and used to enhance the instructional design and delivery of the class. Both quantitative and qualitative findings will contribute to the refinement of content, teaching strategies, and assessment methods for future implementations.

Table 24. Assessment and evaluation process for the class

Level of Evaluation	**Timeframe**	**Tools and methods**
Reaction (Level 1)	At the end of class	Satisfaction survey
Learning (Level 2)	During class	IRAT,[1] GRAT[2]
Behavior (Level 3)	Three months after class	Reflective essay

[1]: Individual readiness assurance test

[2]: Group readiness assurance test

5. Discussion

5.1. Competency List on Professionalism in Social Media

Using modified Delphi survey, this study identified the competencies that medical students should acquire regarding professionalism in social media. Considering the increasing use of social media among medical students and health professionals and raising concerns related to unprofessional behaviors online (28-35), these findings provide an important foundation for the development of training on professionalism in social media in medical schools. This is particularly relevant in the context of medical education in Vietnam, where no official guidelines or defined competencies currently exist for the professional use of social media by medical students. This study is the first in Vietnam to derive PSM competencies that should be included in the undergraduate medical curriculum using a modified Delphi method for medical students. The results from this study can be used to develop guidelines for professional use of social media for medical students and physicians and serve as a basis for developing curriculum on PSM in Vietnam. It is recommended that to enhance the professionalism in online environment, developing comprehensive guidelines and recommendations on SM, as well as educational opportunities for medical students is essential (48, 86).

Accordingly, 39 competencies in 5 domains summarized from previous studies and social media guidelines were finalized into 23 competencies in 5 domains after two rounds of the panel consensus process. Delphi studies are commonly conducted in two to three rounds (224, 225) and this study was conducted in two rounds instead of three because the panel was well-informed and the initial item set was clearly defined. The stability of responses and high consensus rates at 80% or greater after the second round indicated that additional rounds were unlikely to yield significant changes, thus supporting the methodological decision to conclude after two rounds. This was attributed to several factors. The preliminary work performed to administer the study survey contributed to the success of the study. The researcher was not an expert in professionalism in social media by training and remained neutral to administer the study (224). The researcher modified statements from an existing studies and guidelines to develop the competencies for the study which was time efficient. Additionally, there was a working group comprising the researcher and professor with subject matter expertise in medical education who drafted the items for the competency study. The working group carefully reviewed the developed items for content

and comprehensibility. This approach was similar to Schmalz et al. who indicated a well-planned Delphi study can be conducted in two rounds (226).

The study ensured the credibility, validity, and reliability of the findings, by employing multiple evaluation methods—including the CVR, degree of convergence, and degree of consensus (224). The findings of this study were robust, with low attrition rates and were from experts across various field at Hue UMP. The attrition rate at each stage of the Delphi survey is a hindrance (227). In this study, a high response rate was achieved, with an attrition rate of <20% in the two rounds. In addition, the experts recruited for this study were active in various field in medical education and training and were able to ensure that the competency framework constructed was comprehensive and specific to medical students. The diversity of the participant background helps to strengthen the study (226). Moreover, Delphi studies are successful when participants are well-informed and have a personal or professional stake in the topic (224). The researcher prepared the participants of the study by clearly communicating the study's objectives, expected time commitment, number of rounds, and the intended use of the results. The number of respondents who participated, 29 and 24 in the first and second rounds, respectively, was acceptable for a Delphi study (228).

The domain “Patient confidentiality, privacy and dignity” was most frequently mentioned in the literature review on PSM (89, 94-96, 103-105). This indicates that it is an important domain of competencies in PSM. Accordingly, students must follow ethical and legal standards when handling patient information online. Identifiable information should only be shared with explicit consent and must always be anonymized for academic use. In addition, confidentiality extends beyond a patient’s death, and students should recognize that content shared online—even in private groups—can spread unintentionally. This aligns with the core principles of medical professionalism education, which emphasize patient confidentiality and respect for patient’s privacy and dignity (2, 8, 9). This foundational value remains essential in the online environment, highlighting the need to extend traditional professionalism into online contexts where the risks of breaching confidentiality are amplified. Notably, the competency “I understand that even non-identifiable information, when combined, can lead to breaches of confidentiality” was excluded during the Delphi survey. This may reflect the Vietnamese context where the understanding of data privacy is evolving, and the distinction between identifiable and non-identifiable information is not always clearly emphasized. Panelists may assume that removing a patient’s name or direct identifiers is sufficient, without recognizing that combinations of data, such as age, condition, location, and time, can lead to re-identification, particularly in local or community settings. Although the disclosure of such information is prohibited

under Vietnamese laws on medical confidentiality (229), it may not be widely recognized or understood by health professionals in Vietnam.

In the “Professional boundary, doctor-patient relationship, and public trust” domain, maintaining clear boundaries and separating personal from professional content is essential. Communication with patients and colleagues must be respectful and professional. Unprofessional behavior, including abusive or discriminatory conduct, undermines public trust and must be avoided. In addition, students should know how to manage inappropriate contact professionally. This content has been emphasized in both traditional professionalism paradigm and in guidelines on professional use of social media by various governing bodies (88, 94). In this domain, the competency “I redirect patients seeking medical advice on social media to appropriate in-person care” was excluded. Although this statement reflects international standards in PSM, its exclusion may reveal important social and cultural nuances in the Vietnamese context. In Vietnam, it is usually socially acceptable for health professionals to provide informal advice via SM platforms such as Facebook or Zalo. This reflects a communal culture in which helping other people within social network is highly valued (230). Consequently, health professionals may feel a moral obligation to respond when someone approaches them for health-related concerns and redirecting to formal care may be perceived as impolite, uncaring, or dismissive.

The domain “Practitioner’s privacy” comprised competencies related to protecting physician identity and managing the visibility of personal information on social media. These competencies reflect the growing recognition that safeguarding a healthcare physician’s online presence in social media is essential to preserving professionalism and minimizing risks in digital spaces (86). This content has been included in multiple global guidelines. For example, the AMA and WMA emphasize that physicians should use privacy settings to safeguard personal information on social media platforms (88, 94). Collectively, these insights affirm that safeguarding a physician's online presence is not merely about personal privacy, but is integral to preserving the professionalism and integrity of the medical field in social media. However, during the Delphi process, the competency “I understand that content I share online can be permanent even if I delete it from my account” was excluded from the final consensus. Panelists acknowledged the item’s relevance in principle, however, believed it may not reflect a priority competency for Vietnamese medical students at this stage.

The "Health Advocacy" domain underscores the significant role which medical students play in promoting public health and well-being through social media platforms. Social media can be a powerful tool for healthcare professionals to engage with the public, however, it also carries the responsibility to act ethically (88). This is consistent with the

expanding understanding of how health professionals can properly use social media to shape public health discourse (231). Notably, two competencies “I understand that the use of social media may cause the conflict of interest” and “I manage the sites based on understanding about conflict of interest caused by social media use” were excluded. This exclusion may reflect a limited awareness or perceived relevance of conflicts of interest issues among panelists. In addition, panelists supposed that medical students are not influencers or public figures whose endorsements carry professional weight, therefore perceived them as not important competencies.

The domain “Information appropriateness” emphasizes that it is important for medical students to ensure that any information they share online is accurate, evidence-based, and contextually appropriate. Healthcare professionals are expected to provide accurate, scientifically supported medical information to the public. The dissemination of unverified or misleading information can have harmful consequences, particularly in areas such as public health, disease prevention, and treatment options. The World Health Organization (WHO) emphasizes that healthcare professionals must rely on credible, evidence-based sources when communicating medical information to the public to prevent the spread of misinformation (232). This can be applied not only to face-to-face interaction, but also to online context of social media. During the Delphi process, the item “I actively monitor medical information on social media” was excluded from the list. This exclusion may reflect concerns about feasibility. Panelists may view this task as beyond the expected role or capacity of medical students, particularly in Vietnam, where students face heavy academic loads and may lack the authority or confidence to correct misinformation publicly. Furthermore, hierarchical norms within the Vietnamese healthcare system may discourage students from engaging in public correction or critique information shared by senior practitioners or popular health influencers.

This Delphi study has several limitations. First, this study used purposive sampling rather than randomized sampling because they rely on the expertise and working position of its participants. All the panelists belonged to a single medical school (Hue UMP). Although the number of the participants was within the accepted number for the Delphi technique, increasing the number to include participants from other medical institutions and organizations could further diversify the findings. Therefore, these findings are applicable only to this particular institute. However, owing to the rigorous study design and comprehensive review process, the identified competencies have relevance for broader application in basic medical education on professionalism in social media beyond Hue UMP. Second, although the analysis accounted for adequate levels of CVR, degree of convergence, and degree of consensus, the additional comments from the panelists were

reflected, which may have introduced unintentional subjectivity. Consequently, ongoing research is required to further validate and refine the proposed competency framework. Finally, PSM competencies identified in this Delphi study are confined to the undergraduate medical education level, highlighting the need to develop corresponding frameworks for postgraduate training. Additionally, future studies could broaden the application of these competencies by outlining detailed guidance on how to achieve them, including appropriate educational content, teaching methods, and assessment strategies. Despite these limitations, the competency list identified from Delphi survey can be a valuable contribution to the emerging field of professionalism in medical education and could be used as reference for medical educators and policy makers when developing such frameworks or educational interventions.

5.2. The Class on Professionalism in Social Media for Medical Students

5.2.1. The ADDIE Model in Developing the Class on PSM

The ADDIE instructional design model was employed in this study to guide the development of the class on PSM for medical students. It provided a structured and cohesive approach, ensuring that each phase of class development was purposeful, aligned with learning objectives, and responsive to student and contextual needs (193).

A major strength of using the ADDIE model was its emphasis on learner-centered approach, beginning from the analysis phase (209). This allowed for a thorough review of existing literature, relevant social media guidelines, and competency framework, as well as the current situation of medical education in Vietnam and Hue UMP. The clear identification of learning needs, learner characteristics, and learning environment in the analysis phase helped inform precise competency-based learning outcomes for class. This is particularly helpful in the context that there is no existing educational intervention for PSM in Vietnamese medical schools in these days. Moreover, this ensures alignment of the class with educational context at Hue UMP when considering the current curriculum for medical students and factors affecting the implementation of the class.

Another strength is to facilitate the design and development of structured content and the careful selection of instructional methods, such as case-based discussion, and role-playing. These active learning strategies were purposefully selected to match the nature of the class topic on PSM, which involves complex ethical reasoning, personal judgment, and real-world decision-making. Using ADDIE model together with Gagne's theory of nine instructional events helped to develop the class structure which includes details for class activities and role of instructors and students. The well-structured and detailed class design is associated with increased effectiveness in facilitating student engagement and achieving desired learning outcomes (233). Furthermore, a high-structure approach that incorporates pre-class assignments, active in-class participation, and pre and post-tested design, improves student performance across diverse demographics and increases their confidence in achieving course objectives (233).

Additionally, this model will allow flexibility and adaptability during the pilot class on PSM at Hue UMP. Its flexibility allows the class to be modified in real time in response to feedback, keeping it current with the changing landscape of SM platforms and the unique

requirements of medical students, particularly in the context of the current reforming medical education in Vietnam to meet the new demands of digital era. Moreover, the structured framework helped streamline coordination among instructors and optimize the use of limited classroom time (100 minutes), while maintaining educational effectiveness.

5.2.2. Goal and Learning Objectives

A class on professionalism in social media was developed and tailored to meet student's need and educational context at Hue UMP, using the information from literature review, examining the current situation at Hue UMP, and employing the competency list on professionalism in social media developed through modified Delphi survey. The learning objectives of the class were derived from the competencies in three key domains that are most at risk in social media, including patient confidentiality, professional boundaries, and information appropriateness (89, 94-96, 103-105). The class aims to equip medical students with knowledge, skills and attitudes to behave professionally and appropriately on social media, by focusing on specific competencies within the cognitive, psychomotor, and affective learning domains. Numerous studies have revealed that the most common concern arising from use of social media by health professionals and medical students, involve blurred professional boundaries—such as between patients and physicians or students and faculty—as well as breaches of patient privacy and confidentiality, and the appropriateness of content shared in social media (28-35). Studies conducted in Croatia, India, and the U.S. among medical students have all reported cases of sharing unprofessional content online, including sharing sexually explicit content and posts related to alcohol consumption while using SM (43, 44). A study in Korea that uncovers unprofessional behaviors of medical students from YouTube videos revealed that 20% videos uploaded by medical students contained at least one concerning behavior, including those related to delivering inappropriate information beyond one's competence or negative comments on school's curriculum in an inappropriate way (234). In Vietnam, although there is no study on professionalism in SM among medical students, one study revealed that use of SM among medical students is growing rapidly as 99.3% of medical students often use SM (27). This poses a significant challenge for medical educators in Vietnam to develop guidelines and educational interventions that promote responsible and professional use of SM.

