

**DEVELOPMENT, VALIDATION AND  
EVALUATION OF MEDICAL EDUCATION e-  
PROFESSIONALIM (MEeP) FRAMEWORK**

**SHAISTA SALMAN**

**UNIVERSITI SAINS MALAYSIA**

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**DEVELOPMENT, VALIDATION AND  
EVALUATION OF MEDICAL EDUCATION e-  
PROFESSIONALIM (MEeP) FRAMEWORK**

by

**SHAISTA SALMAN**

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*“thankful for the magic, and for the dark times, and for the people who helped me through it”*

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## LIST OF SYMBOLS

$P_c$	Probability of chance agreement
$k$	Kappa statistics
$N$	Number of experts

## LIST OF ABBREVIATIONS

AMA	American Medical Association
ACGME	Accreditation Council for Graduate Medical Education
CVI	Content Validity Index
FVI	Face Validity Index
HCP	Health Care Professionals
JEPeM	Jawatankuasa Etika Penyelidikan Manusia
MEeP	Medical Education e-Professionalism
RCSI-MUB	Royal College of Surgeons Ireland – Medical University Bahrain
SNSME	Social Networking Sites in Medical Education
SNS	Social Networking Sites
TPB	Theory of Planned Behaviour
USM	Universiti Sains Malaysia

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**PEMBANGUNAN, PENGESAHAN DAN PENILAIAN RANGKA  
KERJA E-PROFESIONALIM (MEEP) PENDIDIKAN PERUBATAN**

**ABSTRAK**

Seseorang boleh berpendapat bahawa tujuan sebenar pendidikan perubatan adalah untuk menghasilkan para profesional penjagaan kesihatan yang berkeperibadian mulia dan humanistik yang menunjukkan ketekunan dan integriti profesional. Namun, dalam bidang perubatan pada masa kini, telah mengalami perubahan ketara dalam tingkah laku dan prestasi individu dalam bidang penjagaan kesihatan, terutamanya pengamal perubatan. Badan-badan profesional menghasilkan panduan untuk tingkah laku profesional yang baik. Namun, tingkah laku profesional telah berubah dengan penggunaan platform digital seperti Laman Sosial Perubahan paradigma seperti ini telah mencabar nilai-nilai, tingkah laku, dan identiti profesional perubatan, yang seterusnya mengaburkan sempadan antara kehidupan peribadi dan profesional. E-profesionalisme, suatu konstruk baru yang sedang berkembang, dibangunkan untuk meredakan dan menyelaraskan tingkah laku jurang dalam dunia digital. Walau bagaimanapun, terdapat halangan dalam segi kaedah mengubah tingkah laku profesional digital para penjaga kesihatan semasa mereka bekerja dalam berkongsi maklumat di SNS. Ini telah mendorong pembangunan cadangan tesis PhD saya untuk menghasilkan satu kerangka penting untuk mengurangkan bilangan insiden yang tidak profesional. Penyelidikan ini bertujuan untuk membangunkan, mengesahkan, dan menilai satu kerangka untuk menjelaskan makna e-profesionalisme dan untuk membimbing serta meningkatkan tingkah laku ketika berkongsi di SNS. Dengan menggunakan pendekatan pragmatik, saya merancang satu pendekatan metod campuran berurutan. Penyelidikan yang terdiri daripada beberapa fasa ini telah

dijalankan dari tahun 2019 hingga 2021 dengan menggunakan pelbagai reka bentuk kajian, teknik pensampelan, strategi pengumpulan dan analisis data. Ini termasuk kajian pustaka, pengurusan data, tinjauan atas talian, e-Delphi, pengesahan pakar, dan intervensi pendidikan. Dengan menggunakan Teori Tingkah Laku Terancang (TPB) sebagai asas teori, saya menilai kerangka MEeP dengan menggunakan model Kirkpatrick dengan bantuan reka bentuk pra-post workshop terhadap pelajar perubatan pra-siswazah dari tiga institusi berbeza. Pendekatan induktif-deduktif dan abduktif telah digunakan untuk menganalisis data kualitatif mengikut fasa-fasa penyelidikan. Selain itu, data kuantitatif telah diuruskan menggunakan SPSS 22 dengan melakukan analisis deskriptif dan analisis laluan. Dapatan fasa I penyelidikan ini, kajian sistematik yang terdiri daripada 44 kajian menunjukkan bahawa konsep e-profesionalisme telah didefinisikan tetapi panduan mengenai bagaimana berkelakuan secara profesional dalam dunia digital adalah tidak ada. Satu kerangka pelbagai konstruk berdasarkan Misi Pendidikan Perubatan e-Profesional yang mengandungi nilai, tingkah laku dan identity telah dibentuk menggunakan pendekatan plural dan triangulasi data daripada sistematik review (44 kajian), kajian tindak balas (n=381) dan dapatan pakar Delphi (n=15) menggunakan reka bentuk kajian menumpu. Manakala fasa II telah menghasilkan MEeP yang telah disahkan dari segi kesahan kandungan dan muka menggunakan pendekatan modifikasi enam kaedah dimana enam orang pakar telah bersetuju menyamakan dengan paradigm kecerdasan emosi. Akhirnya, dalam Fasa III kerangka MEeP (n=59) telah dinilai menggunakan strategi kualitatif dan kuantitatif dan triangulasi data. Dapatan menunjukkan bahawa terdapat ciri-ciri professionalism yang sepatutnya ada dalam domain nilai, tingkah laku dan identiti profesional perubatan. Kerangka MEeP yang baru dibangunkan mampu memperkukuh tingkah laku profesional digital dalam kalangan profesional penjagaan

kesihatan. Kerangka MeeP juga menunjukkan kemampuan mengubah dan membimbing tingkah laku profesional dalam talian.

