

E-Professionalism as a Professional Identity in the Digital Era of Medical Education

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ABSTRACT

Purpose: *The advanced development in the field of digital-related technology can cause a lot of problems in practicing professional and health-related education. Professionalism using digital-related Technologies includes information using online platforms that reflect the professional identity and values. The study places much emphasis on discussing the appropriate use of media in the Social Platform and characterizes professionalism with an emphasis on medical education.*

Methodology: *Following the framework of the Scoping Review by Arksey and O'Malley, we have analyzed and searched for PubMed, EMBASE, EBSCO, SCOPUS, Web of Science & and Google Scholar Indexed Journals from July 2003 to July 2023. Results were interpreted by PRISMA Scoping Review Guidelines. ABCD Analysis developed by Aithal P. S. also followed. Developed a new Model related to "Thematic representation of Attitude stages in E-Professionalism leading to Behaviour".*

Findings: *Professionalism should be included as an important area of the curriculum in teaching, learning, and evaluating. Curricula should focus on the appropriate use of media in the social platform by including the core elements of professionalism in the medical arena.*

Originality/Value: *The Scholarly Paper submitted is original work. All the sources from which ideas and extracts were taken have been duly acknowledged.*

Paper Type: *Exploratory Research*

Keywords: E-professionalism, Digital Era, ABCD Analysis, ABCD listing

1. INTRODUCTION :

The use of media in social platform networking has emerged in great numbers among medical personnel, educators, and researchers (Guraya et al. (2016). [1]). Information technology is valuable and meaningful only when it is put into practice and the outcomes related to social media are variable. It is considered the amalgamation of virtual spaces. The virtual environment created by social media provides a new way of communication, connecting participants uniquely with the production of hybrid knowledge (Kitson et al. (2013). [2]). According to the Royal College of Physicians, professionalism is a set of values, attitudes, and relations that underpins the trust of society and is considered a core competency. E professionalism refers to the behaviour in the virtual environment (Makyan et al. (2019). [3]). Challenges that can occur as a lapse in professionalism by using electronic media are beginning to surface, like unprofessional publications in blogs, and amoral publication of patient information knowing autonomy (Frenk et al. (2010). [4]), (Flickinger et al. (2015). [5]). According to Spector et al. [6] the educator is liable to intimate students and other faculty about digital professionalism, awareness, and policies create case-based scenarios, remedial measures, and best practices, and also stay in line with recent technologies (Marelic et al. (2021). [7]). It is highly important to know the role of medical ethics in online communications, personal internet usage, and social networking (Imran et al. (2021). [8]). Due to the COVID-19 disruption, a lot of changes have been observed in all fields, including medical science. So, it is necessary to concentrate on professionalism in a virtual environment due to

the change in the educational environment and the shifting from a traditional curriculum to a competency-based medical curriculum (Dawkins et al. (2017). [9]). It is hard to define professionalism in an online environment because this involves information in all forms that will represent the identity that outlooks the behaviour (Mohammadi et al. (2017). [10]). The Carnegie Foundation released a report on the call for reform of medical schools which asserted that the emergence of professional identity, should be the major focus of education in the Medical Field. Professionalism in the digital platform should be included in the educational system to develop the value of a professional (Graneheim et al. (2004). [11]). A gap in the literature exists about how digital professionalism is put into practice by undergraduate students. Due to the COVID-19 disruption of the normal teaching-learning process, it is necessary to venture into the new possibilities of social media. From this viewpoint, it is essential to reconsider the guidelines regulating online behaviour and to reconsider professionalism. The thrust areas to be considered and compared will be the changing nature and the paradigms that challenge the value of medical professionalism in a virtual environment. The next area of concern will be the advantages of social media and their potential to indicate new modes of professionalism and suggestions directed toward future debate to lead the research forward.

2. OBJECTIVES :

- (1) To create E-Professionalism in Medical Education.
- (2) To evaluate the role of Social Media Management in E-Professionalism.
- (3) To analyze the areas of inclusion of E-Professionalism in Medical Education using ABCD listing.
- (4) To apply E-Professionalism in Medical Education.

3. REVIEW OF LITERATURE :

Research regarding e-professionalism has led to the appearance of the following areas challenges of E-professionalism in the digital age, professionalism and medical education, and reflections on e-professionalism. Articles regarding the importance of social media as a new paradigm in medical education are listed in Table 1.