In medical institutions worldwide, many previous educational initiatives have been designed and implemented, focusing on the dangers of using social media and the potential pitfalls that an inappropriate post may have on medical careers (56, 235-239). Some

curricular interventions for professional use of social media for medical students and residents have focused largely on the potential harm that can result from inappropriate use of social media platforms (237, 238). Although it is important to emphasize the potential issues related to ethical and legal regulation, a new emerging trend focuses on increasing awareness of the positive professional uses of social media in medical careers (240-242). Reflecting this trend, this class was structured not only to raise awareness of possible social media risks, but also to promote reflection, and highlight positive ways to leverage social media professionally. This is embedded in the learning objectives of maintaining professional boundaries and public trust, and sharing medical information to public in appropriate and ethical manner.

5.2.3. Learning Theories and Educational Strategies

The design of the class on professionalism in social media for medical students was guided by four key educational theories: behavioral, cognitive, experiential, and constructivism learning theories. These theories shaped not only the selection of learning objectives, but also the instructional strategies used to deliver the content effectively and meaningfully. Multiple educational strategies were applied in this class and aligned with learning theories, including interactive lectures, case-based learning, group discussions, flipped classrooms, team-based learning, and role-playing. According to Mezirow, the process of transformative learning occurs when students are exposed to alternate interpretations, discussion, and then reflection (243). This class was deliberately structured to encourage active discussion through case scenarios that assemble real-life situation so that students can reflect on various perspectives from their peers and facilitators. The debriefing section that includes providing feedback and reflection allows students to critically analyze their reasoning, recognize potential biases, and consolidate their understanding of professional standards. Instead of simply reviewing a list of inappropriate and unprofessional behaviors that medical students should avoid when using social media, this class aims to encourage students to become proactive and accountable for the online presence and identity. It is recommended from the successful course on social media and professionalism that medical schools should incorporate examples of both positive use of social media and negative ramifications, as well as opportunities for active discussion and debate in the class (49). More importantly, to ensure the effectiveness of the class in transforming knowledge and behaviors, role-playing and reflection section should be included as part of the course (49).

Behavioral learning theory emphasizes the development of observable behaviors through reinforcement and practice (107). Strategies such as role-playing and team-based learning were used to allow students to practice professional communication and boundary-setting in simulated social media situations. These educational strategies create stimuli as stated in behavioral learning theory by placing students in realistic, and ethically charged situations where they must act and respond (107). Specifically, case scenarios were carefully developed based on the learning objectives and real-life examples for the role-playing. Moreover, during the debriefing section, students will have an opportunity to receive positive feedback and reflect on their actions which will help reinforce desired behaviors aligned with professionalism in social media. Repeated exposure to professional standards and positive feedback during debriefing sessions will help reinforce desired behaviors aligned with medical professionalism including those in social media (244).

In this class, cognitive learning theory was reflected in interactive lectures and flipped classroom components that provided foundational content on ethical guidelines, online identity, and professional standards on social media. Cognitive learning theory emphasizes internal mental processes of understanding, analyzing, and applying knowledge (118). Students are expected to process this information before class by reviewing learning materials in LMS and apply it during in-class activities, aligning with cognitive objectives. This process aligns with the principles of cognitive learning theory, which posits that effective learning occurs when individuals actively construct their knowledge rather than passively receive information (143). This component is used in many curricular designed for medical students, including those about professionalism in social media (49, 92). In addition, according to Ausubel, meaningful learning results from linking new knowledge to existing knowledge in memory (122). In the beginning of the class, the case-based discussion session was developed to allow students to discuss and connect previous knowledge about medical professionalism they have learnt in the second year with new concept of professionalism in social media. By engaging in discussions about real-life scenarios where medical professionalism intersects with social media, students can recall their earlier understanding of traditional professionalism and apply it to online environment.

Experiential learning theory was also referred to when developing this class, considering its effectiveness in development of competencies and the practical application of skills within specific contexts in medical education (127). In the class, activities such as case-based learning and role-play allowed students to engage in real, life-like scenarios involving social media use. Through post-activity reflection and feedback, students were encouraged to evaluate their decisions and learn from the outcomes, supporting psychomotor objectives such as performing ethical decision-making and engaging in

professional communication online. Experiential learning emphasizes the importance of reflection as an essential component of the learning process (127). By reflecting on their experiences during role-play and case discussions, students were able to connect theory with practice, evaluate the effectiveness of their actions, and identify areas for improvement. This reflective process aligns with Kolb's experiential learning cycle, which involves concrete experiences, reflective observation, abstract conceptualization, and active experimentation (126). In the context of the class, students could reflect on their responses to ethical dilemmas in social media scenarios, conceptualize how they could improve their professional conduct online, and experiment with different strategies for better engagement in future situations.

Constructivist learning theory emphasizes the use of group discussions and team-based learning to foster peer-to-peer interaction and knowledge construction in the class. Students brought their personal experiences with social media into group dialogues, allowing them to compare, contrast, and co-create new understandings of what constitutes professional behavior in the digital space. This supported both cognitive and affective objectives, such as evaluating appropriateness of online content and demonstrating mutual respect during group discussions. The class was designed to foster active and supportive learning environment. Students do not passively take in information but actively participate in building knowledge and understanding based on their prior experiences and interactions with the external environment (107). They can contribute to the knowledge and understanding through participating in group discussion and team-based learning.

5.3. Implications for Vietnamese Medical Education and Medical Education at Hue UMP

The development of a class on PSM represents a timely and necessary addition to the existing education curriculum on professionalism at Hue UMP and has broader implications for other Vietnamese medical schools. Despite the growing presence of SM platforms in students' academic and personal lives, Vietnamese medical institutions—including Hue UMP—currently lack formal training that addresses professional behavior and ethical standards in online environments. This class bridges a clear educational gap by equipping future physicians with the knowledge, skills, and attitudes necessary to navigate SM responsibly and professionally. Studies have revealed that in addition to the guidelines for professional use of social media, offering medical students educational opportunities to learn about PSM is essential (48). Currently, this class is particularly relevant in the context

of Vietnam, as the Vietnamese government has published the digital competency framework for learners, which emphasizes not only the use of digital tools for learning and collaboration, but also the ethical, legal, and safe engagement in digital spaces. The development of educational intervention that touch on SM-part of digital media would be a significant contribution in implementing this framework. The class supports Vietnam's broader vision of creating digitally competent and socially responsible professionals, by embedding these competencies within a medical education context.

The urgency of this training is further underscored by the pervasive role that SM plays in the lives of Vietnamese medical students. Social media platforms such as Facebook, TikTok, and Instagram are integral to their daily communication, information sharing, and even clinical learning (27). However, the lack of formal guidance has led to frequent incidents of boundary violations, breaches of patient confidentiality, and unprofessional online conduct—issues that may undermine public trust and damage future physicians' reputations. The development of a structured class on PSM not only mitigates these risks, but also promotes reflective practice, critical thinking, and responsible digital citizenship.

In summary, the class responds directly to the evolving needs of contemporary medical students in Vietnam, supports national digital policy goals, and fosters a more ethically grounded, socially aware generation of medical students. As a pioneering initiative at Hue UMP, it may serve as a model for other medical schools seeking to integrate education on PSM into their curricula in a meaningful and contextually relevant way. Moreover, as the class aims to address several competencies in the list of PSM competency, more classes should be developed in the future to teach other competencies in the list and develop the comprehensive curriculum at Hue UMP, as well as other medical schools in Vietnam.

5.4. Potential Challenges and Barriers

Although the integration of PSM education into medical curricula is increasingly recognized as important, several challenges and barriers may hinder its effective implementation at Hue UMP.

One major implementation barrier is faculty readiness. Although the faculty who have expertise and teaching experience in professionalism education is available at Hue UMP, PSM is a new topic in medical curricula. Faculty members may be unprepared to facilitate discussions around online behaviors or may lack the confidence to address complex professionalism issues in SM media contexts. Unlike traditional topics in medical professionalism, PSM often involves gray areas, such as personal boundaries, online identity, and context-specific judgment, which can be challenging to interpret and teach without sufficient training or guidance. Therefore, equipping faculty with the necessary knowledge, skills, and pedagogical strategies to confidently teach PSM is essential. Faculty development workshops, peer-sharing sessions, and access to practical teaching resources (e.g., case scenarios, institutional guidelines) could serve as effective strategies to enhance faculty readiness and foster a supportive teaching environment for this class (245). Prior to the implementation of the class, a faculty development workshop will be held as part of the action plan. This workshop aims to provide the lecturers at Hue UMP experiences in teaching PSM for medical students. It will be conducted by three professors at the Department of Medical Education, Yonsei University, Wonju College of Medicine.

In addition, curriculum time constraints remain a persistent challenge, as medical programs in Vietnam, particularly at Hue UMP, are already densely packed with required content in both basic science and clinical science (4). The national curriculum framework emphasizes the mastery of biomedical knowledge and clinical competencies, often leaving limited room for the integration of emerging or cross-cutting topics such as PSM. Therefore, educators may find it difficult to allocate dedicated time to PSM education without compromising existing academic requirements or clinical training hours.

Student engagement is another concern as learners may not immediately perceive the relevance of PSM or may be reluctant to participate in discussions that touch on their personal online behavior during the class. Many studies indicate that healthcare students and clinicians have varied perceptions of PSM, while some exhibit relaxed attitudes and demonstrate interest in this topic, others are more conservative (36, 45-47). Furthermore, at Hue UMP and in similar Southeast Asian contexts, cultural values such as respect for hierarchy, avoidance of confrontation, and face-saving behaviors may further inhibit open

discussions, particularly on sensitive topics such as PSM which involves real-life SM misconducts. Students may worry about being judged by peers or instructors, or they may feel uncertain about what is wrong and right in relation to PSM. This can result in passive participation or superficial engagement, limiting the effectiveness of the learning experience. To address this problem and enhance student engagement, instructors should employ learner-centered approaches, such as case-based discussion and small-group reflection, which create a psychologically safe space for communication and discussion (161).

6. Conclusion

This thesis explored the importance of integrating PSM into the medical education curriculum focusing on Hue UMP and provided the competency framework to develop a class on this topic. Medical schools can cultivate future doctors who are not only clinically competent, but also ethically aware and socially responsible in the online environment, by embedding PSM education into medical training. Future studies should continue to explore the potential of integrating this education intervention into the educational course on medical professionalism and develop standardized social media guidelines tailored to Vietnamese healthcare context.

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Appendices

Appendix 1: Statement on the Professional and Ethical Use of Social Media by the World Medical Association

1. To maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethical guidelines just as they would in any other context.
2. To ensure that no identifiable patient information is posted in any social media by their physician, by increasing the understanding of privacy provisions of social networking sites and their limitations while considering intended audience and the technical feasibility to restrict access to the content to predefined individuals or groups.
3. To exercise care when using applications that might compromise the security of the data, including when consulting with colleagues.
4. To promote and apply the principles in the WMA Guidelines on Promotional Mass Media Appearances by Physicians to all social media activities by physicians.
5. To encourage physicians to routinely monitor their own Internet presence to ensure that the personal and professional information on their own sites and, to the extent possible, content posted about them by others is accurate and appropriate.
6. To prevent the use of technological devices from diverting our attention during direct consultation with the patient.
7. To provide factual, concise, understandable information, declare any conflicts of interest and adopt a sober tone when discussing professional matters.
8. To avoid inappropriate use of the networks, frivolous, insensitive attitudes or light-hearted opinions on medical matters.
9. To draw the attention of physicians to the fact that social media content posted by health professionals may contribute to the public perception of the profession and should be done in accordance with the principles in the WMA Declaration of Geneva and the International Code of Medical Ethics.
10. To include education on the use of social media in medical curricula and continuing medical education.