# **DEVELOPMENT, VALIDATION AND EVALUATION OF MEDICAL EDUCATION E-PROFESSIONALISM (MEEP) FRAMEWORK**

## **ABSTRACT**

One can argue that the true intention of medical education is to produce virtuous and humanistic healthcare professionals who demonstrate perseverance and professional integrity. However, today's medicine has witnessed a substantial change in the both the behaviour and performance of healthcare persons, particularly those in medical practice. Professional bodies produce guidance for good professional behaviour. However, professional demeanour and conduct have changed with digital platforms such as Social Networking Sites (SNS). Such a paradigm shift has challenged the medical professional's values, behaviours, and identities, thus blurring the distinct lines between personal and professional lives. E-professionalism, a new emerging construct, was developed to attenuate and align standard professional behaviours in the digital realm. There was, however, a gap in how to change the digital professional behaviours of healthcare professionals while working online sharing information on SNS. This led to developing my PhD proposal to produce an essential framework to curtail the escalating number of unprofessional incidents. This research aimed to develop, validate and evaluate a framework to clarify the meaning of e-professionalism and to guide and improve behaviours while sharing on SNS. Using a pragmatic approach, I devised a sequential mixed methods approach. This multi-phased research was conducted during 2019-2021 using a range of study designs, sampling techniques, data collection and analysis strategies. This included literature reviews, data curation, online surveys, e-Delphi, expert validation and educational intervention. Using the Theory of Planned Behaviour (TPB) as a theoretical



underpinning, I evaluated the MEeP framework against Kirkpatrick's model with the help of a pre-post workshop design on undergraduate medical students from three different institutions. An inductive-deductive and abductive approach was used for the qualitative data analysis as per the various phases of the research. On the other hand, quantitative data was dealt with using SPSS 22 by performing descriptive and pathway analysis. Phase I part of the study, the systematic review of 44-studies showed that the concept of e-professionalism was defined but the guidance on how to behave professionally in the digital realm was absent. A multi-construct Mission-based Medical Education e-Professionalism (MEeP) framework comprising of values, behaviour and identity constructs was developed using a pluralist approach and triangulating the data from the systematic review (44 studies), survey responses (n=381) and Delphi experts (n=15) findings while implying a convergent parallel design. In Phase II, I validated the MEeP regarding content and face validity using a modified six-step approach where six experts attributed and highlighted its resemblance with the emotional intelligence paradigm. Finally, in Phase III I evaluated the MEeP framework (n=59) was evaluated using equal status QUAL\_QUAN strategy. Using the methodological and data triangulation, both qualitative and quantitative findings synergistically revealed that mission improved the desired attributes in medical professionals' value, behaviour and identity domains. The newly developed MEeP framework holds great promise in fortifying the digital professional behaviours of healthcare professionals. The framework has been shown to change and guide online professional behaviours.

## CHAPTER 1

### INTRODUCTION AND LITERATURE REVIEW

[FOREWORD](#) – Please have a look before reading this thesis.

#### 1.1 Introduction

This chapter contains an introduction, sets the research context, provides an account of the main objectives of the thesis, and reviews the existing literature. I start by summarizing the status of the concept of e-professionalism and proceed to identify the gaps in the literature using principle-based concept analysis. Lastly, the interconnected nature of the identified research problems and objectives is depicted in an integrated and meaningful manner.

##### 1.1.1 Social networking sites

Social networking sites (SNSs) are places on the Internet where people converge around shared interests or causes ([Ellison & Vitak, 2015](#)). Online social networking applications (e.g. Facebook, YouTube, Twitter, LinkedIn, WeChat and Flickr) have transformed into rapidly growing means for personal and professional information exchange ([Kumari, Ali, Mahadevamurthy, & Ali, 2013](#); [Loksha & Kumari, 2019](#)). These web-based services allow individuals to articulate with others with whom they share information and interests. Such digital platforms can be conveniently oriented towards work-related context, fun and leisure, and moreover used for connecting people with common interests and shared goals. Likewise, clients use SNSs for connecting with people they know offline or to make new friends. A study conducted in Lithuania underpinned the paramount significance of SNSs as such digital platforms to open minds, doors, and borders allowing the sharing of personal information, feelings, news, actions and activities ([Levickaite, 2010](#)). In general, social

media has changed how individuals communicate with their peers, relatives, friends and other online communities ([Roreger & Schmidt, 2012](#); [Schmitt, Sims-Giddens, & Booth, 2012](#)). The fact of the matter is that social media enhances connectivity and offers the opportunity to share information with others. At the same time, the onslaught of new digital platforms has changed the landscape of learning and socialization worldwide.

### **1.1.2 Today's generational characteristics**

Today's learner belongs to a generation which is highly qualified in digital knowledge and technology and enjoys uninterrupted access to the Internet ([Bencsik, Horváth-Csikós, & Juhász, 2016](#)). The online presence of learners in cyber space is permanent, uninhibited, and impulsive. The words, slang and expressions used by youth are strange to even their parents and sometimes incomprehensible by their teachers. Learners are not bound by physical space, venue, or time. Therefore, they can conduct their learning anywhere and everywhere. Furthermore, learners attention is concentrated on the speed of acquiring knowledge rather than the accuracy of information ([Desai & Lele, 2017](#)). Thus, today's learner is living in an up-to-date world in which their learning comes with borderless horizons and are often described as z-learners (individuals born roughly between 1995 and 2012) ([Eckleberry-Hunt, Lick, & Hunt, 2018](#)).

### **1.1.3 Context collapse**

The outlined phenomenon of the escalating rise of SNSs use has manifested in the development of a psychosocial aspect termed "context collapse", first coined by ([Dennen & Burner, 2017](#); [Marwick & Boyd, 2011](#); [Seidman, 2013](#); [White, Kirwan, Lai, Walton, & Ross, 2013](#)) The digital socialization and online communication for z-learner is an effective substitute to everyday life or reality ([Eckleberry-Hunt et al.,](#)

[2018](#)). This discordance can be very harmful for any learner but more so for those situated in medical and health-related fields. In medical education, social media has greatly contributed towards the advancement of professional development, enhanced collaboration, career advancement and networking by supporting learning communities. However, the involvement of the third party, the patient, has led to this unfettered phenomenon becoming more vulnerable and critical ([Cheston, Flickinger, & Chisolm, 2013](#)).

#### **1.1.4 Generational gaps between learners and faculty and teachers in medical education**

As an academic, our utmost responsibility is to facilitate the professional education and training of healthcare professionals (HCPs) to attain the highest pinnacle of their self-actualization. However, to escalate on this developmental ladder, does our academic fraternity possess the right digital skills and competencies in the relevant professional field? Although this enhanced learner connection and information sharing can be witnessed as a benefit to most in society. This proclaimed freedom in fact endangers HCPs and students resulting in potential negative consequences for them, their colleagues and their patients. Therefore, there is an urgent need for the careful and regulated determination of SNSs usage by medical and health sciences students in order to guide their behaviour and actions preventing ethical and professional infractions involving patients and colleagues.