Table 1: Importance of E-Professionalism in social media as a new paradigm in medical education

References	Results
Hazzom et. al. (2018). [12]	Quality of health care with professionalism has increased with the introduction of information technology, improved models of disease management, and improved quality of health records. Doctor-patient relationships have been reengineered in the digital world. Social media tools like weblogs, instant messaging, and videoconferencing had a positive focus in the healthcare industry. Online appointments were easy and facilitated effective direct communication.
Kircaburun et al. (2020). [13]	A study explored the strategy of using WhatsApp for communication within the Department of Orthopaedics. This created greater awareness of information about patients and also effective handover.
Kumar et al. (2020). [14]	In a review article, we noticed that Instagram and WhatsApp can be used as educational tools and learning. Through WhatsApp, sharing of information and learning materials can be done to enrich knowledge. Instagram was used as an educational tool and also for support and motivation by including fitness programs. This app was very useful for departments like dermatology, radiology, etc.
Dsouza et al. (2017). [15]	According to the study, social media are a valuable tool for designing therapeutic interventions to reach many in a short time by conducting online sessions, face-to-face therapy, and also for audio and video messages.
Langenfeld et al. (2016). [16]	Studies conducted in the UK show that students of medicine use Facebook informally as a support system and it is used for collaborative learning, for preparation of assessments, assessments assessment of educational materials, and to enhance learning efficiency. According to

	the study, innovations using social media will provide learner-centered learning approaches by creating a personal learning environment.
Kobale et al. (2016). [17]	Studies conducted among veterinary students showed their interest in Facebook for creating and presenting educational programs and also in creating curricula with a high level of digital professionalism.
Puliak et al. (2007). [18]	Reflected that social media act as experimental laboratories and this should be part of designing the curriculum so that the students can be prepared for appropriate use of social media to assist in creating reflective practice to refine its medicolegal aspect.
Kenny et al. (2016). [19]	Surveys conducted among geriatric pharmacotherapy faculty showed that they use Facebook as a platform for teaching to encourage discussions between students and senior citizens who gave consent to participate. This has led to a broader understanding among students regarding the subject.

E-professionalism is much above the routine online communication rule. It represents the personal attitude and identity that determine the codes and conduct of a relevant profession. The results and implications of applying technology in the medical field are depicted. Evidence emphasizing the changing nature of values of professionalism in environments is summarized in Table 2.

Table 2: Changing nature of professionalism in the Digital Era

References	Results and suggestions
Barlow et al. (2015). [20]	Various grey areas are created due to the rise in the use of social media, and interaction between professionals and coworkers has changed enormously. The following aspects like privacy and rights are yet to be addressed and require regulatory solid guidelines.
Bosslet et al. (2011). [21]	The intellectual property of professionals needs to be protected to avoid misuse. Lawsuits can increase while trying to establish a competent professional reputation.
Brown et al. (2014). [22]	While considering the amount of information to be shared on social media, the online disinhibition effect is to be considered. This effect suggests that both professionals and non-professionals are susceptible to distribution by separating online behavior from self.
Kitsis et al. (2016). [23]	A new generation of medical students join medical schools with digital footprints
Boateng et al. (2018). [24]	In this study, it was found that undergraduate students have unprofessional photos uploaded to social media, which can pose a threat to privacy and confidentiality among patients and colleagues.
Setia et al. (2017). [25]	Communication of patient details will virtually help in clinical care and productivity but always raises concerns about confidentiality and security issues. Regulations specify encrypting sensitive data so that patients are not put at risk. Online fax services are considered to bridge the gap between secure data exchange created by email.
Morgado et al. (2018). [26]	Explored the Facebook pages of students and residents and found that half of the participants had unprofessional content posted.
Karveleas et al. (2021). [27]	In this focus group study, students were concerned about issues related to online identity conflicts and desired appropriate content to raise awareness.
Suner et al. (2019). [28]	In their study, they alerted regarding the ethical issues that will arise from doctors reading blogs written by critically ill patients or with life illnesses. Prior permission has to be obtained from concerned individuals and at the same time, awareness is created among patients about the risks and liabilities involved in sharing online content.
White et al. (2013). [29]	In this study, 68% responded that online professionalism is essential and students should be trained on safety measures. Standard precautions have to be established by institutions to address this issue.

