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A spiral module of professionalism, ethics, research, and leadership skills for undergraduate medical education; the philosophy and structure

Saima Chaudhry¹

ABSTRACT

The current medical education curricula are designed to address the competencies that result in the graduation of holistic healthcare professionals. The global competency frameworks have highlighted the outcomes of future doctors that not only incorporate necessary medical knowledge and procedural skills but also equip the graduates with human skills of professionalism, ethics, leadership, lifelong learners, critical thinkers, and problem solvers. This has led to the incorporation of these domains in the training curricula of undergraduate medical education in Pakistani universities as well. The focus of this paper is to highlight the structure of a professionalism, ethics, research, and leadership skills module that can be implemented in health professions education to be able to graduate a humanistic doctor who can provide holistic care to the community.

Keywords: Spiral, curriculum, MBBS, PERLS, professionalism, ethics, leadership, research

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Correspondence to: Saima Chaudhry

*Department of Medical Education, Visiting Faculty, University of Health Sciences Lahore, Pakistan.

Email: drsaimach@outlook.com

Full list of author information is available at the end of the article.

The areas of performance expected from the medical graduates of the 21st century are defined in terms of outcomes of a medical graduate, which with minor variations in terminology across countries, require future doctors to be skillful practitioners, professional and ethical, manager and leaders, health advocate, scholar, communicator, collaborator, systems thinker, and life-long learner.^{1,2} The current curricula of undergraduate medical education have been formulated on these principles worldwide and the same is the case in Pakistan. The graduates are expected to be knowledgeable, skillful, critical thinkers, professionals, scholars, role models, and community health promoters.³ The outcomes of the graduate can only be achieved through backward design where the curriculum is designed from the final year to the first year, so that we can track the progress of the students towards the set goals. This indeed is the essence of the Outcome Based Medical Education.

Pakistani Medical Universities in the last decade have seen a transition from traditional subject-based models to modular system-based curriculum models.⁴ To ensure that the outcomes of the Pakistani graduates are achieved,

the focus has broadened from just a foundation in basic concepts, processes, and mechanisms of the disease resulting in graduates who are knowledgeable and have basic procedural skills, to also incorporate training that can equip medical graduates with required, research acumen, empathy and professionalism, communication, collaboration, and leadership skills to ensure a holistic professional.⁵

This has led to the inclusion of the modules of one or all of professionalism, ethics, research, and leadership skills (PERLs) which align with the previously published PERLs model by the author.⁶ In which for meaningful transfer of knowledge to practice, the acquisition of human skills is designed as a spiral vertical PERLs Module in the MBBS curriculum based on sound principles of andragogy. The vision is a “humanistic doctor who will have the knowledge, skills and attitudes to be able to generate practice-based evidence, advocate healthcare, counsel patients, collaborate within and outside the profession and lead healthcare teams and organizations to bring a sustainable change through continuous self and system improvement.”

The current writing is a further elaboration of the PERLs spiral of the proposed curriculum model where these four domains are envisioned to be divided into attributes that are deemed best suitable under each domain by the author

and further explained by the competency statements of each (Table 1). These are derived from the available curricular frameworks^{1,2,7} which have been modified according to the local context keeping in view that in Pakistan students start

Table 1. PERLs module domains, attributes, and related competencies.