#### **1.1.5 Conventional professionalism and e-professionalism**

Doctors' behaviours and actions are guided by codes of professional conduct produced by their governing bodies, which detail good professional conduct ([Riddick, 2003](#)). The concept of e-professionalism in healthcare, however, is a relatively new

concept and refers to the use of SNSs by HCPs ([Cheston et al., 2013](#); [McKee, 2013](#)). In 2009, Cain described the concept of e-professionalism as “the attitudes and behaviours reflecting traditional professionalism paradigms that are manifested through social media” ([Jeff Cain & Romanelli, 2009](#)). As the usage of SNSs continued to rise rapidly, the education, training, and policies for a regulated application of e-professionalism remained rudimentary ([Ellaway, Coral, Topps, & Topps, 2015](#)). Conventional medical professionalism entails a set of standard professional skills, values, and behaviours of HCPs, so any e-professionalism guidelines essentially need to reflect the same values and behaviours in the digital realm. Professionalism itself pertains to a multidimensional construct and, with the ubiquitous use of social media, has added further to its perplexity. [Nancy D Spector et al. \(2010\)](#) enumerated 3 Ps to refer the ilk of social media; powerful, permanent, and public. These specifications can endanger professional behaviours of any medical practitioner and medical or health related student. SNSs are the best places for self-expression, but with skewed moral values and ethics of the current generation leading to several episodes where collapsed personal and professional boundaries have demolished hierarchies have raised concerns ([Neville & Waylen, 2015](#)). A medical student’s innocently posting online images, videos and texting narrations of stories related to workplace potentially jeopardises the core principles of medical professionalism. In general, professionalism is considered a social contract between medicine and society and is perceived differently in different societies ([Al-Eraky & Chandratilake, 2012](#); [R. L. Cruess & Cruess, 2006](#); [S. R. Cruess, 2006](#); [Ho, Yu, Hirsh, Huang, & Yang, 2011](#)). This is further complicated, when we talk about virtual socialization where issues are no longer contained by physical boundaries and are disseminated by a mere touch, professionalism in this realm appears more perplexing and harder to understand and

practice. Therefore, the emergence of a new discourse around the policing of e-professionalism must be addressed at the earliest. While the alpha, beta, and delta generations are on the way, there is reciprocally more diverse evolution of digital platforms worldwide. This personal branding has taken the world by storm. Still in this open, chaotic, instant, and borderless socialization, medical ethos needs to be maintained and grounded in theory.

#### **1.1.6 Lack of frameworks**

[Sara Aase \(2010\)](#) was one of the first to rightly identify and report lapses of academic integrity among medical and health related students. In one such lapse, Nina was dismissed but reinstated back as the organization was unable to define her e-professionalism infraction without clear guidelines in place ([Mansfield et al., 2011](#)). Although later in 2011, the American Medical Association (AMA), CanMEDS and Accreditation Council for Graduate Medical Education (ACGME) came up with few guidelines but there was still a gap between the familiarity of guidelines and its impact on values, attitudes and behaviours on medical personnel ([Dobson, Patel, & Neville, 2019](#)). It surfaced that global fraternity needed a unified framework of e-professionalism in medical education, taking into account cultural, religious, and geographical perspectives. Such a framework would offer guidance to help differentiate between professional and unprofessional actions, characteristics and behaviours. Further evidence-based work is essential in this field to clearly delineate what values, behaviours and identity characteristics influence the professional use of SNSs and to preserve professional boundaries.

#### **1.1.7 Statement of the problem**

The z-generation with a context collapse understands that the online world is a private enterprise and others do not have a reason to interfere in this virtual space. This

understanding has led to numerous incidents of online professional lapses. Currently, there is no framework that could potentially guide medical and allied health faculty and students about the judicious use of SNSs in a safe and professional manner. This absence of a framework providing individuals, institutions and governing bodies with clear guidelines and policies for handling breaches of medical professionalism in the digital context became a central focus for my research study. Therefore, I developed and evaluated a unified and standard framework for e-professionalism.

## **1.2 Purpose of the dissertation**

### **1.2.1 General Objective**

To develop, validate and evaluate a unified, practical and functional Medical Education e-Professionalism (MEeP) framework which can be globally accepted.

### **1.2.2 Specific Objectives**

#### **1.2.2(a) To develop a unified, practical and functional Medical Education e-Professionalism (MEeP) framework**

- 1.1. To measure degree, nature (social or educational) and professional use of social media by using Social Networking Sites in Medical Education (SNSME).
- 1.2. To gather information/data, related to suggested MEEp framework.
- 1.3. To develop MEEp framework according to the proposed constructs.
- 1.4. To develop guidelines on how to use the new framework.

#### **1.2.2(b) To determine the validity of MEEp framework**

To perform Content Validity Indexes (CVIs), Face Validity Index (FVI), and inter-rater reliability of the Medical Education e-Professionalism (MEeP) framework

**1.2.2(c) To evaluate the impact of MEeP framework using the Kirkpatrick model to ascertain changes in reaction, learning and behaviour**

To determine educational impact of the new framework among medical students

**1.3 Research Questions**

1. What is the degree, nature (social or educational) and professional use of social media using SNSME by the undergraduate (UG) medical students of the Royal College of Surgeons Ireland – Medical University Bahrain (RCSI – MUB)?