Brown et al. (2014). [30]	Three domains of unprofessionalism that can occur in a virtual environment are decreased self-improvement, poor motivation, and lack of reliability and responsibility.
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4. METHODOLOGY:

In this study, a concept of professionalism was selected. This was integrated with the virtual world and professionalism was researched in the scoping review. Various search engines were used in this theoretical paper. The databases searched include Medline, PubMed, EBSCO and Ovid, Scopus, Google Scholar, and Web of Science. Articles were reviewed from 2008-2021. Keywords used in the research were (electronic or online or technology) (professionalism or profession) and (medical education or medicine). Articles included concept analysis, meta-analysis, a letter to the editor, notes from the association, and all articles related to professionalism. Articles where full text was not available, and lacked clarity on methods and discussion were excluded from the study (Figure 1). The framework of scoping review developed by Arksey and O'Malley was followed, which consisted of 5 steps: (a) The research question has to be identified, (b) Relevant studies to be identified, (c) Study selection, (d) Charting the data, and (e) Collating, summarizing and reporting the results (Arksey et al. (2005). [31]).

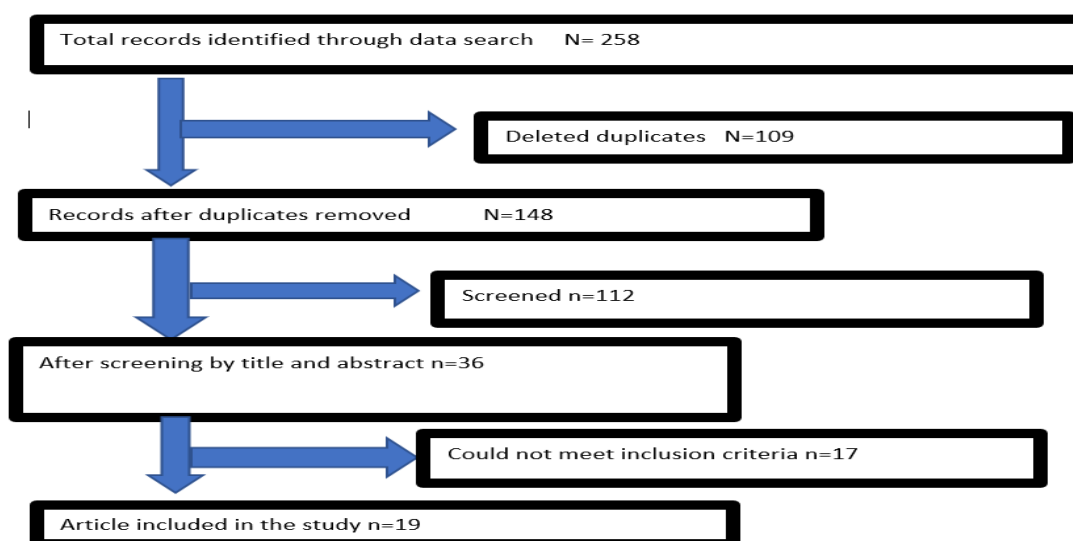


Fig. 1: Prisma Flow Diagram

Reviewed 258 records comprising PubMed, EMBASE, EBSCO, SCOPUS, Web of Science & and Google Scholar Indexed Journals. Out of this, 109 duplicates were deleted and left with 148 records. Out of these 148 records, after the screening, 112 records were deleted and finally, there are 36 records. Out of these 36 records, 17 records couldn't meet the inclusion criteria. Finally, 19 records are included in this study.

Table 3: Representation of Final Inclusion of Articles Based on Evidence

Type of Study	Best Quality Evidence	Second Tier Evidence
Systematic Review	10	9
Viewpoint	3	10
Focus Groups	2	1
Models used for the study related to the area of focus	3	0
Total	19	20

For the Systematic Review, out of these 19 records, 10 were included for the Best Quality Evidence and the remaining 9 have been included for the Second Tier Evidence. Out of the viewpoints taken from Medical Students, Medical Practitioners, and medical Internship Students, 3 viewpoints were included in the best quality evidence, and the remaining 10 viewpoints are included in the Second Tier Evidence. Medical Students and medical Practitioners are the focus Groups identified for the Best Quality

Evidence. Medical Internship Students are the Focus Group identified for the Second Tier of Evidence. For the Best Quality Evidence, 3 Models have been identified. They are the Framework of Scoping Review Model Developed by (Arksey et al. (2005)) [31], the ABCD analysis Model developed by P. S. Aithal et al. (2016) [32], and the Thematic Representation of Attitude Stage Model.