Domains	Attributes	Competencies
Professionalism	Communicator	<ul style="list-style-type: none"> • Demonstrate non-verbal, verbal, written, and electronic communication skills • Communicate effectively with patients and families, as appropriate • Document relevant and accurate health information representing the perspective of patients and their families • Share information and plans with patients and their relatives. • Document comprehensive medical records • Communicate effectively with peers, seniors, and juniors within one's profession. • Communicate effectively with colleagues of other health professions • Share information about patient encounter for handing over and continuity of care • Disseminate information and research findings to improve healthcare
	Caring and empathic	<ul style="list-style-type: none"> • Demonstrate respect of diversity in gender, age, culture, race, religion, disabilities, and sexual orientation for patients, peers, colleagues, and other health professionals. • Demonstrate sensitivity and honesty in patient encounters especially in conversations related to disability, death, and bad news • Demonstrate understanding of emotions and appropriate responses that aid in development of interpersonal relationships • Establish professional therapeutic relationships with patients • Demonstrate commitment to patient-centered care • Counsel patients and their families to enable them to participate in their care • Involve patients and their families in developing treatment plans that reflect patient's health care needs • Demonstrate openness and honesty in interaction with patients when things go wrong
	Responsible and accountable	<ul style="list-style-type: none"> • Follow the dress code and rules and regulation of the institution and the profession • Demonstrate punctuality • Complete assigned tasks within the allotted time • Demonstrate availability and timely delivery of patient care as and when required within professional code of conduct • Accept the roles assigned by the seniors • Take responsibility of one's actions and be accountable to peers, patients, colleagues, and teachers • Seek and provide constructive feedback and performance appraisals including aspects of program evaluations • Engage in orientation, co-curricular, and extracurricular activities • Prioritize personal and professional responsibilities with special attention to effective, efficient, and safe patient care
	Team player	<ul style="list-style-type: none"> • Work effectively with their peers, seniors, and juniors • Demonstrate respect for juniors, peers, seniors • Demonstrate trustworthiness that helps others feel secure when one is in charge of patient care • Demonstrate cooperation and shared decision making with patients and with healthcare teams • Hand over the care of a patient to facilitate continuity of safe patient care • Participate in different team roles to provide safe and equitable patient and population-centered care • Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust
	Self-aware	<ul style="list-style-type: none"> • Identify personal strengths and areas of improvement • Demonstrate self-confidence that puts other at ease in building rapport and trust • Identify limits in one's own level of knowledge and expertise • Show willingness to seek help through advise and support in personal and patient care as and when required
Ethics	Ethical practitioner	<ul style="list-style-type: none"> • Demonstrate respect for patient autonomy • Maintain confidentiality of patients • Obtain verbal and written informed consent • Demonstrate a commitment to beneficence, non-maleficence, and justice in pertaining to provision or withholding of care • Comply with relevant laws and regulation including the minimum standards of health delivery • Demonstrate patient safety in all aspects of healthcare delivery • Identify unprofessional behavior and discuss it with the supervisors/teachers • Recognize ethical dilemmas and be able to seek help for the same