2. What are the definitions of proposed constructs for MEeP framework?

3. What are the elements of MEeP framework proposed by the Delphi technique?

4. Does the MEeP framework has sufficient content and response process validity?

5. How does the MEeP framework impact the reaction, learning and behaviour of learners?

Table 1.1 Relationship between research objectives and questions

<b>General Objective</b>		
To develop, validate and evaluate a unified, practical and functional Medical Education e-Professionalism (MEeP) framework which can be globally accepted.		
	<b>Specific research objectives</b>	<b>Research questions</b>
<b>Phase I</b>	To gather information/data, related to suggested MEeP framework.	Were there any proposed frameworks or constructs available to guide medical professionals while using SNS?
	To measure degree, nature (social or educational) and	What is the degree, nature (social or educational) and



Table 1.1 Continued

	professional use of social media by using Social Networking Sites in Medical Education (SNSME).	professional use of SNSs of undergraduate medical students using a validated instrument?
	To develop MEeP framework according to the proposed constructs and to develop guidelines on how to use the new framework.	How to develop a suitable framework with integration of key findings (literature review, questionnaire, and Delphi technique) to assist in adherence to e-professionalism?
<b>Phase II</b>	To perform Content Validity Indexes (CVIs), Face Validity Index (FVI), and inter-rater reliability of the MEeP framework	Does the MEeP framework has sufficient content, face and response process validity?
<b>Phase III</b>	To determine educational impact of the MEeP framework among medical students	How does the MEeP framework impact the reaction, learning and behaviour of learners?

#### 1.4 Literature review- Reclaiming the concept of professionalism in digital context; a principle-based concept analysis

##### 1.4.1 Background

Reciprocal with the enormous proliferation of social media networking worldwide, we are witnessing the popularity of SNSs among HCPs ([S. Y. Guraya et al., 2018](#)). The exponential growth and evolution of SNSs platforms such as Facebook, Twitter, LinkedIn, Instagram, and several others have grown a large community of end-users where usage takes place without adherence to the core principles of medical

professionalism. SNSs are considered as cost-effective more so than conventional communication tools (e.g., mobile technology), and provide direct access to masses irrespective of geographical boundaries with communication taking place in ‘real-time’ ([Rukavina et al., 2021](#)). Though there are several obvious benefits of SNSs for the medical fraternity including physicians, medical faculty and students, and patients including networking, outreach, connectivity, targeting large audiences instantly, medical educators remain sceptical about their regulated and controlled applications.

In the medical field, SNSs are being commonly used for sharing information, medical education, and for a reciprocal communication between doctors, patients, and HCPs including campaigns for health promotion and disease prevention. A multitude of publications have shown breaches in the core values of professional values and behaviours in the digital realm ([Imran & Jawaid, 2021](#); [O'Connor, Odewusi, Smith, & Booth, 2022](#)). These breaches include but not limited to sharing private patient information without consent, engaging online inappropriately with colleagues and patients, loss of respect and civility, misrepresentation, fabrication of information in the digital realm and failing to manage one’s own digital footprint ([Curtis & Gillen, 2019](#); [Laliberté et al., 2016](#)). These reports alert medical educators and policy makers to consider the unique specifications and regulations of e-professionalism, the manifestations of standard professionalism in SNSs. *“Given the capability of social media to reach a large audience, gaffes can be quickly communicated and image, reputation, and professional standing damaged”* ([Greysen, Kind, & Chretien, 2010](#)). Unfortunately, e-professionalism in the medical field does not provide a clear definition which can lead to discordance within the profession. This inspired me to analyse the conceptual basis of e-professionalism in medical education to determine the current understandings using the [Penrod and Hupcey \(2005\)](#) four overarching

principles; epistemological, pragmatic, linguistic, and logical. This concept analysis presents the best estimate of understanding and attitudes of medical and allied healthcare students and educators towards e-professionalism and elucidate the probable truth about safeguarding this concept of professionalism in the digital context.

## **1.4.2 Methods**

### **1.4.2(a) Framework for concept analysis**

Despite the growing interest in the concept of ‘e-professionalism’ in medical education, exploratory research pertaining to its explicit definitions, boundaries, measurements, and fundamental attributes remain scarce. The implications of the concept of e-professionalism were profoundly apparent from the existing research which highlighted the useful yet destructive nature of digital media on the professional behaviours and attitudes of HCPs. The key elements of e-professionalism hinged on the contextual digital environment where the z-generation’s peculiar nature of connectivity and communication could change the landscape of medical education and patient care. Despite a substantial work in support of this new concept, there was still an enormous knowledge gap within medical education and society about this emerging subject. There was a need to introduce digital awareness for the digitally native medical professionals and medical students. Keeping the novelty of the concept, it was appropriate to have a clear, precise, and explicit understanding of the current knowledge by undertaking theoretically and scientifically sound research. In doing so, a concept analysis approach was deemed appropriate to conduct this literature review.

A concept is a "word or phrase summarizing a phenomenon, an idea, an observation, or an experience" ([Russell & Fawcett, 2005](#)). Furthermore, validation of concepts in the medical field is critical as the selected concepts to demonstrate a

phenomenon observed in clinical practice. This process, in turn, has implications on the pattern of practice of HCPs. Finally, to guide the scientific development and validation of concepts, the concept should represent a real phenomenon. There should be evidence that the concept is relevant and practical to clinical practice ([Brennan & Daly, 2009](#))., A wide range of models are available in the literature describing how concept analysis can be conducted; ([Rogers, 2001](#)) evolution approach, [Walker and Avant \(2005\)](#) eight-step process, and [Penrod and Hupcey \(2005\)](#) principle-based method of concept analysis. The later method of concept analysis by [Penrod and Hupcey \(2005\)](#) differs from other methods because it sheds light on the most suitable strategies for concept advancement and research design.

The principle-based concept analysis determines the existing body of literature based on epistemological, pragmatic, linguistic, and logical principles of philosophy. The beauty of this approach is that the yielded data helps the researchers to synthesize and create a theoretical model to elaborate and advance current knowledge in the selected subject. The principle-based concept analysis rolls out a structured and well-organized strategy to conduct concept analysis yielding current state of science ([Bernard, 2015](#); [O'Malley, Higgins, & Smith, 2015](#)).

Based on the literature and the preferred model for concept analysis, in this chapter, I describe the principle-based method of concept analysis to synthesize and summarize the findings of the existing literature on e-professionalism ([Hupcey & Penrod, 2005](#); [Penrod & Hupcey, 2005](#)). **Figure 1.1** shows the Penrod and Hupcey's framework used for this concept analysis.