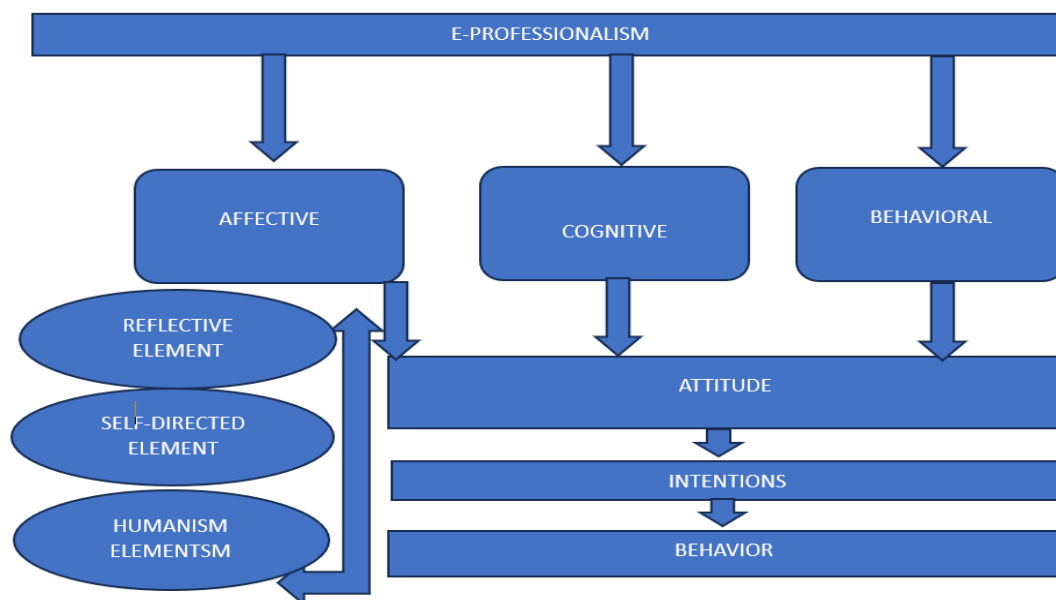


Fig. 2: Thematic Representation of Attitude Stages in Professionalism Leading to the Behavior

In Qualitative Analysis as represented in Figure 2, themes with their sub-themes are identified. The three sub-themes are the Component that takes care of the Affective Side t, the Component that takes care of the Cognitive Side, and the Component that takes care of the Behavioural Side. In the Affective Component again, three sub-themes are identified: (a) Reflective Element, (b) Self-Directed Element, (c) Humanism Element. Affective, Cognitive, and Behavioural Components of E-Professionalism lead to the development of attitudes, which in turn, lead to intentions and finally lead to the behavior of the respondents.

As per the Focus Group Interview, most respondents have given positive feedback towards E-Professionalism by giving the following suggestions; Freedom of Speech should be used wisely, Adding of the Patient list and details to be avoided in social media, Opportunities given to medical students to be respected, Patients well-being has to be given utmost importance, Breaching others privacy to be avoided.

5. RESULT ANALYSIS :

In this review, an attempt was made to examine the evidence related to professionalism in medical sciences. According to the results of the study, e professionalism comprises various ICT tools and strategies to promote professionalism in medical education at the same time maintaining ethical principles. Considering the present scenario of the Covid 19 and the change in the teaching-learning process, the frequency of use of social media has increased enormously in the lives of learners, which demands the need for incorporating professionalism into teaching and evaluation.

Unethical practices can be prevented in medical practice by developing mutual trust between patient and doctor (Walton et al. (2015). [33]). This requires establishing a proactive curriculum for the proper use of social media (Dobson et al. (2019). [34]). Considered awareness as a warrant for professionalism in the virtual platform (Gupta et al. (2015). [35]). Designing a curriculum that addresses professional and unprofessional behaviour with real-life examples provides learners with an opportunity to scrutinize the content that is shared online (Hseih et al. (2019). [36]).