Domains	Attributes	Competencies
	Ethical researcher	<ul style="list-style-type: none"> • Maintain research participants confidentiality • Ensure principles of beneficence and non-maleficence • Obtain proper written informed consent removing the therapeutic misconception • Respect the research participant in the decision to discontinue study participation • Do not use or share others' work without permission • Give credit to those whose work is used • Demonstrate awareness of publication ethics
	Digital citizen	<ul style="list-style-type: none"> • Keep personal and professional data and information safe • Maintain personal privacy while sharing information • Use appropriate online etiquette • Design a professional digital footprint • Obey all intellectual property laws • Follow rules and/or codes of conduct for every Internet resource • Report cyberbullying, harassing, sexting, or identity theft
Research	Evidence-based practitioner	<ul style="list-style-type: none"> • Make informed decisions about diagnostic and therapeutic interventions based on up-to-date scientific evidence that relates to patient's preference • Recognize that ambiguity is part of clinical health care and respond by utilizing appropriate resources in dealing with uncertainty • Conduct a clinical audit
	Scholar	<ul style="list-style-type: none"> • Acquire and use information about individual patients, patient populations, and communities for improving patient care • Locate credible scientific data • Conduct critical reading of research articles • Assimilate evidence from scientific sources related to health problems • Develop a strategic plan to carry out research • Generate evidence through scientific method
	Writer and presenter	<ul style="list-style-type: none"> • Develop a research proposal • Develop a research report • Write a research article • Write a blog or wiki • Disseminate research through scientific writing • Share research findings through presentation on scientific forums
Leadership	Resilient and adaptable	<ul style="list-style-type: none"> • Demonstrate flexibility in adjusting to changing environments • Capable of altering one's behavior in stressful situations • Demonstrate healthy coping mechanisms to respond to stress • Develop coping strategies of reflection and debriefing to recover from obstacles and challenges • Adapt the healthcare delivery based on needs and preferences of the patients with minimum compromise in patient safety and quality of healthcare • Manage emotional and physical challenges in handling the workload of a medical professional and uncertainty of patient outcomes
	Conflict manager	<ul style="list-style-type: none"> • Manage conflict between personal and professional responsibilities • Demonstrate negotiation skills in complex situations • Demonstrate patience and tolerance • Demonstrate impartiality in decision making • Maintain an environment of positivity and open communication • Demonstrate problem solving approach with a win-win situation
	Systems thinker	<ul style="list-style-type: none"> • Recognize own role as contributor towards management and leadership in health services • Identify new advancements in guidelines, standards, technologies, and services that can improve patient outcomes • Demonstrate understanding of quality improvement methods by being part of recognizing errors in the systems • Take part in practice management and administrative roles in accordance with the level of expertise
	Self-directed learner	<ul style="list-style-type: none"> • Seek active feedback from peers, patients, colleagues, and other health professionals • Incorporate reflection in routine practice • Identify the gap in own learning • Set and track learning and improvement goals • Manage time effectively • Prioritize goal achievement • Identify and seek help as and when required to achieve the set goals • Seek membership in professional networks and societies

Table 2. PERLs module competencies as related to content and type of portfolio entries.

Attributes	Competencies	Portfolio entries	Content
Professionalism Communicator	<ul style="list-style-type: none"> Demonstrate non-verbal, verbal, written, and electronic communication skills Communicate effectively with patients and families, as appropriate Document relevant and accurate health information representing the perspective of patients and their families Share information and plans with patients and their relatives. Document comprehensive medical records Communicate effectively with peers, seniors, and juniors within one's profession. Communicate effectively with colleagues of other health professions Share information about patient encounter for handing over and continuity of care 	<ul style="list-style-type: none"> Patient consultation Email thread Medical record 360-degree feedback Handing over encounter Handing over notes Taking over checklist Case based discussions 	Communication skills 1. Principles of communication 2. Types of communication at professional level 3. Communication Styles 4. Non-verbal communication a. Defining nonverbal Communication b. Aligning nonverbal Communication with intentions c. Appearance d. Workplace standards 5. Verbal communication a. Active listening b. Assertive communication techniques c. Barriers to effective communication d. Communicating with confidence e. How to communicate well at work f. How not to communicate g. How to leave voicemails that get returned h. Group communication i. Virtual communication j. Public speaking and presentation skills 6. Written communication a. Academic English b. Professional writing c. Using Email at Work d. Writing social media messages and posts
Caring and empathic	<ul style="list-style-type: none"> Demonstrate respect of diversity in gender, age, culture, race, religion, disabilities, and sexual orientation for patients, peers, colleagues, and other health professionals. Demonstrate sensitivity and honesty in patient encounters especially in conversations related to disability, death, and bad news Demonstrate understanding of emotions and appropriate responses that aid in development of interpersonal relationships Establish professional therapeutic relationships with patients Demonstrate commitment to patient centered care Counsel patients and their families to enable them to participate in their care Involve patients and their families in developing treatment plans that reflect patient's health care needs Demonstrate openness and honesty in interaction with patients when things go wrong 	<ul style="list-style-type: none"> Patient consultation of a different gender orientation Patient consultation of different religious Self and peer evaluation Case based discussion Patient counselling sessions Recording of patient encounters Error reporting consultation and form 	Empathy and care 1. Empathy a. Defining Empathy its importance and functions b. Difference between sympathy, empathy, and compassion c. Empathy and interpersonal relationships d. Theoretical foundations of empathy e. Understanding emotions in others f. Mindful listening g. Defining boundaries h. Importance of body language in displaying empathy i. Empathy and diversity 2. Care a. Creating rapport b. Breaking bad news c. Handling difficult conversations d. Generosity burnout e. Interviewing skills f. Providing psychological support g. Paraphrasing skills