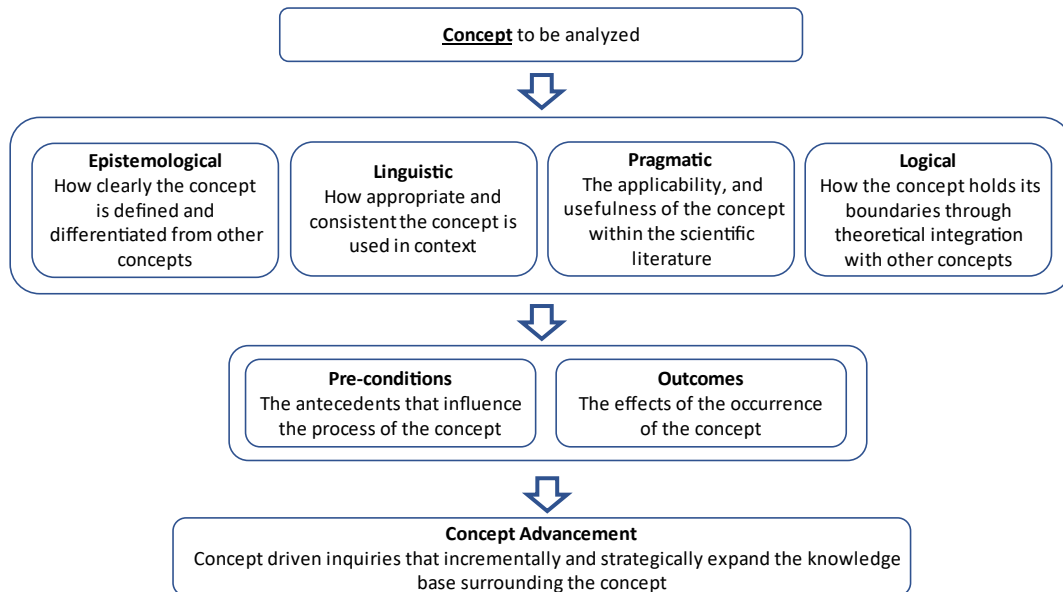


Figure 1.1 The guiding framework of [Penrod and Hupcey \(2005\)](#).

The choice of this framework was inspired by its facilitative approach in investigating the current available body of literature and providing a degree of methodological flexibility. The overarching purpose of the concept analysis was to produce evidence exploring the best fit of 'probable truth' in the scientific literature. Each principle was then further analysed according to Morse's (1996) level of maturity spanning from under-developed to fully developed ([J. M. Morse, Hupcey, & Cerdas, 1996](#)). The evaluation criteria included assessment of concept definition, characteristics of the concept, and conceptual boundaries. As the state of professionalism is understood clearly, this effort was geared towards the advancement of this concept in the digital context. In doing so, I synthesized the findings to portray a philosophical evaluation of the existing research which provided a valuable set of data and a roadmap for my PhD research (see below).

#### **1.4.2(b) Sampling and selection of literature**

To accomplish this phase of research, I included any written published work about e-professionalism between 2005 and 2018. The criteria for the selection of articles included English language articles published in peer reviewed journals about ‘e-professionalism’ and ‘digital professionalism’ during the defined period. I was more interested in the current sample due to the ever-evolving nature of the digital context and SNSs and the professional roles in the digital context to evaluate the current state of knowledge about e-professionalism and its related constructs. For this analysis, abstracts, personal statements, or the articles without full text were excluded.

#### **1.4.2(c) Sampling technique**

In 2018, using a purposive sampling technique complemented by citation tracking, I searched PubMed and Web of Science according to the inclusion criteria illustrated in (**Figure 1.2**).

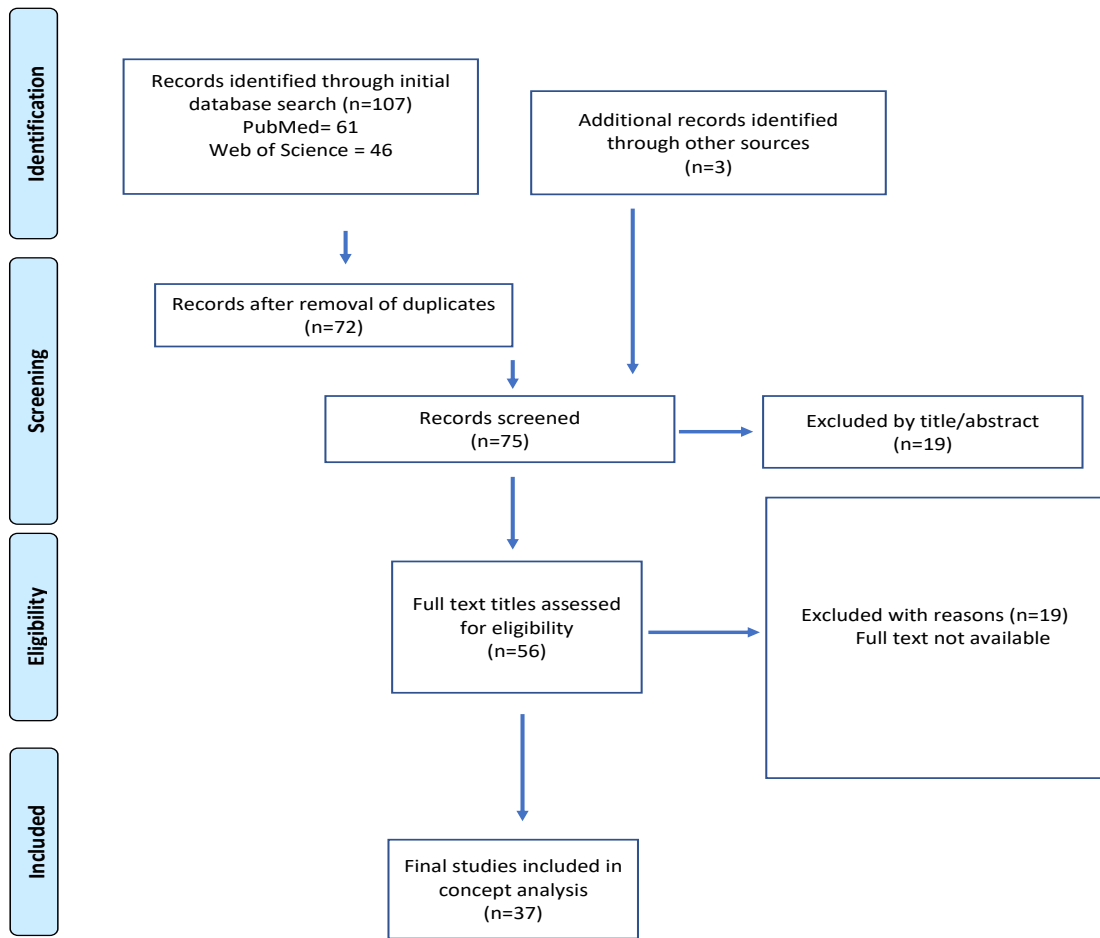


Figure 1.2 Illustration of the systematic literature search with results.