11. To behave in the media and on social networks with the same scientific rigor and the same approach as in a consultation and show the same respect to patients and colleagues.
12. To create mechanisms for accountability in professional settings when inappropriate behavior on social media is observed and reported.
13. To promote health literacy and knowledge among populations and with individual patients by using objective and evidence-based messages in accordance with the principles in the WMA Declaration of Geneva, the WMA International Code of Medical Ethics, and the WMA Statement on Healthcare Information for All.
14. To combat misinformation, disinformation, and the promotion of pseudoscience and pseudo therapy on social media, all of which can result in negative health outcomes for patients and communities.
15. To counsel fellow physicians who engage in misinformation, disinformation, or violation of patient trust on social media and/or report to relevant authorities for ongoing deliberate acts of the same.
16. To raise awareness among physicians and medical students about the possibility that information shared on social media could be used in misleading ways by individuals or companies.

Appendix 2: The Guidelines on "Professionalism in the Use of Social Media" by American Medical Association Council on Ethical and Judicial Affairs

(a) Physicians should be cognizant of standards of patient privacy and confidentiality that must be maintained in all environments, including online, and must refrain from posting identifiable patient information online.

(b) When using social media for educational purposes or to exchange information professionally with other physicians, follow ethics guidance regarding confidentiality, privacy and informed consent.

(c) When using the Internet for social networking, physicians should use privacy settings to safeguard personal information and content to the extent possible, but should realize that privacy settings are not absolute and that once on the Internet, content is likely there permanently. Thus, physicians should routinely monitor their own Internet presence to ensure that the personal and professional information on their own sites and, to the extent possible, content posted about them by others, is accurate and appropriate.

(d) If they interact with patients on the Internet, physicians must maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance just as they would in any other context.

(e) To maintain appropriate professional boundaries physicians should consider separating personal and professional content online.

(f) When physicians see content posted by colleagues that appears unprofessional, they have a responsibility to bring that content to the attention of the individual, so that he or she can remove it and/or take other appropriate actions. If the behavior significantly violates professional norms and the individual does not take appropriate action to resolve the situation, the physician should report the matter to appropriate authorities.

(g) Physicians must recognize that actions online and content posted may negatively affect their reputations among patients and colleagues, may have consequences for their medical careers (particularly for physicians-in-training and medical students), and can undermine public trust in the medical profession.

Appendix 3: The Guide to Medical Professionalism: Recommendations for Social Media by Canada Federation of Medical Students

Part 1: Professional Boundaries for Medical Students Online

Medicine's privileged position is said to result from a 'bargain' between medicine and society, the basis of which is professionalism

Social media can be defined as internet-based media and interfaces designed to connect people to each other and facilitate interaction with user generated content. Examples of existing social media include, but are not limited to, YouTube, Facebook, Twitter, LinkedIn, and Google+. Social media enhance and improve the lives of medical students in innumerable ways. They help students keep up to date on current events and the latest health trends, as well as help them to formally and informally learn material. They contribute to class cohesiveness and fight student isolation, both within their faculties and from family, friends and the world at large. Social media also help students destress and relax from their intensive curricula and afford them the opportunity to take pride in their achievements and hard work. Student professionalism, however, can be strained by the use of social media due to its familiarity, ubiquity and impersonal nature. As such, the use of social media brings about new responsibilities. At the same time, no new foundational professional axioms are needed for student guidance. Central to this discussion is the notion that medical students are nascent self-regulating professionals whose statements and actions reflect not just on themselves but also on larger organizations, institutions and ideals. Medical students have a fiduciary responsibility to help maintain public trust and confidence in our future profession. This should always be borne in mind. Many obligations incumbent on medical students is present at all times, whether at school or at home and whether working or not. Moreover, medical students are responsible for all content published in their name or in pseudonym on social media. It is crucial to note that there is no such thing as a private social media network. By the connected definition of social media, all medical students who use it have 'friends' or direct links to non-clinicians, members of the lay public and healthcare professionals outside of any given circle of care. The publication of private patient information in social media online is therefore a breach of confidentiality. Social media should be treated as a public forum akin to an op-ed in a newspaper or a lecture. Anything that would be inappropriate to share in these more traditional outlets should be considered inappropriate to share online. Students should refrain from posts that use institutional intellectual property, copyrights or trademarks (e.g. a university crest or hospital logo) without explicit written permission. Such care should

extend to the unauthorized dissemination of copyrighted material, such as lecture recordings. Similarly, students should be careful to not present themselves as official representatives of said institutions in public forums. Personal and professional opinions must be carefully differentiated. CFMS 2013 Ian Brasg, VP Education 10 It is permissible to post or publish media online that address the clinical setting and training. Above all else – including freedom of expression – patient confidentiality must be upheld online. This applies to writing, pictures, audio recordings and video. The obligation to prevent breaches of confidentiality extends to all medical students, even to those who have witnessed but are not directly involved in the incident. By consensus definition, confidential patient information is identifying information. Identifying information is any information that can be reasonably foreseen to be used, alone or in part, to identify specific patients. This definition holds even if the information is only identifying for the patient himself. This definition also holds if the information is only identifying for individuals with access to additional confidential information. As a general rule, all photographs, audio recordings and videos of patients are inappropriate for online posting. Consent obtained for educational purposes does not extend to consent for public dissemination and such publication would cross a clear red line. However, even when appropriate consent is obtained for public posting and the media-containing posts are sufficiently anonymized, public perception remains an important consideration. An individual viewing a sensitive picture posted online by a medical student will not assume consent has been obtained and may therefore come to think less of the profession. The same rules apply for harassment, slander, libel and discrimination online as do in person and in traditional media. Harassment, slander, libel and CFMS 2013 Ian Brasg, VP Education 11 discrimination remain unwelcome and unacceptable in professional and educational communities. Moreover, there is no place for sexual harassment anywhere, including social media. Care must be taken to distinguish acceptable satire and jocular remarks with one's peer group from hurtful and offensive interactions, given the lack of context often inherent to online interactions. Acceptable satire must tread especially carefully in portraying anyone outside of the professional medical framework, including patients, vulnerable socioeconomic groups, allied health staff and non-medical professionals. These concerns are especially acute in the context of end-of-year variety shows that traditionally satirize the medical student experience. Furthermore, it is unprofessional and inadvisable to form or accept a social media connection with patients or individuals with whom there is an active therapeutic, supervisory or evaluative relationship. As nascent health professionals, students should refrain from criticizing specific colleagues or health professionals online, but rather address concerns in a private forum. Similarly, trainees must be careful about offering medical advice in any noneducational setting, including on social media. Students

must not present themselves as licensed physicians in these interactions. Finally, the rules of academic integrity continue to apply online. Social media and the internet should not be used for plagiarism or gaining unfair advantages with respect to evaluation, such as by sharing or receiving examination content. CFMS 2013 Ian Brasg, VP Education 12.

Part 2: Recommendations for Optimizing the Medical Student Online Presence

Mutual respect should be the guiding principle of social media interactions, as in real life. Students should generally behave online with the belief that there will be a permanent record of their actions. An important corollary of this is that students lose control of online posts the moment they are placed on the Internet. Prior to posting anything online students should reflect on whether it would be embarrassing or detrimental to have on the record for their future public selves. In particular, students are encouraged to think twice about posting media that portrays them or their peers participating in what could be perceived as unprofessional behavior such as inappropriate sexualized behavior, binge drinking, drug use and illegal activity. Consider setting up social media profiles with high security and privacy settings that are balanced with one's desire to be 'searchable' online. Students should be familiar with these settings and the relevant terms of reference and should follow any changes closely. Various name changes and pseudonyms may add to this security, as may regular review and purging of one's non-extant social connections. The use of high security, privacy and pseudonyms should not be construed as license to act unprofessionally or CFMS 2013 Ian Brasg, VP Education 13 without ownership over published content. Rather, these suggestions are made in part to make unanticipated social medial interaction with patients less likely. Strong passwords should be employed for social media, and different passwords should be used for every account and service. It is especially important to use different passwords for clinical and social applications. However, while these collective changes may make one more difficult to find online, they do not change the public nature of any material posted and are insufficient for the protection of patient information. If desired, students can create a wholly separate, professional online presence and connect with professional colleagues through this avenue. The separation between personal and professional online profiles should be made explicit. Students should employ automated services (such as Google Alerts) that generate email updates whenever a student's name appears online. Similarly, students should actively curate their online presence to optimize their professional appearance. Medical students are encouraged to not publish their private email addresses online (e.g. in order to reduce 'spam' and 'phishing' risks). If necessary, a tertiary dummy account should be used that is easily expendable if

compromised. Care should be taken when using cloud computing. Confidential information should only be shared within the circle of care over secure and encrypted connections.

Appendix 4: The Guide "Using Social Media as a Medical Professional" by the General Medical Council in the United Kingdom

Maintaining public trust

How you behave when using social media matters. Medical professionals, like everyone else, have rights to freedom of belief, privacy, and expression. But exercising these rights when using social media as a medical professional has to be balanced with the possible impact on other people's rights and interests.

It is important that your content includes appropriate context, so that people who access what you say about health and healthcare have information that supports their understanding and helps them to verify your claims and expertise. If you're commenting on health or healthcare issues you should usually say who you are.

Bear in mind that content uploaded anonymously can, in many cases, be traced back to its point of origin. When communicating privately, including using instant messaging services, messages or other communications in private groups may also become public. We have a legal duty to investigate any concerns raised to us that reach our fitness to practice threshold.

Being honest and trustworthy in your communications

As a medical professional, patients and the public are likely to take what you say on trust, and they may adapt their attitudes or behavior towards their health, other medical professionals, or healthcare services as a result.

You must take reasonable steps to make sure that the information you communicate on social media as a medical professional is not false or misleading and does not exploit people's vulnerability or lack of medical knowledge. You must not misrepresent your experience and qualifications.

If you use social media to advertise your services, or use your professional position to promote or endorse any other services or products, you must be open and honest about any interests you have that may influence (or could be seen to influence) the recommendations you make. You must also comply with relevant law, guidance and regulatory codes including those from the Committee of Advertising Practice, the Advertising Standards Authority and the Competition and Markets Authority.

Where relevant you must also follow the more detailed guidance we publish. In particular: a. Identifying and managing conflicts of interest b. Cosmetic interventions c. Good practice in proposing, prescribing, providing and managing medicines and devices.

Behaving professionally and maintaining boundaries.

You must not use social media to abuse, discriminate against, bully, harass or deliberately target any individual or group.

When interacting with or commenting about individuals or organizations on or using social gmc-uk.org 5 media, be aware that communications are subject to the same laws of copyright, defamation, discrimination, and harassment as written or verbal communications – whether they are made in a personal or professional capacity.

Using social media creates risks where social and professional boundaries become unclear. You must follow the guidance in Maintaining personal and professional boundaries.

If a patient contacts you about their care through your private profile, you should direct them to an appropriate healthcare setting for further support with their query.

Respecting patient confidentiality, privacy and dignity

When using social media of any kind, you must maintain patient confidentiality and recognize and respect patients' dignity and their right to privacy.

Although individual pieces of information may not breach confidentiality on their own, the sum of information shared could be enough for a patient or someone close to them to recognize and identify their case.

You must not disclose identifiable information about patients, when using social media, unless you have explicit consent to do so – for example, for educational purposes. In which case, you must follow our guidance: Confidentiality: disclosing for education and training purposes and making and using visual and audio recordings of patients.

Appendix 5: The Guide to Social Media and Medical Professionalism by the Australia Medical Association

You are always a doctor

Think carefully about publishing something on social media if you would not be comfortable having your patients/colleagues/ employers see it.

Take care not to post images or comments that might be endorsing activities or behavior that could damage your professional reputation or be in breach of your professional obligations.

Remember the content you post may be discoverable.