The present study highlights that curricular inclusion of e-professionalism can determine the communication and interaction pattern among students to create a professional. Learners have to be made aware that the cyber world is also governed by the law of the real world. As a good leader who

has a responsibility to his clients, a good professional also has an ethical responsibility to understand the demarcating line between the content shared online and its effects on society social media should be considered a tool with high ethical standards and not as a platform for communicating openly. Proper identification and utilization of technology is an integral part of medical education, like communication skills abided by the guidelines, following the principles of security, and using updated and viable software. Another side of the coin can identify unprofessional behaviors, violation of confidentiality and privacy, and breach of ethical principles (Knot et al. (2080). [37]). Ollier et al. identified four approaches that will be adopted in the virtual sharing of content. An open strategy is when authenticity and transparency are maintained. Audience strategy is when 2 different accounts are maintained for personal and professional life. Content strategy is when content is shared with careful thought without affecting a professional reputation. Custom strategy is where separate personal and professional lists and contents are shared accordingly. The last two strategies can be adopted in medical practice to protect the professional reputation and be appropriate to the context (Sadd et al. (2019). [38]), (West et al. (2018) [39]).

6. ABCD ANALYSIS :

ABCD analyses the various factors/ determinants. ABCD analysis is based on 4 important contents (1) Advantages, (2) Benefits, (3). Constraints, (4) Disadvantages developed by Aithal P. S. et al. (2015). [40]. In this section, we have listed the advantages, benefits, constraints, and disadvantages of the pedagogy of E-Professionalism from the Students' point of view, Teachers' Point of View, HEI's Point of View, and Universities' Point of view. ABCD Analysis takes into consideration all determinants (Aithal et al. (2016) [41]).

6. 1 ABCD Listing: Students' Point of view:

Key issues identified in ABCD Analysis. (Aithal et al. (2017) [42]) from the student's point of view including Academic-based Learning and Medical Case History Learning. The advantages are it helps students to discuss key issues and also helps students to learn based on the Case History. The benefits are it increases overall understanding of concepts and overall development in Practical Based Learning. The major constraints are it is not well implemented in Medical Colleges and no central Database Administration in Medical Colleges which facilitates E-Professionalism. The major disadvantages are there are no grievance redressal mechanisms to settle disputes between the various departments in Medical Colleges and much emphasis is not given to Medical Case History based Learning.

Table 4: ABCD listing from a student's perspective

S. No.	Key Issues	Advantages	Benefits	Constraints	Disadvantages
1	Learning from Academics	Helps students to discuss key issues related to the subjects in the area of Education in the Medical Field	Increase overall understanding of concepts pertinent to the Subjects	Not well implemented in Medical Colleges	No proper grievance redressal mechanisms to settle disputes that arise in E-Professionalism related to Inter-disciplinary, Clinical, and Clinical subjects
2	Medical Case History-based Learning	Helps students to learn based on the Case History	Overall development in practical-based Based Learning	No Central Database Learning in Medical Colleges and Hospitals	Much emphasis is not given to Medical Case History Learning

6.2 ABCD Listing -Teacher's Point of view:

Key issues identified in ABCD analysis from a teacher's point of view INCLUDE Teacher-Student Interaction, Practical Knowledge, and case-based Learning. In ABCD Analysis issue areas are identified (Aithal et al. (2015) [43]). The advantages are it facilitates interaction between teachers and students, gives more emphasis to practical-based learning, and facilitates Case-based learning. Benefits are both teachers and students mutually benefit, facilitating Skill-based and Case-based learning. Constraints are there is no proper platform used in Medical Colleges for E-professionalism to facilitate Teacher-Student Interaction, and less emphasis is given to practical-based learning in the Academic Curriculum. Disadvantages are conflicts in delivering academic reports, and Skill and case-based learning are not given much emphasis in Medical Colleges.

Table 5: ABCD listing teacher's point of view

S. No.	Key Issues	Advantages	Benefits	Constraints	Disadvantages
1	Teacher-Student Interaction	Facilitates more interaction between teachers and students	Both teachers and students mutually benefit.	No proper platform for E-Professionalism to facilitate Teacher-Student interaction	More freedom related to E-Professionalism leads to generating conflicts in delivering academic reports.
2	Practical Knowledge	E-professionalism facilitates practical-based learning, which is more helpful for	Facilitates Skill-based Learning	Practical-based learning is given less emphasis on the academic curriculum.	E-Professionalism related to imparting skill-based learning is not emphasized in Medical Colleges.
3	Case-based Learning	E-Professionalism facilitates case-based Learning, which is more helpful for teachers.	Facilitates Case-Based Learning	Case-based learning is given less emphasis on the academic curriculum.	Significance related to E-Professionalism did not emphasize Case-based Learning