Published literature with utmost importance and relevance to professionalism in the digital context and its definitions, threats to professionalism in the digital context, uses of SNSs by medical and allied health care students, and frameworks to navigate the professionals in the digital context were searched. An initial yield of 107 articles were retrieved based on the inclusion criteria. After removing the duplicates, initial screening was done by reviewing the title and abstracts, and on second screening articles not specifically relevant to the concept of e-professionalism were filtered out. Three references were added after the hand search and the final data set included 37

references ([S. Aase, 2010](#); [A. Barnable, G. Cuning, & M. Parcon, 2018](#); [A. Benetoli, T. F. Chen, M. Schaefer, B. Chaar, & P. Aslani, 2017](#); [Booth & O'Connor, 2017](#); [Jeff Cain, 2008](#); [Jeff Cain & Romanelli, 2009](#); [Jeff Cain, Scott, & Akers, 2009](#); [J. Cain, Scott, & Smith, 2010](#); [Cleary, Ferguson, Jackson, & Watson, 2013](#); [Duke et al., 2017](#); [Eijkholt, Jankowski, & Fisher, 2017](#); [Ellaway et al., 2015](#); [Gettig, Lee, & Fjortoft, 2013](#); [Gettig et al., 2016](#); [Grindrod, Forgione, Tsuyuki, Gavura, & Giustini, 2014](#); [Gupta, Singh, & Dhaliwal, 2015](#); [A. C. L. Holden & Spallek, 2018](#); [Jackson, Gettings, & Metcalfe, 2018](#); [John, Cheema, & Byrne, 2012](#); [Jones et al., 2016](#); [J. M. Kaczmarczyk et al., 2013](#); [Kang, Djafari Marbini, Patel, Fawcett, & Leaver, 2015](#); [Kjos & Ricci, 2012](#); [Kleppinger & Cain, 2015](#); [Lefebvre et al., 2016](#); [Mather, Cummings, & Gale, 2018](#); [Mattingly, Cain, & Fink, 2010](#); [Mostaghimi, Olszewski, Bell, Roberts, & Crotty, 2017](#); [Ness et al., 2013](#); [Neville & Waylen, 2015](#); [Orenstein, Benabio, & Stoff, 2013](#); [Osman, Wardle, & Caesar, 2012](#); [Pander, Pinilla, Dimitriadis, & Fischer, 2014](#); [Schroeder, 2017](#); [N. D. Spector et al., 2010](#); [S. J. Westrick, 2016](#); [Yang et al., 2016](#)).

#### 1.4.2(d) Data extraction and analysis

Using the four principles of [Penrod and Hupcey \(2005\)](#), I developed a priori table for data extraction (**Table 1.2**).

Table 1.2 Prompts used in the data extraction to ascertain the principles of concept analysis.

Principles	Questions
Epistemological	<p>What is the definition and definitional elements of e-professionalism?</p> <p>Is e-professionalism well differentiated from other related concepts?</p> <p>What are the other related concepts mentioned?</p>



Table 1.2 Continued

Pragmatic	<p>What is the use of e-professionalism in clinical/academic practice?</p> <p>What are the uses for research?</p> <p>How has e-professionalism been operationalised?</p>
Linguistic	<p>What is the linguistic consistency around e-professionalism?</p> <p>What is the linguistic maturation and appropriateness within the context?</p>
Logic	<p>Does the e-professionalism has distinct boundaries as a concept?</p> <p>What is the evidence about integration of e-professionalism from theoretical perspectives?</p> <p>Has the concept been appropriately operationalised?</p> <p>What are the key characteristics of e-professionalism?</p> <p>What is the evidence about the consistent use of those key characteristics?</p>

All included articles were critically analysed against four principles: explicit and implicit meaning of e-professionalism (epistemology), usage of e-professionalism (pragmatics), consistency in application and meaning (linguistic), and acculturation of e-professionalism concept from relevant literature (logic). I assessed all pertinent dimensions and documented in the priori table, which were later assimilated into the results after repeated deliberations.

While focusing on the purpose of inquiry, rationality of the topic highlighted significant analytical questions and the results were synthesized. I critically examined the explained definitions, their implied conceptual meaning, application of e-professionalism as a phenomenon of interest and its consistent use with theoretical underpinnings. A summative conclusion was yielded by a detailed data analysis while

collating, comparing and contrasting the key trends which unpacked the maturity level of each principle.

#### **1.4.2(e) Methodological rigor**

To eliminate research bias and to ensure that the representative sample of pertinent literature was a part of the collection, I used the reflexivity approach by reading each article twice. This was done to minimize the possibility of research bias and to ensure that the article collection was representative of the selected discipline.

#### **1.4.3 Results and discussion**

Principle based concept analysis by [Penrod and Hupcey \(2005\)](#) was used to analyse the conceptual boundaries of e-professionalism in the field of medical education. This process determined the current state of knowledge and spanned the current breadth and width of the probable truth surrounding e-professionalism. This method of literature review apportioned a better understanding of the conceptual basis of e-professionalism by providing a clear basis of internally cohesive, externally legitimate, and well accepted importance of e-professionalism by society and HCPs.

##### **1.4.3(a) Epistemological principle: Is the concept clearly defined and distinct from other concepts?**

Epistemology: a core philosophical principle associated with the nature of knowledge essentially, helps understand how well a concept is clearly distinguished from other concepts ([Waldon, 2018](#)). [Jeff Cain and Romanelli \(2009\)](#) defined e-professionalism as “*the attitudes and behaviours (some of which may occur in private settings) reflecting traditional professionalism paradigms that are manifested through digital media*”. Published literature had a consensus on this definition ([Alexia Barnable, Glenda Cuning, & Mariel Parcon, 2018](#); [Best, 2016](#); [Cleary et al., 2013](#);

[Duke et al., 2017](#); [J. M. Kaczmarczyk et al., 2013](#); [Ness et al., 2013](#); [C. Ward & Yates, 2013](#)). However, [Cleary et al. \(2013\)](#) by using the term “netiquette” extended its spectrum beyond simple online communication.