Never assume that you will be able to delete something that you have posted online.

Think about not using your full name and ensuring photos that can easily identify you are not visible to the public.

Where possible, try to control what and when photos of you are posted online.

Be aware of your professional and employer's social media policies.

Confidentiality matters, and identifiers are everywhere

Obtain written and specific patient consent before you post patient information or images online.

Protect patient information by deidentifying the information and/or image you post. Remember it may still be possible to identify a patient, staff member, or your employer from the information you post; for example, from the timing of the post, from information that remains in the background of an image or in the metadata of an image.

Check your employer's policies about posting on social media. Even with patient consent, you may be prohibited from posting content by hospital policies.

Be wary about the secondary use of data. For example, granting permission for an online social platform to access your profile or other information on your device e.g. address book, may allow access to confidential patient details. Check the terms and conditions before signing up.

As a precaution, turn off auto-upload of pictures to social media or back up sites.

Consider who you friend or share information with on social media

Consider separating your online professional and personal profile and content.

It is advisable not to extend friend requests to patients.

Respond to friend requests from a patient by directing them to a professional social networking page.

If you pay a company to manage your social networking profile/s, make sure the company understands the professional standards and guidelines you are bound by. Remember you are still responsible for any material they post on your behalf.

Maintaining your professional reputation online

Did you know: the information you post on your personal profile can be linked back to you professionally; any information you post anonymously can be linked back to you; anything you post in a closed group can be copied and shared.

Think carefully about whether becoming a member or fan of a group might be considered racist, sexist, or otherwise defamatory.

Consider whether "liking" or "following" groups that contain potentially controversial topics or images could reflect poorly on you as a doctor and the profession. Browse through all the groups that you have joined and consider whether these are an accurate reflection of the person you are, and the values that you hold. Report inappropriate content to site administrators and request that it be removed.

Safeguard your online reputation. If you have not created an online profile, search engines like Google may do it for you and it may not be a profile you like! Google your name on a regular basis to see what comes up.

You are responsible for your advertising

Whether you are using traditional or social media, you are responsible for your advertising.

Consider whether you want your website and other social media platform settings to allow users to leave comments. If you don't, then you can disable the comment section.

You must not use a testimonial, solicited or unsolicited, that refers to a clinical aspect of care in your advertising, including on your website and social media account.

Be careful about posting comments or images about your skills and services online as they may inadvertently contravene advertising guidelines.

You must not edit an online review that is negative to make it positive or no longer accurately reflects all the reviewer's feedback.

If you do find comments that could be considered as testimonials on your website or social media platforms, you should remove them to avoid potentially being found to be in breach of your professional obligations under regulatory guidelines.

Managing negative patient comments online

If you receive a negative comment from a patient or a close relative of a patient online, resist the temptation to immediately reply angrily or defensively.

Seek advice from a colleague and/or AMA or medical defense organization about the most appropriate way to respond.

If you can identify the person who posted the comment, consider whether it is appropriate to contact the person to discuss and address their concerns.

If you find messages from someone upsetting or distracting, consider blocking or muting them. Persistent harassers can be blocked from contacting you or be reported to the site.

Using social media for advocacy

Comment within your scope of practice.

Post content that is well informed.

Abide by your professional code of conduct.

Be aware of your employer's policies about posting on social media.

If speaking on behalf of an organization, be aware of their policies regarding acting as a spokesperson

Appendix 6: The Proposed Guideline on the Use of Social Media for the Doctors by the Korean Medical Association

Personal information (confidential) protection

1. The doctors shall know that the applicable laws and practices for protecting patient privacy also apply to the cases of the social media use and they should not post identifiable patient information on the social media.

2. When using social media for education, academic exchange, or exchange of information with fellow doctors, physicians shall adhere to the ethical guidelines for keeping the privacy and confidentiality.

Appropriateness of Information

1. The doctors shall post accurate and appropriate medical information on the social media.

2. The doctors shall endeavor to monitor, modify and supplement medical information posted on social media.

3. The doctors shall endeavor to point out and correct medical information posted on social media by fellow doctors or the others if they are inaccurate or inappropriate.

Relationship between patients and doctors

1. When communicating with the patients through social media, the doctors shall maintain appropriate distances with the patients in accordance with the ethical guidelines.

2. The doctors shall be considerate about the level of disclosure of their personal information and about setting the extent of disclosing their postings on the social media.

3. The doctors shall consider separating the private and public purposes when using the social media.

Decency as a professional

1. The doctors shall know that the use of inappropriate social media not only impairs the authority and decency of the doctors as an individual, but can also degrade public

confidence in the entire medical community including the fellow doctors, and may create negative perceptions.

2. If it is determined that the doctors' decency is damaged by the other doctors' improper use of the social media, the doctors shall endeavor to correct it through the expertise advices. Nevertheless, if appropriate measures are not taken, it should be informed to the Korean Medical Association.

Communications between the doctors (colleagues)

1. Communication with the fellow doctors through the social media shall be done with the principle of mutual respect based on professionalism and trust.

Physician Education on the use of social media

1. Doctors' organizations and medical education institutions shall endeavor to provide examples, guidelines for use, and educational programs that can help the doctors properly use the social media.

Conflict of Interest

1. The doctors shall understand that the use of social media may cause the conflict of interest, and proactively manage the sites based on such understandings.

Appendix 7: The Ethical guidelines on social media by the Health Professions Council of South Africa

Obligations in relation to social media

Must as with all aspects of professional behavior, health practitioners should be aware of their obligations under the HPCSA Ethical and Professional Rules, the Professional Board's scope of practice and other relevant legislation, such as the Promotion of Access to Justice Act 3 of 2000, the Protection of Personal Information Act 4 of 2013, and the common law.

There are ethical obligations and responsibilities imposed on health practitioners regarding their relationships with their patients and each other, such as those set out in Booklet 1 General Ethical Guidelines for Health Car e Professionals and Booklet 5 Confidentiality: Protecting an d Providing Information.

Obligations relating to the electronic storage and transmission of patient and client data for professional purposes are found in Booklet 10 General Ethical Guidelines for Good Practice in Telemedicine.

Patient confidentiality and privacy

All patients are entitled to privacy and confidentiality, which is enshrined under the human right to privacy in the South African Constitution and the National Health Act.

Disclosure of a patient's information may only be in accordance with a court order, patients consent and in terms of the law. Health practitioners can share confidential information with other members of the health care team involved in the patient's care and with individuals who have the patient's consent. Health practitioners can also share information if it is justified in the public interest, or if failure to do so will result in harm to the patient.

Health practitioners must obtain the written consent of the patient before publishing information (e.g. case histories and photographs) about them in media to which the public has access, whether or not the health care practitioner believes the patient can be identified by the data.

If the patient is a minor under the age of 12 years old, the health care practitioner will require the written consent of the patient's parent or guardian and assent of the minor.

Health practitioners sharing information or data for the sake of diagnosis, treatment or education and training through social media must ensure that the recipient of the information is not able to identify the patient from the data disclosed. Health practitioners must ensure that the recipient of patient information via social media understands that such information is given to them in confidence, which they must respect.

Disclosure of information on social media must be kept to the minimum necessary in order to protect the rights of patients.

Health practitioners must be aware that there is always a risk that the information can be disseminated, even in so-called “invisible” groups, (i.e. people you do not know are reading the information or who you did not know could read the information).

The obligation to keep patient information confidential remains even after the patient dies.

The practitioner patient relationship

Interaction between health practitioners and their patients on social media can blur the boundaries of the professional practitioner-patient relationship.

Health practitioners are advised not to interact with patients via social media platforms as a failure to maintain strictly professional relationships with patients could result in other ethical dilemmas.

The Protection of Personal Information Act outlaws the acquisition of data about an individual’s health or sex life outside the healthcare setting, and by having access to patients’ social media profiles, health care practitioners may find themselves privy to personal patient information that has not been shared in the healthcare setting.

Health practitioners may choose to share personal information about themselves with their patients during face-to-face consultations, but social media does not offer a similar level of control over the extent and type of content shared.

If the health practitioner performs a non-medical role in their community, maintaining appropriate professional boundaries may be difficult as they may receive requests on social media from patient’s they know in a nonprofessional capacity. In these instances, health practitioners should consider the circumstances and implications before accepting these requests.

Should the health practitioner receive an inappropriate message from a patient via social media, they should politely re-establish professional boundaries and explain their reasons for doing so.

Except in an emergency or life-threatening situation, if a patient is seeking health care advice over social media, the health care practitioner should politely request them to set up an appointment in-person.

If a patient persists in contacting the health practitioner, the practitioner should keep a log of all contacts and seek advice from the HPCSA.

Providing health advice over social media to individuals with whom the health practitioner does not have a practitioner-patient relationship is discouraged and should be done with the outmost discretion.

If health advice is shared online, it must be evidence based, scientifically sound and generic and the recipient must be directed to consult with a health practitioner in person before following through.

Health practitioners should separate their professional and personal social media accounts to help maintain the appropriate professional boundaries.

The health profession image

If the health care practitioner uses social media in their personal capacity, their online activity may nevertheless bring the profession into disrepute.

The media routinely monitor online activity to research stories or potential stories. Information posted online may be disseminated, whether intended or not, to a larger audience, and may be taken out of context.

Content posted on social media may also harm the health practitioner's employability and recruitment, limiting professional development and advancement. Employers often monitor the social media profiles of prospective employees, and are known to turn away applicants based on questionable digital behavior.

Social media activities health practitioners should avoid for example include: Taking photographs during surgery and other forms of care or treatment; Making unsubstantiated negative comments about individuals or organizations; Making informal and derogatory comments about patients; Making comments that can be perceived as racist, sexist, homophobic or otherwise prejudiced, even if meant in jest or as satire.

Health practitioners may engage fully in debates on health matters; however they must be aware that the laws regarding defamation, hate speech and copyright also extend to content shared via social media.

Health practitioners must not post their opinions on the probity, skill or professional reputation of their colleagues on social media, lest the public lose faith in the health care profession.

Online relationships between practitioners of varying levels of training should only be initiated upon consideration of the purpose of the relationship. In the case of senior staff receiving social media requests from students (or vice versa), the purpose might be mentorship, research or career advice. Regardless of intent, the traditional boundaries of the trainee-teacher relationship apply even in interactions via social media. These boundaries also extend to staff and other health practitioners.

If a colleague makes derogatory or inappropriate comments on social media, health practitioners are advised to bring it to their attention discreetly, and not to engage or respond publicly on the social media platform.

Health practitioners are advised to include disclaimers in their social media profiles, indicating that the views expressed therein are their own and not those of the health profession or the health establishment they represent. However, this does not absolve the health care practitioner from the above rules.

Conflicts of interest

Social media is also a popular tool for the advertisement and promotion of goods and services, with the growing online market being one of the most emphasized in business practice.

When using social media, even if via personal or anonymous blogs, health care practitioners must comply with the HPCSA rules on advertising practice, (including not engaging in active or passive touting and canvassing or allowing others to do so on their behalf), and must make sure that they declaring their financial interests in hospitals (see Booklet 2 Ethical and Professional Rules of the Health Professions Council of South Africa and Booklet 11 Guidelines on Overservicing, Perverse Incentives and Related Matters).

Touting involves drawing attention to one’s professional goods or services by offering guarantees or benefits that fall outside one’s scope of practice. An example is advertising free WiFi services to patients while waiting for their consultations.

Canvassing involves the promotion of one's professional goods and services by drawing attention to one's personal qualities, superior knowledge, quality of service, professional guarantees, or best practice. An example of canvassing is a health care practitioner declaring on social media or posting patient reviews that state he or she is 'the best health care practitioner in the country'.

Health practitioners may not advertise, endorse or encourage the use of any hospital, medicine or health-related product on social media in a manner that unfairly promotes the practice of a particular health practitioner or establishment for the purposes of financial gain or other valuable consideration.

A failure to follow these guidelines when using social media will undermine public trust in the health profession.

Precautionary measures when using social media

Health practitioners must be aware that, even with a pseudonym, anonymity on social media platforms is never guaranteed. The identity and location of the user can be traced through their linked accounts or IP address.