6.3 ABCD Listing - HEI'S Point of view:

Key issues identified from the head of educational institutions' point of view include Administration and infrastructure. Elemental Constitutes are identified. (Aithal et al. (2017) [44]). Advantages are the sharing of information between Clinical and clinical Departments the infrastructure of all Medical Colleges supports E-Professionalism. The benefits are facilitating information sharing and the flow of information in medical colleges. (Aithal et al. (2016) [45]). The major constraints are in the present infrastructure of Medical Colleges, where sharing of information pertinent to the different departments is practically not so feasible. Factors that affect are identified. (Aithal et al. (2018) [46]). The major disadvantages are there are no well-structured links between the Clinical and Clinical Departments that facilitate the sharing of information, and there is a lack of clarity pertinent to the sharing of infrastructure requirements between Clinical and Clinical Departments.

Table 6: ABCD Listing in HEI'S focus of view

S. No.	Key Issues	Advantages	Benefits	Constraints	Disadvantages
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1	Administration	More linking in terms of sharing subject knowledge and practical-based approaches through E-Professionalism between the Clinical and Clinical Departments	Facilitates sharing of information between Clinical & and para-clinical departments	No proper sharing of information related to subject knowledge between clinical and para-clinical departments	For Implementing E-Professionalism in Medical Colleges there are no well-structured links between the Clinical and para clinical subjects.
2	Infrastructure	The basic infrastructure of all medical colleges supports E-Professionalism	Facilitates interaction between all the departments in Medical Colleges	No Proper interaction between Clinical and Para Clinical Departments	Lack of Clarity pertinent to Infrastructure requirements between Clinical & Para para-clinical departments
3	University Support	Facilitates Positive interaction between Medical Colleges and Universities	More Collaboration between Medical Colleges & and Universities	A lack of clarity in interaction exists between some Universities and Medical Universities	E-professionalism is not given much emphasis as per the University Standards.

7. INCLUSION OF E-PROFESSIONALISM CONTENTS FROM THE VUSM MODEL AND UWSOM MODEL:

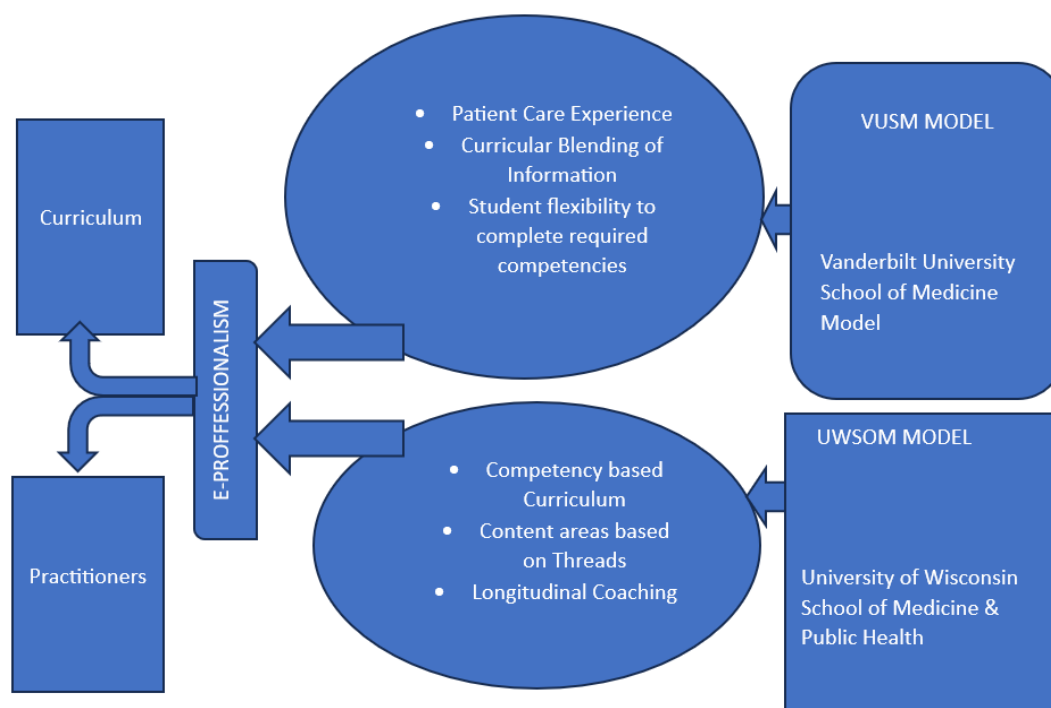


Fig. 3: Inclusion of E-Professionalism contents from the VUSM Model (Goldstein et al. (2006). [47]) and UWSOM Model (Hickson et al., (2007). [48])