Continued

Attributes	Competencies	Portfolio entries	Content
Responsible and accountable	<ul style="list-style-type: none"> Follow the dress code and rules and regulation of the institution and the profession Demonstrate punctuality Complete assigned tasks within the allotted time Demonstrate availability and timely delivery of patient care as and when required within professional code of conduct Accept the roles assigned by the seniors Take responsibility of one's actions and be accountable to peers, patients, colleagues, and teachers Seek and provide constructive feedback and performance appraisals including aspects of program evaluations Engage in orientation, co-curricular, and extracurricular activities Prioritize personal and professional responsibilities with special attention to effective, efficient, and safe patient care 	<ul style="list-style-type: none"> Teacher and staff feedback form Attendance Evidence of submitting till due date Evidence of clinical duty timings Evidence of role assigned Taking part in self evaluation Evidence of participation Punctuality evidence in clinical settings 	Responsibility and accountability <ol style="list-style-type: none"> Responsibility towards oneself Responsibilities of being a learner Responsibility to professional code of conduct Responsibilities to other members of the profession Responsibilities towards patient and their families Responsibility to the public
Team player	<ul style="list-style-type: none"> Work effectively with their peers, seniors, and juniors Demonstrate respect for juniors, peers, seniors Demonstrate trustworthiness that helps others feel secure when one is in charge of patient care Demonstrate cooperation and shared decision making with patients and with healthcare teams Participate in different team roles to provide safe and equitable patient and population centered care Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust 	<ul style="list-style-type: none"> Evidence of completion of a group project 360 degree feedback Patient encounter record Evidence of different team roles either during curricular or extracurricular activities Documentation of being part of multi-disciplinary patient care team Documentation of being part of interprofessional patient care team 	Teamwork <ol style="list-style-type: none"> Characteristics of a team Types of teams Theories of motivation and group dynamics Stages of team development Team roles Team building activities High performance teams Psychological safety Building rapport and trust Shared decision making Giving and receiving feedback Virtual teams Barriers to effective teamwork
Self-aware	<ul style="list-style-type: none"> Identify personal strengths and areas of improvement Demonstrate self-confidence that puts other at ease in building rapport and trust Identify limits in one's own level of knowledge and expertise Show willingness to seek help through advise and support in personal and patient care as and when required 	<ul style="list-style-type: none"> Professional development plan Recorded patient encounter Document referral of patients who were beyond the level of expertise Evidence of calling for help for patient management 	Self-awareness <ol style="list-style-type: none"> Mindfulness Mindset Metacognition Managing emotions Personal vision & mission Value identification Personal development objectives Reflection