If health practitioners use social media in their personal capacity, they are advised to adjust their privacy settings to restrict public access. However, even with advanced security measures and end-to-end encryption, complete privacy on social media cannot be guaranteed. There is always the risk that the content can be shared beyond the scope of the health practitioner's personal network.

Once content is shared online, it is difficult to remove, and health practitioners must use social media on the understanding that the information they post will remain on the internet permanently.

Even if a health practitioner deletes a post on a social media site, this does not necessarily mean the content has been removed. Content may be copied or reproduced by other users before it has been deleted, and many websites and internet browsers use cache and cookie systems that inconspicuously store data.

Health practitioners should avoid using social media when stressed, tired, upset or under the influence of alcohol.

Health practitioners are advised to err on the side of caution when using social media. If uncertain about whether it is ethically and legally permissible to share particular content via social media, it is best not to do so until advice has been obtained.

Appendix 8: The Guidelines for Doctors on Social Media Usage by the Indian National Medical Council

Sharing Information

- Register Medical Practitioner (RMP) can use social media to provide factual and verifiable information.
- The content must not be misleading, deceptive, or exploitative of patients' vulnerabilities.

Avoid Public Discussions on Treatment

- RMPs should refrain from discussing patient treatment or prescribing medication on public social media platforms.
- If approached by a patient on social media, doctors should guide them towards telemedicine consultations or in-person appointments, depending on the situation.

Patient Privacy

- Posting photographs, scans (e.g., PET/CT scans), or any patient-related imagery on social media is prohibited.
- Such images, once uploaded, become public data and can be misused.

Professional Conduct

- RMPs should adhere to medical ethics when engaging with colleagues on social media.

Avoid Paid Promotions

- RMPs must not engage in practices such as purchasing:
- Likes
- Followers
- Higher search rankings
- Avoid registering on apps or platforms that solicit fees for higher ratings or patient leads.

No Testimonials or Endorsements

- Sharing or requesting patient testimonials, recommendations, or reviews is strictly prohibited.

No Showcase of Results

- Posting images or videos of healed patients, surgeries, or impressive procedural outcomes is not allowed.

Educative Material

- RMPs can share educational content aimed at informing the public.
- The content must remain within the scope of the RMP's expertise.

Guidelines for Webpages

- The same ethical rules for social media apply to RMP-managed webpages.

Professional Decorum

- RMPs must maintain dignity, avoid boundary violations, and uphold decorum in all social media interactions.

No Patient Solicitation

- Soliciting patients directly or indirectly through social media is deemed unethical.

Appendix 9: The Digital Health Competencies in Medical Education Framework: Digital Medical Professionalism Domain

Domain 1: Professionalism in Digital Health

1.1: Professionalism, ethical, legal, and regulatory considerations in digital health

Competency description: The medical school graduate demonstrates adherence to digital health professional, ethical, legal, and regulatory standards when handling health information.

Mandatory learning outcome(s) in this competency:

1. Describe protected health information. (K)

2. Apply prevailing privacy and security rules when handling protected health information. (S)

3. Apply best practices for managing digital patient data. (S)

4. Demonstrate compliance with ethical conduct and codes of practice when processing digital patient data. (B)

5. Explain how professional, clinical, and research ethics are applied and practiced within digital health space. (K)

Discretionary learning outcome(s) in this competency:

1. Explain reporting mechanisms in case of data security breaches. (K)

2. Demonstrate awareness of data recovery, asset protection, and disaster planning techniques. (K)

3. Explain data loss prevention techniques and maintenance of data integrity. (K)

4. Describe different models to prevent unauthorized access to, theft of, or manipulation of electronic health information (e.g., role-based access, break the glass function, sealed envelopes, and consent-based approaches). (K)

1.2: Digital identity, safety, and security

Competency description: The medical school graduate can maintain appropriate professional digital identity, apply concepts of digital intelligence to healthcare, and recognize their own critical role in cyber-risks and -threats.

Mandatory learning outcome(s) in this competency:

1. Explain the concepts of medical professional digital identity and digital intelligence. (K)

2. Describe common behaviors of doctors that may compromise data security. (K)

3. Demonstrate awareness of prevailing rules or regulations on sharing protected health information via cross-platform instant messaging services (e.g., WhatsApp, Telegram). (K)

Discretionary learning outcome(s) in this competency:

1. Separate personal and professional identity when utilizing social media and online platforms. (B)

2. Differentiate amongst different types of behavioral cyber-risks such as cyber-bullying, harassment, and stalking, and identify their impact on individual wellbeing. (S)

3. Recognize different types of cyber threats such as hacking, scams, and malware and identify ways to avoid them. (S)

4. Develop professional digital identity for use in social media. (S)

5. Describe the concepts of network security using examples such as firewalls and virtual private networks (VPNs). (K)

K: Knowledge

S: Skill

B: Behavior

Appendix 10: Ethical Approval from the Institutional Review Board of Yonsei University, Wonju Severance Christian Hospital

별첨 5 IRB 21-005

Yonsei Unversity Wonju Severance Christian Hospital, Institutional Review Board

Certificate of Approval

Investigator	DANG THI KIM CHI			
Sponsor	NA			
Approval No	CR325003			
Protocol Title	Developing Digital Professionalism class for Medical students: Focusing on Social Media			
	Protocol No	1.0	Version No	1.0
Date of Review	2025 / 04 / 10 /			
Review Result	■ Approval/Favourable opinion			
	☐ Modification required prior to approval/favourable opinion			
	☐ Disapproval /Negative opinion			
	☐ Termination/ suspension of any prior Approval / favourable opinion			
Please append details or summarize reason(s) for determination below				

YONSEI UNIVERSITY WONJU SEVERANCE CHRISTIAN HOSPITAL

IRB Information
Institution : Yonsei Unversity Wonju Severance Christian Hospital
Address : 20 Ilsan-Ro, Wonju, Gangwon State, 26426, Korea
Chairperson : Prof. Byoung-Geun Han ,M.D.,Ph.D.

WSCH IRB and the Institution are registered at Office for Human Research Protections (OHRP),U.S. Dept. of Health & Human Services, U.S.A.
We certify that WCH IRB is in full compliance with Good Clinical Practice as defined under the Korea Food and Drug Administration(KFDA) regulations and the International Conference on Harmonisation (ICH) guidelines.

Appendix 11: Ethical Approval from Ethics Committee in Biomedical Research of Hue UMP

TRƯỜNG ĐẠI HỌC Y - DƯỢC, ĐẠI HỌC HUẾ
HỘI ĐỒNG ĐẠO ĐỨC
TRONG NGHIÊN CỨU Y SINH HỌC
Số: H2025/053

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Thành phố Huế, ngày 18 tháng 4 năm 2025

GIẤY CHẤP THUẬN

Căn cứ Quyết định số 1138/QĐ-ĐHYD ngày 10 tháng 5 năm 2021 của Hiệu trưởng Trường Đại học Y - Dược, Đại học Huế về việc thành lập Hội đồng đạo đức trong nghiên cứu y sinh học (sau đây gọi là Hội đồng đạo đức) và Quyết định số 3712/QĐ-ĐHYD ngày 09 tháng 8 năm 2024 của Hiệu trưởng Trường Đại học Y - Dược, Đại học Huế về việc điều chỉnh thành viên Hội đồng đạo đức trong nghiên cứu y sinh học nhằm xét duyệt các vấn đề đạo đức trong nghiên cứu y sinh học của các đề tài/dự án;

Căn cứ Biên bản họp đánh giá đạo đức trong nghiên cứu y sinh học đối với các đề tài đề tài xin phê duyệt Y đức ngày 18 tháng 4 năm 2025, Hội đồng đạo đức chấp thuận về các khía cạnh đạo đức trong nghiên cứu đối với đề tài:

- Tên đề tài: **Xây dựng lớp học về chuyên nghiệp số trên mạng xã hội cho sinh viên Y khoa**.
- Chủ nhiệm đề tài: **ĐẶNG THỊ KIM CHI**
- Đơn vị: **Phòng Đào tạo Đại học, Trường Đại học Y - Dược, Đại học Huế**
- Thành viên tham gia: **Park Kyung Hye**
- Thời gian thực hiện nghiên cứu: **Từ tháng 04 đến tháng 06 năm 2025**
- Yêu cầu: Nghiên cứu viên tuân thủ nội dung nghiên cứu trong đề cương đã được phê duyệt. Bất kỳ sự thay đổi nào về nội dung nghiên cứu hay việc nảy sinh vấn đề liên quan đến đạo đức trong quá trình thực hiện nghiên cứu cần được báo cáo với hội đồng đạo đức.
- Quy trình xét duyệt: Đề tài được thông qua quy trình rút gọn.
- Ngày chấp thuận: ngày 18 tháng 4 năm 2025./.

CHỦ TỊCH HỘI ĐỒNG

TS. Lê Văn Chi

THƯ KÝ HỘI ĐỒNG

PGS.TS. Nguyễn Thanh Thảo

Appendix 12: Online Survey Form for Delphi Survey

Delphi survey on Digital Professionalism Competencies on Social media for medical students at Hue UMP

Hello

My name is DANG THI KIM
CHI, staff member at Hue University of Medicine and Pharmacy and is currently pursuing a master's degree in Medical education at Yonsei University, Wonju College of Medicine in South Korea. I would like to ask you to participate in the survey to conduct a research called: [Delphi survey on Digital Professionalism Competencies on Social media for medical students at Hue UMP] as part of my master´s thesis.

Due to the increasing use of Social Media among health professionals at all levels, Digital professionalism has emerged as a crucial aspect of Medical professionalism. Digital professionalism is described as attitudes and actions that resemble traditional professionalism paradigms but are expressed through digital media.

Currently, there is no course or class for digital professionalism on social media use for medical students at Hue UMP. Therefore, we conduct a study to develop a Digital Professionalism class focusing on social media to provide medical students with knowledge, skills, and attitudes to behave appropriately on social media as health professionals. This Delphi survey is part of this study.

Professionalism class focusing on social media to provide medical students with knowledge, skills, and
attitudes to behave appropriately on social media as health professionals. This Delphi survey is part of this study,
aiming to find out what competencies the panelist think important to be encompassed into Digital professionalism on social media class for medical students.

The subjects of this
survey are professors, lecturers, doctors, nurses, residents, and administrators at Hue UMP and Teaching hospital of Hue UMP. We collect personal information of survey participants, but we do not collect personal information that can be used to identify participants such as contact information or name. In addition, it is not possible to identify individuals in thesis and conference presentations. Your answers will never be used for any purpose other than thesis and conference presentations.

*Personal information:
gender, department, current position, year of experiences at current role at Hue UMP

*Purpose of personal
information collection and use: analysis of research results

*Period of retention and
use of personal information: Documents and files containing personal information are stored for 3 years from the time the research is finished, and then discarded according to the procedure.

You have the right to
refuse to provide personal information, and you can participate in the survey even if you refuse. Please write '0' for questions to be refused.

There is no penalty for
not agreeing to participate in the research or refusing to provide personal information. If you do not wish to participate in the study, please do not start filling out the survey. Even if you have started a survey, you can stop the survey if you wish. Participation and answers to surveys have no impact on your college or hospital life. We promise that your valuable answers will be used only for research purposes. Even if it takes some time, we ask that you respond to the end. The estimated time to answer the questionnaire is approximately 15 minutes. This study was approved by the Institutional Review Board of Yonsei University Wonju Severance Christian Hospital. If you have anys questions about the research, please contact researcher Kyung-Hye Park (Department of Medical Education, Wonju College of Medicine, Yonsei University, email: erdoc74@gmail.com). If you have any questions about your rights, please contact the Institutional Review Board of Yonsei University Wonju Severance Christian Hospital (Tel: 82-033-741-1703). If you agree to this study, please read the information below and click 'I agree' to start the survey.
Thanks again for participating in the survey.

It is preferable to complete this survey with the use of laptop or computer. If you want to do it on your mobile phone, please kindly use the horizontal frame to see all of the options in each question.

Thank you for you cooperation!