As per the Scoping review on E-Professionalism, contents included E-Professionalism from the VUSM Model (Vanderbilt University School of Medicine Model) (Goldstein et al., (2006). [47]) and UWSOM Model (Hickson et al., (2007). [48]) are as follows: (a) Patient care Experience, (b) Curricular Blending of Information Technology, (c) Student Flexibility to complete required skills, (d) Inclusion of Competency-based Curriculum, and (e) Inclusion of content areas based on threads like the inclusion of Ethics related subjects in the curriculum, Prescription of Medicines based on the evidence, the inclusion of Technologies facilitating information related to health, Inclusion of Communication Skills and Inter-Personal Skills, the inclusion of areas which give more care to the patients, and Inclusion of Ethics & Professionalism contents in the Medical curricula. After the inclusion of all these contents in E-Professionalism, it has to be included in the curricula, and much emphasis has to be given by Practitioners to incorporate E-Professionalism.

8. COMPETENCY-BASED & CONTENT AREA ANALYSIS :

Competency-based and Content area analysis is also done from the various Scoping Reviews of Literature to incorporate E-Professionalism in Medical Education.

8.1 Competency-Based Curriculum to Include E-Professionalism:

In a Curriculum based on Competency, the following areas have to be included; Professionalism in the E-Platform a. Practicing based on Practical and theoretical Knowledge (Maria et al. (2021), [49]), Caring the Patients (White J, et al. (2013), [50]), Learning based on Practice (Brown J, et al. (2014), [51]), Practicing based on the Innovative Technical Systems (Kitsis, E. A., et al. (2016), [52]), (Boateng, G. O., et al. (2018) [53], Professionalism and Integrated Communications (Setia M. (2017), [54]).

8.2 Areas of Topics for Inclusion in E-Professionalism:

Ten Topics can be included in the Professionalism based on E-Platform: (a) Ethical Practices based on the respective profession (Morgado FFR, et al. (2018), [55]), (b) Prescription of Medicine based on the Evidence (Hinkin, T. R. (1995). [56], (c) Information Technology supporting Health Care (Karveleas I, et al. (2021) [57]), (d) Integrated Knowledge (Suner A, et al. (2019). [58]), (e) Case-based on Team with specific reference to Health (Khatoon B, et al. (2019). [59]), (f) Caring the Patients (Andreassen Andreassen, et al. (2017), [60], (g) Professional overall Development (DeJong, S. M., et al. (2012). [61]), (h) Learning based on a life-long Perspective (Zu Panic M, et al. (2019). [62]), (i) Overall Health of the General Public (George, D. R., et al. (2014). [63]), (j) Improving Quality Dimensions (Flickinger, T. E., (2015). [64]), (k) Giving much emphasis on the safety of the Patients (Ruan B, et al. (2020), [65]), (l) Inquiry-based on the Scientific Evidence (Ventola, C. L. (2014). [66]), and (m) System of Education focusing on the Patients (Kesselheim, J. C., et al. (2016), [67]).

9. RESULTS & SUGGESTIONS :

E-professionalism should be in all the stages of Medical Education, like the Pre-Medical Level, First-year and second-year Medical Students level, Clinical Medical Students Level, Clinical Practitioners level, and also in the Post-Graduate Level. While including E-Professionalism in the initial levels of Medical Education, proper Interventions and assessments interventions to be done, there should also be a continued educational Approach even at the Post-Graduate Level.

10. CONCLUSION :

Advances in technology in the present decade have created changes in our lives and communication styles and also have raised concerns about the attributes of E-professionalism in the medical education arena. This demands research and training and curricular necessity in this field. It is necessary to establish an index for professionalism on which education and individual behaviour are focused. Professionals should be made aware of using their judgment to expand moral ethics in the virtual world and to avoid harm to themselves and society. It is the need of the hour to establish guidelines for ethical practices to convert these technologies into a new frontier of medical education.

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