Current literature has shown a concord that socialization to professional behaviours is an important element, but itself, is an elusive concept with ambiguous boundaries. Transferring lives, conversations, interactions, and socialization in the open world of web has distinctly blurred the divide of public and private lives by sharing personal persona in public ([Jeff Cain, 2008](#); [J. Cain et al., 2010](#); [El Hajj, Massoud, & Moeinzadeh, 2012](#)). [Ellaway et al. \(2015\)](#) highlighted the blurring of personal and professional boundaries due to SNSs usage due to the nature of dynamics between computing devices and these digital platforms. At the same time, they suggested that intersecting personal and professional identities on SNS pose major issues pertaining to personal privacy. [Jeff Cain \(2008\)](#) highlighted the importance of a SNSs in the life of an information-fluent generation and an understanding of underlying mechanisms of ‘web works’ which are threatening the trust and privacy by posing risk, liability and copyright issues. Likewise [Ohm \(2011\)](#) and [Sklansky \(2014\)](#) pointed towards the much debated topic of perceptions of ‘private vs public’ information discussed in ‘The Fourth Amendment to the U.S. Constitution - illegal search and seizure’. However [Mattingly et al. \(2010\)](#), argued that the privacy protection onus lies on the person posting the information by explicitly stating the expectations. Hence [A. Benetoli et al. \(2017\)](#) rightly pointed that unprofessional behaviours by HCPs and medical and allied health students on SNSs may influence public perceptions about their medical professionalism. Good patient care is built on strong professional values and behaviour and unprofessional behaviours online generally reflect the erosion of ethical boundaries. Every day digital natives face new

risks for behaving in an unprofessional and unethical manner while using electronic medical records and social media. Conversely, there is little effort in terms of explicit teaching and mindful discussion on e-professionalism ([Mostaghimi et al., 2017](#)). On the same note, [Lefebvre et al. \(2016\)](#) pointed out young physicians' casual approach to SNSs usage in the context of professional medicine.

In an attempt to understand the epistemological maturity, I was interested in what constitutes unprofessional online behaviour however there was no clear definition prescribed and opinions varied between students and physicians ([Kang et al., 2015](#)). Surprisingly perceptions of medical students revealed inadequate awareness of the caveats and risks of the digital world, making them vulnerable and subjecting them to an increased probability of engaging in unprofessional online activities compared to qualified HCPs ([Osman et al., 2012](#)). The literature consistently suggested that SNSs constitute a rapid, interactive and modern ways for communicating, educating and advocating for patients but vulnerability lies when new ethical challenges compromise the privacy and confidentiality ([Orenstein et al., 2013](#)). Also, an added layer of complexity is imposed due to the generational differences in the use, perception, and acceptance of SNSs. A solid appreciation of the fact that current learners are adept at liberal information sharing which manifests as same attitudes and behaviours to all opportunities to share digital information leading to blurring of personal and professional lives. Moreover, digital natives do not perceive the personal and social use of SNS as clashing or adding to their professional identities hence manifesting as violations of online professionalism ([J. M. Kaczmarczyk et al., 2013](#)).

SNSs have several potential benefits for the professional development of medical and allied sciences students and HCPs as they provide a greater scope for advocacy in the medical profession ([Jackson et al., 2018](#)). Likewise, for pharmacy,

SNSs have been a means to look within ourselves and our field ([Grindrod et al., 2014](#)). However, little evidence was found regarding the use of best practices for e-professionalism teaching and awareness in classroom settings and professional development pathways ([Neville & Waylen, 2015](#)). Another key challenge is to safeguard the societal and professional contract while using SNSs such as Facebook due to HCPs lack of awareness of their professional vulnerability in social media. Researching social media and examining the available information on the online platforms have posed ethical risks that many users do not understand correctly due to a lack of privacy proficiency. This garnered a growing attention for a well-structured strategy to teach e-professionalism within health professions education. Unfortunately, flustered responses to digital misdemeanours at institutional levels typically manifest as a binary approach creating a hidden curriculum of digital unprofessionalism. The reviewed literature indicated a lack of clarity for guidance to good e-professional behaviour and action so this led me towards developing a structured framework for e-professionalism.

In summary using the epistemological principle, my literature review indicated a well-perceived concept of e-professionalism in all disciplines of the medical field, including medicine, dentistry, nursing, pharmacy, and all other related healthcare professions. The concept of e-professionalism was found to be a clearly defined distinct entity and a recognizable area in medical education ([Jeff Cain & Romanelli, 2009](#)). However, the concept of e-professionalism and its manifestations were being understood and interpreted in a varied manner. There were no standard settings for a unified application of e-professionalism for HCPs, highlighting the need of a universal frame of reference to compare, refine and enumerate desired attributes to be digitally professional.

**1.4.3(b) Pragmatic principle: Is the concept relevant and practical within the scientific realm of inquiry? Has it been in practice?**

Pragmatism pertains to utilizing a discipline-specific concept evaluation to determine the pragmatic use and operationalization of the subject under consideration ([Hupcey & Penrod, 2005](#)). The pragmatic principle explores the efficacy of the concept under consideration as to how it describes and elaborates the phenomena in a discipline. Finally, the pragmatic principle demonstrates whether the published literature endorses and validates or limits a concept as useful and applicable and if it can be recognized as useful entity in a field of interest ([Yang et al., 2016](#)). The pragmatic utility of this concept was assessed by exploring the published literature for the concept evaluation and its operationalization in the academic and clinical fields. A deliberate exploration of our included studies showed that the concept of e-professionalism has been applied in research focusing on three areas: applying e-professionalism instrument construction, as a criterion in measuring professional behaviours, and its role in medical education curriculum (**Table 1.3**).