Delphi survey on Digital Professionalism Competencies on Social media for medical students at Hue UMP

dtkchi@huemed-univ.edu.vn Chuyển đổi tài khoản

Không được chia sẻ

* Biểu thị câu hỏi bắt buộc

Consent for Participation in Research and Use of Personal Information

Written Informed Consent for Research Subjects
*I have read the above-mentioned participant information for the [Delphi survey on Digital Professionalism Competencies for medical students at Hue UMP].

*I have been fully informed of the purpose, plan, process, and risks of this study. I understand that the researcher is responsible for providing any additional information about the study, including any research-related harms, at any time during or after my participation in this study.

*I understand that all assessments and data submitted by participating in the study will be analyzed without personally identifiable data and may be presented at academic conferences or published in papers.

*In accordance with the requirements of this study, I agree that the data collected during the study may be processed in a computer system.

*I understand that no data that can identify me as a research participant will be disclosed without my written permission, except as required by relevant regulations.

*I declare that I have answered all questions honestly and will comply with all rules and regulations imposed on me by the researcher and listed in the research subject description.

*I agree that this study is conducted through an internet survey service, so the process of signing my name is omitted.

*Even if I am an employee of a research institution, research director, sponsor, etc., I declare that my participation in this study is voluntary and there is no compulsion.

*I understand that the personal information collected in the questionnaire will be used for research data analysis. If I do not agree, I understand that I can select the 'Refuse to respond' option or not start the survey.

Consent to participate in research and use of personal information *

* If you consent to the survey and use of personal information, please check both 1 and 2.

* If you refuse to use personal information or refuse to respond to the survey, you can end the survey.

- [ ] 1. I have read all of the above and agree to participate in the survey
- [ ] 2. I agree to the use of personal information.

Quay lại Tiếp Xóa hết câu trả lời

How do you identify your gender?

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

What is your current professional role?

- ◯ Professor
- ◯ Lecturer
- ◯ Lecturer-doctor
- ◯ Nurse
- ◯ Administrator
- ◯ Resident

How many years of experience do you have in your current role?

- ◯ Less than 2 years
- ◯ 2 - 5 years

How many years of experience do you have in your current role?

- ◯ Less than 2 years
- ◯ 2 - 5 years
- ◯ 5 - 10 years
- ◯ More than 10 years

In which Department are you working for?

Câu trả lời của bạn

I. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Patient confidentiality, privacy and dignity for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I understand that ethical guidelines and laws related to patient privacy and	◯	◯	◯	◯	◯

I. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Patient confidentiality, privacy and dignity for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I understand that ethical guidelines and laws related to patient privacy and confidentiality must be maintained online	○	○	○	○	○
I maintain patient confidentiality and refrain from sharing identifiable patient information on social media without explicit consent	○	○	○	○	○
I understand that even non-identifiable information,	○	○	○	○	○

I understand that even non-identifiable information, when combined, can lead to breaches of confidentiality.	○	○	○	○	○
I obtain explicit written consent before sharing patient information online	○	○	○	○	○
I disclosure patient's information only when it aligns with court order, patients consent and in terms of the law	○	○	○	○	○
I use social media responsibly for academic exchange or education, ensuring patient information is anonymized and shared ethically	○	○	○	○	○

I keep patient information confidential remains even after the patient dies.	○	○	○	○	○
I am aware that there is always a risk that the information online can be disseminated even in "invisible group"	○	○	○	○	○
I limit the disclosure of patient information to the minimum necessary to keep patient's privacy	○	○	○	○	○

Do you have any suggestions for modifying or adding competencies relating to Patient confidentiality, privacy and dignity? Please provide your comments below

II. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Professional boundary, doctor-patient relationship, Public trust for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance	○	○	○	○	○
I am aware of the risk where social and professional boundaries become unclear when using social media	○	○	○	○	○
I can distinguish between personal and professional content online and take steps to separate them when necessary	○	○	○	○	○

I can communicate with patients and colleagues on social media with mutual respect, professionalism, and trust	○	○	○	○	○
I would avoid abusive, discriminatory, or harmful behavior online	○	○	○	○	○
I can redirect patients seeking medical advice on social media to appropriate in-person care	○	○	○	○	○
I can handle inappropriate contact professionally	○	○	○	○	○

Do you have any suggestions for modifying or adding competencies relating to Professional boundary, doctor-patient relationship, Public trust? Please provide your comments below

III. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Practitioner's privacy for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Cột 3
I can use privacy settings to safeguard personal information and content	○	○	○	○	○	○
I understand that privacy settings on social media are not absolute and content shared online can be permanent and public.	○	○	○	○	○	○
I can separate personal and professional social media accounts to maintain appropriate	○	○	○	○	○	○

are not absolute and content shared online can be permanent and public.	○	○	○	○	○	○
I can separate personal and professional social media accounts to maintain appropriate boundaries	○	○	○	○	○	○
I know how to limit the disclosure of personal information and control the extent of my social media post	○	○	○	○	○	○

Do you have any suggestions for modifying or adding competencies relating to Practitioner's privacy? Please provide your comments below

Câu trả lời của bạn

IV. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Health advocacy for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I understand that the use of social media may cause the conflict of interest	○	○	○	○	○
I can manage the sites based on understanding about conflict of interest caused by social media use	○	○	○	○	○
I would disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media	○	○	○	○	○

I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media	○	○	○	○	○
I can use social media responsibly for public health advocacy while maintaining professionalism and trust.	○	○	○	○	○

Do you have any suggestions for modifying or adding competencies relating to the Practitioner's privacy? Please provide your comments below

Câu trả lời của bạn

V. To what extent do you agree that the following items represent necessary competencies in digital professionalism on social media relating to Information appropriateness for medical students? *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I ensure that all medical information I post on social media is accurate, evidence-based, and contextually appropriate to support public understanding and trust.	○	○	○	○	○
I include sufficient context in my content to help the audience verify claims and understand the implications of the information shared	○	○	○	○	○

I accurately represent my qualifications, experience, or expertise	○	○	○	○	○
I actively monitor medical information on social media	○	○	○	○	○
I endeavor to correct or supplement inaccurate or inappropriate content posted by myself or my colleagues	○	○	○	○	○

Do you have any suggestions for modifying or adding competencies relating to Information appropriateness? Please provide your comments below.

Câu trả lời của bạn

Quay lại Gửi Xóa hết câu trả lời

Appendix 13. Initial List of Competencies on Digital Professionalism on Social Media Extracted from Literature Review

List of literature used

1. Vietnamese regulations on digital competency framework for learners

2. Statement on the professional and ethical use of social media by the World Medical Association

3. The guidelines on "Professionalism in the use of social media" by American Medical Association Council on Ethical and Judicial Affairs

4. The Guide to Medical Professionalism: Recommendations for social media by Canada Federation of Medical Students

5. The guide "Using social media as a medical professional" by the General Medical Council in the United Kingdom

6. The guide to social media and medical professionalism by the Australia Medical Association

7. The proposed guideline on the use of social media for the doctors by the Korean Medical Association

8. The Ethical guidelines on social media by the Health Professions Council of South Africa

9. The guidelines for doctors on social media usage by the Indian National Medical Council

10. The Digital Health Competencies in Medical Education Framework: Digital medical professionalism domain

Competency domain	Item	Reference number
I. Patient confidentiality, privacy and dignity	1. I understand that ethical guidelines and laws related to patient privacy and confidentiality must be maintained online	3, 5, 6, 7, 8, 9, 10
	2. I maintain patient confidentiality and privacy online	3, 4, 5, 6, 7, 8, 9, 10
	3. I refrain from sharing identifiable patient information on social media without explicit consent.	5, 8, 9
	4. I understand that even non-identifiable information, when combined, can lead to breaches of confidentiality.	5, 8, 9
	5. I obtain explicit written consent before sharing patient information online	5, 8, 9
	6. I disclosure patient's information only when it aligns with court order, patients consent and in terms of the law	5, 7, 8
	7. I use social media responsibly for academic exchange or education, ensuring patient information is anonymized and shared ethically	3, 5, 7, 8
	8. I keep patient information confidential remains even after the patient dies.	8
	9. I am aware that there is always a risk that the information online can be disseminated even in "invisible group"	5, 8
	10. I limit the disclosure of patient information to the minimum necessary to keep patient's privacy	3, 5, 7, 8
II. Professional boundary, doctor-patient relationship, public trust	11. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance	4, 7, 8
	12. I am aware of the risk where social and professional boundaries become unclear when using social media	4, 5, 8
	13. I distinguish between personal and professional content online	4, 5, 6, 8, 9, 10

	14. I take steps to separate personal and professional content when necessary	5, 8, 9, 10
	15. I communicate with patients on social media with mutual respect, professionalism, and trust	7, 8, 9
	16. I can communicate with colleagues on social media with mutual respect, professionalism, and trust	7, 8, 9
	17. I avoid abusive, discriminatory, or harmful behavior online	8, 9
	18. I redirect patients seeking medical advice on social media to appropriate in-person care	5, 8, 9
	19. I handle inappropriate contact professionally	8
III. Practitioner's privacy	20. I use privacy settings to safeguard personal information and content	3, 4, 9, 10
	21. I understand that privacy settings on social media are not absolute	3
	22. I understand that content I share online can be published without my intention	3
	23. I understand that content I share online can be permanent even I delete it from my account	3
	24. I separate personal and professional social media accounts to maintain appropriate boundaries	7, 8, 9
	25. I know how to limit the disclosure of my personal information	8, 9
	26. I know how to control the extent of my social media post	8
IV. Health advocacy	27. I understand that the use of social media may cause the conflict of interest	7, 8, 9
	28. I manage the sites based on understanding about conflict of interest caused by social media use	7, 8, 9

	29. I disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media	5, 8, 9
	30. I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media	5, 8, 9
	31. I use social media responsibly for public health advocacy while maintaining professionalism and trust.	6, 9
V. Information appropriateness	32. I ensure that all medical information I post on social media is appropriate, accurate and evidence-based	5, 7
	33. I ensure that all medical information I post on social media is contextually appropriate to support public understanding and trust.	5, 7
	34. I include sufficient context in my content to help the audience verify claims	5
	35. I include sufficient context in my content to help the audience understand the implications of the information shared	5
	36. I do not misrepresent my qualifications, experience, or expertise	5, 7
	37. I actively monitor medical information on social media	7, 8, 9
	38. I endeavor to correct or supplement inaccurate or inappropriate content posted by myself	7, 10
	39. I endeavor to correct or supplement inaccurate or inappropriate content posted by my colleagues	7, 10

Appendix 14: Case Scenario 1: Posting that Breach Patient's Confidentiality and Privacy

1. Learning objectives

- Analyze ethical implications related to patient confidentiality, privacy and dignity in the context of social media

- Explore how social media use can affect public trust in the medical profession.

2. Case scenario

Scenario description	A fourth-year medical student takes a selfie in the hospital's emergency room wearing scrubs and a stethoscope. In the background, there's a patient lying on a stretcher (face visible). The student posts the photo on Instagram in the private post with the caption: "First night shift in my life! Feeling like a real doctor #ERlife #futureMD" The post goes viral among classmates, but soon reaches hospital administrators and the patient's family. The student is called in for a disciplinary meeting
Discussion questions	- What exactly went wrong here? - If you are the student's friend, what would you say? - Could this happen to you?
Lecturer prompts (to facilitate group discussion)	- What do you think the hospital administrators were most worried about? - If the patient's face is only partially visible or not visible, is it still a privacy issue? Why or why not? - Have you ever seen a post like this from another student? What did you think at that time?

3. Activity structure

Time	Step	Instruction
2 mins	Case introduction	Lecturer shows case scenario on a slide and deliver discussion cards to students
5 mins	Group discussion	Students discuss the questions together in small groups
5 mins	Group presentation	Each group presents their key opinions to the class
3 mins	Summary	Lecturer summarizes key learning points (respect, confidentiality and dignity and public trust) Lecturer links understanding about professionalism in previous course and PSM concepts

4. Student orientation

- The lecturer presents the case scenario to the class.

- Students discuss in small groups within 5 minutes.

- Each group is asked to prepare and present a brief summary of their group's discussion and opinion to the class.