Continued

Attributes	Competencies	Portfolio entries	Content
<p>Ethics</p> <p>Ethical practitioner</p>	<ul style="list-style-type: none"> Demonstrate respect for patient autonomy Maintain confidentiality of patients Obtain verbal and written informed consent Demonstrate a commitment to beneficence, non-maleficence, and justice in pertaining to provision or withholding of care Comply with relevant laws and regulation including the minimum standards of health delivery Demonstrate patient safety in all aspects of healthcare delivery Identify unprofessional behaviour and discuss it with the supervisors/teachers Recognize ethical dilemmas and be able to seek help for the same 	<ul style="list-style-type: none"> Case based discussion Patient encounter of obtaining an informed consent Clinical ethics case discussion Evidence of attending MSDS workshop or course/lectures Case based discussion Written reflective paper on unprofessional behavior Written reflective paper on ethical dilemma 	<p>Clinical ethics</p> <ol style="list-style-type: none"> Contemporary approaches to medical ethics Moral theories and principles Doctor-patient relationship Confidentiality Autonomy and paternalism Informed consent Clinical ethics committees Clinical ethics case consultations Framework of decision making in clinical ethics Clinical judgement, clinical uncertainty, and medical error Ethical clinical resource management Organ donation Palliative care
<p>Ethical researcher</p>	<ul style="list-style-type: none"> Maintain research participants confidentiality Ensure principles of beneficence and non-maleficence Obtain proper written informed consent removing the therapeutic misconception Respect the research participant in the decision to discontinue study participation Do not use or share others' work without permission Give the credit to those whose work is used Demonstrate awareness of publication ethics 	<ul style="list-style-type: none"> Meeting record with a research participant Document the benefits and harms during the particular research Case based discussion Assignment with the plagiarism score and the referencing Reflective paper on ICMJE guidelines 	<p>Research ethics</p> <ol style="list-style-type: none"> Animal experimentation Human experimentation Research integrity Conflict of interest and disclosures Trainee-supervisor relation Bias, rigor, and reproducibility Research misconduct Industry funded research Role of IRB/ERC <p>Publication ethics</p> <ol style="list-style-type: none"> Scientific misconduct Data handling Therapeutic misconception Transparency Authorship Collaborative research
<p>Digital citizen</p>	<ul style="list-style-type: none"> Keep personal and professional data and information safe Maintain personal privacy while sharing information Use appropriate online etiquette Design a professional digital footprint Obey all intellectual property laws Follow rules for every Internet resource Report cyberbullying, harassing, sexting, or identity theft 	<ul style="list-style-type: none"> Written assignment on cybersecurity Record of professional posts Outline of a digital footprint Reflective paper on intellectual property and copyrights Assignments on rules and code of conduct common to all digital platforms Reflective paper on cyberbullying and harassment 	<p>Digital literacy and citizenship</p> <ol style="list-style-type: none"> Media balance and wellbeing Privacy and security Digital identity & footprint E-presence & communication Cyberbullying, digital drama, & hate speech Information literacy Rights and responsibilities Cybersecurity Copyrights