Table 1.3 The studies used in literature review for pragmatic principle

<b>Study reference and Year</b>	<b>Study design</b>	<b>Pragmatic category</b>
<a href="#">Yang et al. (2016)</a>	Descriptive	<b>Applying e-professionalism instrument construction</b>
<a href="#">Kang et al. (2015)</a>	Descriptive	
<a href="#">Gettig et al. (2013)</a>	Descriptive	

Table 1.3 Continued

<a href="#">Gupta et al. (2015)</a>	Descriptive	<b>e-professionalism as a criterion in measuring professional behaviours</b>
<a href="#">Osman et al. (2012)</a>	Descriptive	
<a href="#">Lefebvre et al. (2016)</a>	Descriptive	
<a href="#">Gettig et al. (2016)</a>	Descriptive	
<a href="#">Jeff Cain et al. (2009)</a>	Descriptive	
<a href="#">Duke et al. (2017)</a>	Descriptive	
<a href="#">J. Cain et al. (2010)</a>	Descriptive	
<a href="#">(Kjos &amp; Ricci, 2012)</a>	Descriptive	
<a href="#">Alexia Barnable et al. (2018)</a>	Descriptive	
<a href="#">Arcelio Benetoli, Timothy F Chen, Marion Schaefer, Betty Chaar, and Parisa Aslani (2017)</a>	Qualitative	
<a href="#">A. C. L. Holden and Spallek (2018)</a>	Netnographic review	
<a href="#">Mather et al. (2018)</a>	Qualitative study	
<a href="#">Ness et al. (2013)</a>	Descriptive	
<a href="#">Nancy D Spector et al. (2010)</a>	Association Notes	
<a href="#">(J. M. Kaczmarczyk et al., 2013)</a>	Association Review	
<a href="#">(Orenstein et al., 2013)</a>	Case study	
<a href="#">(Susan J Westrick, 2016)</a>	Case study	
<a href="#">(Eijkholt et al., 2017)</a>	Case study	
<a href="#">(Jones et al., 2016)</a>	Case study	
<a href="#">(Mattingly et al., 2010)</a>	Commentary	
<a href="#">(Jackson et al., 2018)</a>	Descriptive	
<a href="#">Cheston et al. (2013)</a>	Editorial	
<a href="#">(Schroeder, 2017)</a>	Review article	
<a href="#">(Mostaghimi et al., 2017)</a>	Descriptive	
<a href="#">(Pander et al., 2014)</a>	Review article	
<a href="#">Kleppinger and Cain (2015)</a>	Review article	

Table 1.3 Continued

<a href="#">Grindrod et al. (2014)</a>	Review article	
<a href="#">Ellaway et al. (2015)</a>	Review article	
<a href="#">Jeff Cain and Romanelli (2009)</a>	Review article	
<a href="#">Neville and Waylen (2015)</a>	Review article	
<a href="#">Sara Aase (2010)</a>	Review article	
<a href="#">Jeff Cain (2008)</a>	Review article	
<a href="#">John et al. (2012)</a>	Conference proceedings	

The need to evaluate the concept of e-professionalism dates back to [Jeff Cain and Romanelli \(2009\)](#) and [Sara Aase \(2010\)](#) when patients feared that their private information could be published publicly, jeopardizing their confidence in HCPs. Patients became hesitant in sharing private medical information with their physicians ([A. Barnable et al., 2018](#)). The threat of online unprofessional contents being viewed by unknown audiences posed a risk due to its associated legal and ethical issues and patient confidentiality ([Kjos & Ricci, 2012](#)). However, since then there has been no such effort in terms of construction of one single validated and reliable tool of e-professionalism measurements ([Jeff Cain et al., 2009](#); [Duke et al., 2017](#); [Gettig et al., 2013](#); [Gettig et al., 2016](#); [Gupta et al., 2015](#); [Kang et al., 2015](#); [Kjos & Ricci, 2012](#); [Lefebvre et al., 2016](#); [Osman et al., 2012](#); [Yang et al., 2016](#)). In a study by [Ness et al. \(2013\)](#) most of the students agreed that their online profile could influence public's opinions about them and believed that healthcare professional students should hold higher standards in cyber space. In addition, 53% of students remained cautious about the information they disclosed on SNSs. In number of studies, investigators used self-administered questionnaires to gather knowledge about digital literacy, use of SNSs in daily lives, perceptions regarding e-professionalism and guidance about online communications and conduct ([Jeff Cain & Romanelli, 2009](#); [Jeff Cain et al., 2009](#);



[Duke et al., 2017](#); [Gettig et al., 2013](#); [Kang et al., 2015](#); [Kjos & Ricci, 2012](#); [Ness et al., 2013](#); [Yang et al., 2016](#)). Only two studies used a qualitative methodology to probe for a deeper understanding of perceptions of pharmacists and nursing organizations respectively ([Arcelio Benetoli et al., 2017](#); [Mather et al., 2018](#)). Despite a consensus about the importance, value, and role of medical professionalism, e-professionalism has not been remitted to the same extent due to the emerging lapses in the digital realm. Professionalism in the electronic sphere is just beginning to be appreciated. ([J. M. Kaczmarczyk et al., 2013](#)). However, multiple reviews in the literature revealed that there is a need to empower digital natives users to opt for better choices and options while using SNSs so as to protect their own reputation, profession and the interests of the public at large ([Grindrod et al., 2014](#); [Kleppinger & Cain, 2015](#); [Neville & Waylen, 2015](#); [Pander et al., 2014](#); [Schroeder, 2017](#)). On a positive note, these reviews have eluded that healthcare professions students were willing to make changes to how they used SNSs, but they needed guidance and training ([S. Y. Guraya et al., 2018](#)). In summary, the overall pragmatism of being professional in the digital world was to practice personal and professional work by maintaining autonomy, and professional integrity while safeguarding societal contract, respect, and confidentiality.

In this analysis, literature was identified suggesting academic leadership must define the values, standards, behaviours, policies, and best practices for SNSs usage ([Sara Aase, 2010](#); [Jeff Cain, 2008](#); [Jeff Cain & Romanelli, 2009](#); [Ellaway et al., 2015](#); [J. M. Kaczmarczyk et al., 2013](#); [Kleppinger & Cain, 2015](#); [Neville & Waylen, 2015](#)). Policies and statements that described e-professionalism were also reported, however due to the enormous proliferation of technological innovations with the resultant injudicious use of SNSs, society had yet to adjust to this new paradigm ([Eijkholt et al., 2017](#); [A. C. L. Holden & Spallek, 2018](#); [Orenstein et al., 2013](#)). Philosophically, a