5. Role of lecturer

- Pre-discussion briefing:

  - Introduce the case scenario, highlighting key issues such as patient's confidentiality and privacy, professionalism, and patient trust

  - Explain the objective of the activity: to practice identifying professionalism issues and developing responsible social media behaviors as future medical professionals.

- During discussion:

  - After presenting the scenario, let students discuss in small groups.

- Visit each group briefly to guide if needed and remind them to consider professionalism principles.

- Invite each group to present their key points.

- Encourage respectful discussion and different perspectives.

- Post-discussion debriefing:

  - Summarize the main ideas raised.

  - Highlight the importance of maintaining patient's confidentiality and the potential consequences of breaches of patient privacy.

Appendix 15: Case Scenario 2: Medical Student Mispresents their Role on Social Media

1. Learning objectives

- Explain the potential consequences of misrepresentation for public trust and professional accountability

- Apply ethical principles when creating online health-related content in social media

2. Case scenario

Scenario description	A fifth-year medical student runs a popular social media account sharing health and lifestyle tips. In a viral video, she says, "As a doctor, I highly recommend this skincare product for acne—I've seen great results in my patients." Many viewers believe she's a licensed doctor and buy the product. She is actually not yet licensed and didn't mention that the video was a paid promotion.
Discussion questions	- What was problematic about how she presented herself in the video? - How could this affect public trust in medical professionals? - What are ethical ways for medical students to share health information online? - How would you respond if someone mistook you for a licensed doctor on social media?

3. Activity structure

Time	Step	Instruction
2 mins	Case introduction	Lecturer show the scenario on a slide with discussion questions
4 mins	Individual thinking	Students think about the discussion questions

5 mins	Open discussion	Lecturer invites volunteers to share their opinions aloud in front of the class. Lecturer prompts if needed
4 mins	Summary	Lecturer briefly summarizes key learning points from the discussion (importance of accurately represent role in social media, appropriateness of information)

4. Role of lecturer

- Pre-discussion briefing:

  - Introduce the case scenario, highlighting key issues of misrepresentation of role, public trust and information appropriateness

- During discussion:

  - After presenting the scenario, let students think individually

  - Invite volunteer student to share the opinions

  - Encourage respectful discussion and different perspectives.

- Post-discussion debriefing:

  - Summarize the main ideas raised.

  - Highlight the importance of accurate role's representation when sharing health-related information in social media.

Appendix 16: Case Scenario 3: Student See their Friend Posting Unprofessional Images

1. Learning objectives

- Perform constructive conversations with peers to address unprofessional behavior on social media

- Perform self-reflection and verbally describe ways to improve their own online presence to align with professional standards

2. Case scenario

A third-year medical student posts photos on Instagram from a weekend party. In one picture, the student is visibly intoxicated, holding a drink while wearing a club's T-shirt featuring the official logo of Hue UMP. You, a fellow medical student, see this post the next day. The post is public, meaning the public, hospital staff or faculty could potentially see it.

3. Student orientation

- Each group is assigned specific roles as follows:

+ Student 1: Plays the role of the student who saw the unprofessional Instagram post.

+ Student 2: Plays the role of a mentor figure (senior student or academic advisor).

+ Student 3 and 4: Observers

- Operator plays the role of the friend who posted the unprofessional photo.

- Each group has 15 minutes to perform their roles, followed by a 10 minutes debriefing session.

4. Role of lecturer

- Pre-simulation briefing:

  - Introduce the scenario and explain the context: maintaining professionalism not only in the hospital but also online and in private life when representing the medical institution.

- Highlight learning points like public trust, personal responsibility, and managing peer relationships.

- Remind students that the focus is on addressing issues supportively, not in a punitive way.

- Post-simulation debriefing:

  - Lead a discussion based on reflection questions.

  - Encourage self-assessment and peer feedback.

  - Emphasize strategies for preventing similar issues and protecting professional reputation.

5. Debriefing questions using GAS model

- Gather:

  - What was your intention when you approached your friend?

  - What approach did you take and why?

  - What did you notice about how the conversation went?

- Analyze:

  - What were the professional concerns raised by this post?

  - How might the public or university perceive the image with the Hue UMP logo?

  - Did the conversation reflect mutual respect and professionalism?

  - What strategies were used to give feedback constructively?

- Summarize

  - What did you learn from this scenario about managing personal images and institutional identity?

  - What would you do if you encountered a similar situation in real life?

  - How can you apply these insights to your own social media use?

  - What are one or two actions you can take to support professionalism among your peers online?

6. Preparation

Equipment	- Printed version of the Instagram post. - Script or guideline cards for students.
Roles	- Posting student: operator - Student seeing the post: student 1 - Mentor: student 2 - Observers: student 3 and 4

7. Process

Process stage	Role of students and operator
Recognition (1 min)	Narration: student 1 sees the unprofessional Instagram post and feels concerned
Peer conversation (7 minutes)	Narration: student 1 meets operator to talk about the post Student 1: "Hi, I saw your post from the party. I'm a bit worried about how it looks since you're wearing our university's shirt." Posting student (operator): "Oh really? I didn't think it was a big deal—it was just a party with friends. Everyone posts stuff like that" Student 1: "I get that. But since we're medical students, people often see us as representatives of the university and the hospital. A public post like that might give the wrong impression—to patients, faculty, or even future employers" Posting student (operator): "I guess I didn't think it through... but it was just one night. Can't we have a life outside of school?" Student 1: "I'm not saying don't enjoy yourself. It's just about being mindful of what we post publicly—especially when we're linked to the school. Maybe we can talk to our mentor about how to handle situations like this?
Mentorship support (7 minutes)	Narration: Student 1 and operator then go to see the student 2 (mentor)

	Mentor (student 2): “How did you feel when your friend brought this up? Do you think this is harmful to school’s reputation and professional image?”
	Operator: “I did not think too much when posting it, as I think it’s a normal post”
	Mentor (student 2): “As medical students, even our personal conduct online can affect how the public sees us and our institution”
	Operator: “I’ll be more careful about what I post publicly”

Appendix 17: Case Scenario 4: Student Receives the Friend Request on Facebook

1. Learning objectives

- Explore the importance of maintaining professional boundaries between healthcare providers and patients online.

- Perform appropriate and professional communication with patients to maintain boundaries on social media

2. Case scenario

A third-year medical student receives a Facebook friend request from a young, female patient they cared for during their internal medicine rotation. The student feels conflicted—on one hand, he wants to maintain boundaries; on the other, the patient was very kind and they had built rapport. Several days later, the patient approaches the medical student and ask him why he did not accept his friend request.

3. Student orientation

- Each group will be assigned specific roles as follows:

+ Student 1: Plays the role of the medical student who received the friend request.

+ Student 2: Plays the patient who asks about the unaccepted request

+ Student 3 and 4: Observers

- Each group will have 15 minutes to perform their roles, followed by a 10 minutes debriefing session.

4. Role of lecturer

- Pre-simulation briefing:

- Introduce the scenario and the concept of maintaining professional boundaries in social media. Clarify that the goal is to practice respectful, professional communication while preserving rapport and trust.

- Emphasize that students should avoid blaming the patient and instead focus on affirming the patient's value while upholding boundaries.

- Post-simulation debriefing:

  - Lead a discussion based on reflection questions.

  - Encourage self-assessment and peer feedback.

  - Emphasize strategies for preventing similar issues and protecting professional boundaries

5. Debriefing questions using GAS model

- Gather

  - What were your initial feelings when the patient asked you about the friend request?

  - How did you choose your words in the moment?

- Analyze

  - What professional concerns are raised when accepting or rejecting friend requests from patients?

  - How did your response balance empathy with boundary-setting?

  - Were there alternative communication options you could offer the patient?

- Summarize

  - What did you learn about managing professional boundaries in social media?

  - How might you respond differently in a real-life situation?

  - What message does your action send to the patient about trust and professionalism?

6. Preparation

Equipment	- Electronic devices (phone, tablet, ...) to show the friend request in social media - Printed version of the friend request in social media. - Script or guideline cards for students.

Roles	- Student receiving the friend request: student 1 - Patient; student 2 - Observers: student 3 and 4

7. Process

Process Stage	Role of Students and Actions
Recognition (1 minute)	Narration: Student 1 receives a Facebook friend request from a patient they cared for during their internal medicine rotation.
Patient interaction (8 minutes)	Narration: A few days later, the patient meets student (medical student) in the hospital hallway Student 2 (patient): “Hi, I noticed you haven’t accepted my friend request on Facebook. I thought we got along well during my time here. Did I do something wrong?” Student 1: Responds with empathy and professionalism: “I have to follow professional boundaries and avoid connecting with patients on personal social media” Narration: Student 2 may respond emotionally or with curiosity Student 2: “I didn’t realize that. I thought we were friends. Can I message you if I have questions about my condition?” Student 1 should handle it carefully, suggesting alternatives: “If you have medical concerns, it's best to contact your doctor through the hospital channels. That way, you get proper advice and your information stays secure.”

Appendix 18: Learning Material for Class on Professionalism in Social Media

1. Statement on the professional and ethical use of social media by the World Medical Association

1. To maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethical guidelines just as they would in any other context.
2. To ensure that no identifiable patient information is posted in any social media by their physician, by increasing the understanding of privacy provisions of social networking sites and their limitations while considering intended audience and the technical feasibility to restrict access to the content to predefined individuals or groups.
3. To exercise care when using applications that might compromise the security of the data, including when consulting with colleagues.
4. To promote and apply the principles in the WMA Guidelines on Promotional Mass Media Appearances by Physicians to all social media activities by physicians.
5. To encourage physicians to routinely monitor their own Internet presence to ensure that the personal and professional information on their own sites and, to the extent possible, content posted about them by others is accurate and appropriate.
6. To prevent the use of technological devices from diverting our attention during direct consultation with the patient.
7. To provide factual, concise, understandable information, declare any conflicts of interest and adopt a sober tone when discussing professional matters.
8. To avoid inappropriate use of the networks, frivolous, insensitive attitudes or light-hearted opinions on medical matters.
9. To draw the attention of physicians to the fact that social media content posted by health professionals may contribute to the public perception of the profession and should be done in accordance with the principles in the WMA Declaration of Geneva and the International Code of Medical Ethics.
10. To include education on the use of social media in medical curricula and continuing medical education.
11. To behave in the media and on social networks with the same scientific rigor and the same approach as in a consultation and show the same respect to patients and colleagues.

12. To create mechanisms for accountability in professional settings when inappropriate behavior on social media is observed and reported.
13. To promote health literacy and knowledge among populations and with individual patients by using objective and evidence-based messages in accordance with the principles in the WMA Declaration of Geneva, the WMA International Code of Medical Ethics, and the WMA Statement on Healthcare Information for All.
14. To combat misinformation, disinformation, and the promotion of pseudoscience and pseudo therapy on social media, all of which can result in negative health outcomes for patients and communities.
15. To counsel fellow physicians who engage in misinformation, disinformation, or violation of patient trust on social media and/or report to relevant authorities for ongoing deliberate acts of the same.
16. To raise awareness among physicians and medical students about the possibility that information shared on social media could be used in misleading ways by individuals or companies.