Continued

Attributes	Competencies	Portfolio entries	Content
Research	<ul style="list-style-type: none"> • Make informed decisions about diagnostic and therapeutic interventions based on up-to-date scientific evidence that relates to patient's preference • Recognize that ambiguity is part of clinical health care and respond by utilizing appropriate resources in dealing with uncertainty • Conduct a clinical audit 	<ul style="list-style-type: none"> • Critical appraisal of clinical guidelines • Reflective paper in dealing complex healthcare issues in high resource and low resource settings. • Clinical audit report 	<p>Evidence-based practice</p> <ol style="list-style-type: none"> 1. Introduction to EBP 2. General medical databases search 3. Synthesizing evidence 4. Critical appraisal of evidence 5. Contextualizing evidence
Scholar	<ul style="list-style-type: none"> • Acquire and use information about individual patients, patient populations, and communities for improving patient care • Locate credible scientific data • Conduct critical reading of research articles • Assimilate evidence from scientific sources related to health problems • Develop a strategic plan to carry out research • Generate evidence through scientific method 	<ul style="list-style-type: none"> • Community survey questionnaire • Documented literature search strategy • Critical appraisal of original articles • Narrative review • Research implementation plan • Data analysis 	<p>Designing and conducting research</p> <ol style="list-style-type: none"> 1. Research paradigms 2. Research methods 3. Research process 4. Developing a research question, hypothesis, and objectives 5. Sampling and population 6. Designing data collection tools 7. Collecting data 8. Analyzing data 9. Compiling results 10. Community survey 11. Clinical audit
Writer and presenter	<ul style="list-style-type: none"> • Develop a research proposal • Develop a research report • Write a research article • Write a blog or wiki • Disseminate research through scientific writing • Share research findings through presentation in college or on scientific forums 	<ul style="list-style-type: none"> • Research proposal • Research report • Original article • Blog post • Evidence of article submission to a journal • Evidence of a poster presentation • Evidence of an oral presentation 	<p>Scientific writing and publishing</p> <ol style="list-style-type: none"> 1. Writing a research proposal 2. Writing a research report 3. Organizing an original article 4. Making tables, figures and charts 5. Making a presentation 6. Making a scientific poster 7. Giving an oral presentation 8. Public speaking skills
Leadership	<ul style="list-style-type: none"> • Demonstrate flexibility in adjusting to changing environments • Capable of altering one's behavior in stressful situations • Demonstrate healthy coping mechanisms to respond to stress • Develop coping strategies of reflection and debriefing to recover from obstacles and challenges • Adapt the healthcare delivery based on needs and preferences of the patients with minimum compromise in patient safety and quality of healthcare • Manage emotional and physical challenges in handling the workload of a medical professional and uncertainty of patient outcomes 	<ul style="list-style-type: none"> • Reflective writing on differences in work environments of a tertiary care hospital and a community-based center • 360-degree evaluation • Paper on coping strategies for health professionals • Case based reflective paper • Reflective paper on challenges and ways you handled them 	<p>Adaptability and resilience</p> <ol style="list-style-type: none"> 1. Identifying stress 2. Coping strategies 3. Time management 4. Fostering curiosity 5. Situational awareness 6. Self-confidence and optimism 7. Adaptability to adversity 8. Mental health 9. Identifying patient factors that may compromise quality of care 10. Being proactive in healthcare delivery

Continued

Attributes	Competencies	Portfolio entries	Content
Conflict manager	<ul style="list-style-type: none"> Manage conflict between personal and professional responsibilities Demonstrate negotiation skills in complex situations Demonstrate patience and tolerance Demonstrate impartiality in decision making Maintain an environment of positivity and open communication Demonstrate problem solving approach with a win-win situation 	<ul style="list-style-type: none"> Record of a breaking bad news scenario Case based discussions 360-degree feedback Reflective paper documenting multiple solutions to a single problem 	<p>Conflict management and resolution</p> <ol style="list-style-type: none"> Defining Nature, causes and types of conflict in professional settings Benefits and cost of conflict Conflict mitigation strategies Conflict management styles Conflict resolution approaches Persuasion, influence and negotiation Handling difficult conversations Organizational culture Diversity, equity and inclusion
Systems thinker	<ul style="list-style-type: none"> Recognize own role as contributor towards management and leadership in health services Identify new advancements in guidelines, standards, technologies and services that can improve patient outcomes Demonstrate understanding of quality improvement methods by being part of recognizing errors in the systems Take part in practice management and administrative roles in accordance with the level of expertise Contribute to development of patient safety protocols keeping complex health system in mind 	<ul style="list-style-type: none"> Writing one system improvement plan Document technologies changing healthcare in previous 6 months Conduct an infection control exercise under supervision Reflective writing on importance of students on various educational and hospital committees Patient safety guidelines review 	<p>Systems thinking in healthcare</p> <ol style="list-style-type: none"> Theory and principles Dynamic nature and architecture of health systems Tools to understand systems thinking Holistic perspective Make meaningful connections within and across systems Systems thinking and healthcare quality Systems thinking and patient safety
Self-directed learner	<ul style="list-style-type: none"> Seek active feedback from peers, patients, colleagues, and other health professionals Incorporate reflection in routine practice Identify the gap in own learning Set and track learning and improvement goals Manage time effectively Prioritize goal achievement Identify and seek help as and when required to achieve the set goals Seek membership in professional networks and societies Conduct volunteer work in non-profit organizations 	<ul style="list-style-type: none"> Documenting feedback sessions Reflective paper on own learning Personal development plan Evidence of membership in various groups, organizations, and societies Evidence of volunteer work within or outside the institution in non-profit human care activities 	<p>Lifelong learning</p> <ol style="list-style-type: none"> Concept of lifelong learning Lifelong learning and professional identity Lifelong learning and globalization Process and strategies of self-directed learning Continuing professional development Readiness and motivation Self-evaluation and self-reflection Learning attitude Collaboration and Networking Interprofessional education

Table 3. PERLs module year-wise distribution of portfolio entries.

Attributes		Competencies		Portfolio entries			
Professionalism skills		Year 1	Year 2	Year 3	Year 4		
Communicator	1. Demonstrate non-verbal, verbal, written, and electronic communication skills with peers, seniors, and juniors within one's profession.	P	P	P	P		
	2. Communicate effectively with patients and families, as appropriate					P	
	3. Document comprehensive medical records					P	
	4. Communicate effectively with colleagues of other health professions			P			
	5. Share information about patient encounter for handing over and continuity of care					P	
Caring and empathic	6. Demonstrate respect of diversity in gender, age, culture, race, religion, disabilities, and sexual orientation for patients, peers, colleagues, and other health professionals.	P	P				
	7. Demonstrate sensitivity and honesty in patient encounters especially in conversations related to disability, death, and bad news					P	
	8. Counsel patients and their families to enable them to participate in their care			P	P		
Responsible and accountable	9. Follow the dress code and rules and regulation of the institution and the profession	P	P				
	10. Demonstrate punctuality	P	P				
	11. Complete assigned tasks within the allotted time	P	P				
	12. Demonstrate availability and timely delivery of patient care as and when required within professional code of conduct			P	P		
	13. Take responsibility of one's actions and be accountable to peers, patients, colleagues, and teachers	P	P	P	P		
	14. Engage in orientation, co-curricular and extracurricular activities	P	P	P	P		
Team player	15. Work respectfully and effectively with their peers, seniors, and juniors	P	P				
	16. Participate in different team roles	P	P	P	P		
	17. Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust			P	P		
Self-aware	18. Identify personal strengths and areas of improvement	P	P	P	P		
	19. Demonstrate self-confidence that puts other at ease in building rapport and trust		P			P	
	20. Identify limits in one's own level of knowledge and expertise			P	P		
	21. Show willingness to seek help through advise and support in personal and patient care as and when required			P	P		
Ethics skills		Year 1	Year 2	Year 3	Year 4		
Ethical practitioner	22. Obtain verbal and written informed consent			P	P		
	23. Comply with relevant laws and regulation including the minimum standards of health delivery and demonstrate patient safety in all aspects of healthcare delivery			P			
	24. Recognize ethical dilemmas and be able to seek help for the same					P	
Ethical researcher	25. Maintain research participants confidentiality and understand principles of beneficence and non-maleficence			P			
	26. Obtain proper written informed consent removing the therapeutic misconception			P	P		
	27. Demonstrate awareness of publication ethics			P	P		
Digital citizen	28. Keep personal and professional data and information safe	P	P				
	29. Design a professional digital footprint	P	P				
	30. Understand cyberbullying, harassing, sexting, or identity theft	P	P				
	31. Use appropriate online etiquette and follow rules for every Internet resource	P	P				