2. Competency list on professionalism in social media

Domain	Competency
I. Patient confidentiality, privacy and dignity	1. I maintain ethical guidelines and laws related to patient privacy and confidentiality online.
	2. I share identifiable patient information on social media only when I obtain explicit written consent from patient
	3. I disclosure patient's information to the minimum necessary like when it aligns with court order or when patients consent
	4. I use social media responsibly for academic exchange or education, ensuring patient information is anonymized and shared ethically
	5. I keep patient information confidential remains even after the patient dies.
	6. I am aware that there is always a risk that the information online can be disseminated even in “invisible group”
II. Professional boundary, doctor-patient relationship, public trust	7. I maintain appropriate boundaries of the patient-physician relationship in accordance with professional ethics guidance
	8. I take steps to separate personal and professional content when necessary
	9. I communicate with patients on social media with mutual respect, professionalism, and trust
	10. I can communicate with colleagues on social media with mutual respect, professionalism, and trust
	11. I avoid abusive, discriminatory, or harmful behavior online
	12. I handle inappropriate contact professionally
III. Practitioner’s privacy	13. I use privacy settings to protect my personal information, while recognizing their limitations and the risk of unintended content disclosure
	14. I separate personal and professional social media accounts to maintain appropriate boundaries

	15. I know how to manage visibility and disclosure of my personal information and social media contents
IV. Health advocacy	16. I disclose any personal or financial interests when promoting or endorsing products, services, or healthcare practices on social media 17. I avoid unfair promotion of medical services, practitioners, or products for financial or personal gain on social media 18. I use social media responsibly for public health advocacy while maintaining professionalism and trust.
V. Information appropriateness	19. I ensure that all medical information I post on social media is accurate, evidence-based and contextually appropriate to support public understanding and trust. 20. I include sufficient context in my content to help the audience verify claims and understand the implications 21. I accurately represent my qualifications, experience, and expertise 22. I endeavor to correct or supplement inaccurate or inappropriate content posted by myself 23. I endeavor to correct or supplement inaccurate or inappropriate content posted by my colleagues

3. Example Scenarios of Professionalism and Social Media Use

A. A medical student creates a social media website to share and discuss both pre-clinical and clinical medical knowledge (e.g., "Cardiology Interest Group" on Facebook).

B. A medical student has a blog on which she posts reflections about both personal and professional issues. She has just finished her clinical skills course. A patient, whom she met during the course, comments on the student's blog and discloses protected health information with the expectation that the student will continue the discussion.

C. A medical student is shadowing an Obstetric physician. She posts (on her Facebook page) a picture of a baby whose delivery she observed, expressing joy, best wishes to the family, and congratulating everyone involved in this excellent patient outcome.

4. Relevant Guidelines for Example Scenarios

A. This is a learning community environment, in which medical knowledge is exchanged, shared and discussed. While the goal is laudable, there are still risks. A disclaimer is necessary, since postings may be incorrect, taken out of context, or improperly referenced. The moderator should take precautions to prevent the posting of information or photographs that are potentially identifiable to a particular patient. Best practices: Protect patient privacy; identify yourself; use a disclaimer.

B. Social media discussion with a patient should not directly address health concerns of individual patients. Best practices: Protect patient privacy.

C. Without written patient/representative consent, this is a clear violation of patient confidentiality, even if the patient is not named. Best practices: Protect patient privacy.

Appendix 19: The individual readiness assurance test and group readiness assurance test questions

1. A patient you met during your clinical skills course sends you a Facebook friend request. What is the most appropriate action?
A. Accept and limit the interactions to polite comments
B. Accept but avoid discussing medical issues
C. Ignore the request and avoid mentioning it
D. Decline and politely explain why through appropriate channels

2. Which statement best reflects a professional mindset in social media?

A. My account is private, so I can post anything I want

B. If it's funny and doesn't name a patient, it's probably fine

C. Even if my account is personal, I represent my future profession

D. I delete posts after 2 hours, so no harm done

3. Why is it risky to post a patient-related photo even if no names are mentioned?

A. It may be copied by other users without consent

B. It may be associated with your institution's official account

C. The context might still make the patient identifiable

D. It may result in a temporary social media ban

4. You see a viral health tip on TikTok shared by an influencer with no medical background. As a medical student, you want to correct it. What is the most professional approach?

A. Post a funny video mocking the misinformation

B. Ignore it—it's not your responsibility

C. Share a respectful, evidence-based comment or post with citations

D. Report the video and ask others to do the same

5. A medical student frequently posts Instagram stories about their daily life, including their apartment location, gym routine, and weekend activities. Their account is public and followed by patients from previous rotations. What is the main professionalism concern here?

A. Oversharing could damage their personal brand

B. Public content might lead to unwanted attention or boundary violations

C. It may make them appear too casual for the medical profession

D. Patients might think they are not dedicated enough

Answers:

1. D

2. C

3. C

4. C

5. B

Appendix 20: Satisfaction survey (Level 1 of Kirkpatrick Model)

Section 1: Please indicate your level of agreement with the following statements

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. The objectives of the class were clearly stated.					
2. The content was relevant to my professional development.					
3. I gained new insights about professionalism in social media.					
4. The class was engaging and interactive.					
5. The learning activities (e.g., case discussions, team-based tasks) helped me understand the topic.					
6. The class encouraged active participation.					
7. The lecturer communicated clearly and effectively.					
8. The lecturer fostered an open and respectful learning environment.					
9. Overall, I am satisfied with the quality of the class.					
10. I would recommend this class to other students.					

Section 2: Please answer these following questions briefly

1. What aspects of the session did you find most useful or meaningful?

.....
.....

2. What aspects of the session could be improved, and how?

.....
.....

3. Were there any moments during the session that felt unclear or confusing?

.....
.....

4. Do you have any additional comments or suggestions for future sessions?

.....
.....

Appendix 21: Pre-test and post-test (Level 2 of Kirkpatrick Model)

Select the response that best represents how you would act in these following situations, and briefly explain your reasoning.

1. You're considering creating a TikTok video about "Five foods to boost immunity". You gathered tips from health blogs and summarize them using fun visuals and voiceover. You've seen other medical students and influencers doing similar videos. You're not licensed yet. What would you most likely do?

A. Post the video without mentioning that you are a medical student

B. Post the video with a note that you're a medical student, not a licensed doctor yet

C. Avoid posting any health-related content in social media

D. Copy similar content from other creators without citing or checking the sources

2. A friend tags you on Facebook in a casual party photo. You're holding a drink and wearing your white coat after coming straight from school. What would you most likely do?

A. Leave the photo up because it's your personal life

B. Remove your name tag but don't mention it to anyone

C. Ask your friend to remove the photo and explain your concern

D. Report the post to the Facebook

3. You took a group selfie during your clinical rotation and are about to upload it to Instagram. The hospital name and a whiteboard listing patients' first names are visible in the background. What would you most likely do?

A. Post the photo immediately – it's harmless and only shows first names

B. Crop or blur out the background before posting

C. Ask others if they think it's appropriate to post

D. Decide not to post the photo at all

4. You recently assisted with wound care for a young adult patient during your surgical rotation. A week after discharge, you receive a direct message (DM) on Instagram from the patient: “Hi! Just wanted to say thanks again for helping me. The wound is healing well. Hope to stay in touch!” You haven’t shared your account with this patient, but your profile is public, and it includes some casual photos from school and your personal life. What would you most likely do?

A. Reply with a friendly thank you and keep chatting if the patient initiates further conversation

B. Thank the patient briefly, then block the account to prevent future interaction

C. Ignore the message entirely—responding could lead to boundary issues

D. Politely respond once and then adjust your account to private to prevent further contact

Answers

1. B

2. C

3. D

4. D

Appendix 22: Survey and reflective essay (Level 3 of Kirkpatrick Model)

1. Have you changed how you engage with social media since completing the class?

A. Significant negative change

B. Slight negative change

C. No significant change

D. Moderate positive change

E. Significant positive change

2. To what extent do you now feel more confident in maintaining appropriate professional boundaries on social media?

A. Much less confident

B. Less confident

C. No change

D. More confident

E. Much more confident

3. Have you made any changes to your privacy settings or professional online presence?

Please describe any changes you have made:

.....

4. Since completing the class, how have you applied the principles of professionalism in your day-to-day social media interactions, both personally and professionally? Please describe specific examples of how you have changed your behavior on social media as a result of what you learned in the class.

.....

5. Since completing the class, have you proactively shared or discussed the concepts of professionalism in social media with others (e.g., peers, junior students, or colleagues)? Please describe any instances where you took the initiative to inform or guide others about professionalism in social media regarding online professional boundaries based on what you learned in the class.

.....

Appendix 23: Rubric for peer evaluation

Name: Date:

1=Weak 2=Below 3=Average 4=Above Average 5=Superior

	Attribute	**1**	**2**	**3**	**4**	**5**
Diligent						
Proactive						
Constructive opinion to team						
Constructive feedback to team						

Abstract in Korean

의대생을 위한 소셜 미디어에서의 전문직업성 수업 개발

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배경: 베트남의 의학교육은 세계적 표준에 부합하기 위해 발전하고 있으며, 전문직업성은 의학교육 초기부터 강조되고 있다. 그러나 소셜미디어 사용의 급격한 증가는 요즘 전문직업성에 대한 새로운 도전이다. 온라인에서의 부적절한 행동은 의대생들의 미래 경력에 부정적인 영향을 미칠 수 있으며, 환자의 기밀을 침해하거나, 전문적 이미지와 대중의 신뢰를 훼손할 수 있다. 이러한 우려에도 불구하고, 현재 베트남 전역과 후에 의약대학교(Hue University of Medicine and Pharmacy, Hue UMP)를 포함한 대부분의 의과대학에서는 소셜미디어에서의 전문성(Professionalism in social media, PSM)에 대한 공식적인 지침이나 교육 기회가 없다. 이는 의학교육에서의 중요한 공백을 보여주며, 본 연구는 이 공백을 해소하기 위해 의대생이 습득해야 할 PSM 역량 목록을 도출하고, 이를 바탕으로 PSM 수업을 설계하는 것을 목표로 한다.

그러나 오늘날 소셜 미디어 사용이 크게 증가하면서 전문성에 새로운 과제가 제기되고 있습니다. 부적절한 온라인 행동은 학생들의 미래 경력에 부정적인 영향을

미칠 수 있고, 환자의 비밀이 침해될 수 있으며, 전문가적 이미지와 대중의 신뢰가 손상될 수 있습니다.

방법: 본 연구는 수정된 델파이(Delphi) 조사로 의대생에게 필요한 PSM 역량 목록을 전문가 합의로 도출하였다. Hue UMP 의 전문가 39 명에게 델파이 응답을 요청하였다. 소셜미디어와 관련된 전문직업성에 대한 역량의 중요성을 5 점 척도로 응답하도록 하였다. 응답한 점수를 수렴도, 합의도, 내용타당도를 계산하였다. 최종 도출된 역량을 바탕으로 ADDIE 모형(분석, 설계, 개발, 실행, 평가)을 이용하여 Hue UMP 3 학년 의대생을 대상으로 하는 PSM 수업을 개발하였다. 이 논문에서는 Hue UMP 의 의학교육 맥락에 맞추어 주로 처음 세 단계를 집중적으로 개발하였고, 실행과 평가의 계획을 기술하였다.

결과: 문헌 고찰을 통해 다섯 개 영역에서 총 39 개의 PSM 역량이 도출되었다. 두 번의 델파이 조사를 거쳐, 역량 목록은 최종적으로 다섯 개 영역의 23 개 항목으로 확정되었다. 다섯 개 영역은 환자 기밀성, 사생활 보호 및 존엄성(6 항목), 전문적 경계, 의사-환자 관계 및 공공 신뢰 (6 항목), 의료인의 사생활 보호(3 항목), 건강 옹호(3 항목), 정보의 적절성(5 항목) 이다. PSM 수업은 총 100 분으로 구성하였고, 대상 학습자는 Hue UMP 의 3 학년 의대생이다. 설계 및 개발 단계에서는 구체적인 목표, 학습 목표, 수업 활동, 사례 시나리오 등이 포함된 수업 구조를 개발하였다. 환자 기밀성 침해, 역할 오해, 동료의 비전문적 게시물, 환자의 친구 요청에 대한 네 가지 사례 시나리오를 개발하였다 평가 및 검증 방법은 커크패트릭 (Kirkpatrick) 모델을 기반으로 하여, 만족도 조사(level 1), 사전-사후 평가와 짧은 설문조사(level 2), 그리고 자아성찰지(level 3)로 구성되었다.

결론: 본 논문은 Hue UMP 의 전문직업성 교육 맥락에 초점을 맞추어 PSM 교육을 의학교육 교육과정에 통합하는 중요성을 탐색하고, 해당 주제에 대한 수업을

개발하기 위한 역량 체계를 제시하였다. PSM 교육을 의학교육 과정에 통합함으로써, 의료기관은 임상 역량뿐만 아니라 윤리의식과 온라인 환경에서의 사회적 책임을 갖춘 미래 의사를 양성할 수 있을 것이다.

주제어: 전문직업성, 소셜 미디어, 델파이 기법, 의대생, 의학교육**,** 베트남