Continued

Attributes	Competencies	Portfolio entries			
		Year 1	Year 2	Year 3	Year 4
Research skills					
Evidence based practitioner	32. Make informed decisions about diagnostic and therapeutic interventions based on up-to- date scientific evidence that relates to patient's preference		P	P	P
	33. Locate credible scientific data	P	P		
	34. Conduct a clinical audit				P
Writer and presenter	35. Develop a research proposal		P		
	36. Develop a research report/article			P	
	37. Write a blog or wiki		P	P	
	38. Present in college or on scientific forums				P
Leadership skills					
Resilient and adaptable	39. Demonstrate flexibility in adjusting to changing environments		P	P	
	40. Demonstrate healthy coping mechanisms to respond to stress	P	P		
	41. Demonstrate negotiation skills and problem-solving approach with a win-win situation			P	P
	42. Demonstrate patience and tolerance and impartiality in decision making	P	P		P
Systems thinker	43. Recognize own role as contributor towards management and leadership in health services			P	P
	44. Identify new advancements in guidelines, standards, technologies, and services that can improve patient outcomes			P	
	45. Demonstrate understanding of quality improvement methods by being part of recognizing errors in the systems				P
Self-directed learner	46. Seek active feedback from peers, patients, colleagues, and other health professionals		P	P	P
	47. Incorporate reflection in routine practice, identify the gap in own learning, Set and track learning and improvement goals	P	P	P	P
	48. Manage time effectively	P	P		
	49. Identify and seek help as and when required to achieve the set goals	P	P	P	P
	50. Seek membership in professional networks and societies			P	P
Total portfolio entries year wise		20	25	27	30

medical college immediately after 12 years of education and need training from the very basics in every domain.

To operationalize the achievement of each competency the taught content has to be identified and also the evidence for acquisition of each competency needs to be incorporated. Portfolios are the mainstay in developing the human skills required for a graduating physician as it has shown to be an effective tool in measuring student progress based on goals that are set by the training faculty and the trainees together.⁸ An outline of the contents along with the evidence that can be collected to be part of the student's training portfolio for achievement of defined competencies is proposed in Table 2.

The next step in implementation will have to ensure that the module is actually a spiral which means that concepts are revisited and experiences accumulated every year. Table 3 highlights a plan for year-wise portfolio entries of the competencies with almost every attribute addressed every year again with an increased level of complexity.

For example, the student will initially be expected to demonstrate communication with their peers and teachers, this will be translated to proper communication with the patients, leading to learning to communicate with members of other health professions along with the difficult patients and commencing in communication with patient families and the larger public. The reason to keep the module to four years is that the final year of the undergraduate degree program is rightly based on clerkships and all these skills learned in isolation need to be practiced in the final year of undergraduate academics as holistic competencies. This in turn is expected to ensure the graduation of a Seven Star Pakistani doctor.

The PERLs module is developed based on theoretical knowledge and thorough analysis of the available literature by the author only and needs to be tested and evaluated in the local context for turning it into an evidence-based document. The PERLs module domains, competencies, attributes,

and contents along with the possible portfolio entries are proposed based on global standards contextualized to Pakistan. The framework is kept broader in terms of how the competencies are divided into complexity per year, the mode of delivery, and the type of portfolio entry chosen by the universities and institutions.

The philosophy of assessment of human skills that are involved with changing underlying attitudes is believed to be grounded in the processes implemented⁹. So whichever process is to be followed for training graduates to achieve the mentioned competencies should be decided by the college academic councils and must be followed in letter and spirit. Following the due process will result in proper tracking of student effort and progress that can later be assessed with skill-based stations or portfolio-related viva evaluation in the middle and at the end of the year both as part of formative and/or summative assessment.

Elaborating the framework further is proposed to be left to the medical colleges which on the basis of their available physical infrastructure and human and capital resources can decide when and how to teach and if to develop a paper based on an electronic portfolio. The finalization of the PERLS module curriculum should be done by in consultation with all stakeholders and modified as and when deemed necessary based on the evaluation received by the faculty, students, patients, and administrators along with the other healthcare professionals working with the doctors to ensure safe and quality patient care. The module can be used for guiding the training of other healthcare professionals in these domains as well.

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List of Abbreviations

PERLS Professionalism, Ethics, Research, and Leadership skills

Conflict of interest

None to declare.

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Authors' Details

Saima Chaudhry¹

1. Department of Medical Education, Visiting Faculty, University of Health Sciences Lahore, Pakistan

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