

# Systematic Development and Refinement of a Contextually Relevant Strategy for Undergraduate Medical Ethics Education: a qualitative study

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## Research article

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## Abstract

# Background

Delivery of medical ethics education is complex due to various reasons, compounded by the context-dependent nature of the content. The scarcity of relevant resources in the contexts of some developing countries adds a further layer of difficulty to ethics education in these contexts. We used a consultative approach with students, teachers and external experts to develop a contextually relevant and practical approach to medical ethics education. The aim of this study was to develop and refine a contextually relevant approach to ethics education in the region of Saudi Arabia.

## Methods

The study utilized explorative qualitative methodology to seek views of students and faculty of Rabigh Faculty of Medicine, Kaing Abdulaziz University, Jeddah, Saudi Arabia, and international experts in the field of ethics and education to review and enhance a preliminary version of workbook-based ethics learning strategy. Three focus groups with 12 students and in-depth interviews with four faculty members enabled the study participants to objectively critique the WBEL and provide feedback to enhance its quality. In addition, eleven external experts critically analyzed the workbook. Thematic content analysis of the data was done to draw inferences which were used to refine the educational strategy.

## Results

The analysis generated twenty-one sub-themes within four main themes: design features, content, teaching methods and assessment. These findings helped to modify the educational strategy for improve its effectiveness in the given context.

## Conclusion

The study drew on the views of students, faculty and external experts to systematically develop a novel approach to ethics education for countries like Saudi Arabia. It also demonstrated the use of consultative approach for informing a culturally relevant educational strategy in Middle East context.

## Background

Consultative feedback on an educational approach provides opportunities for improving its effectiveness (1). Workbook-based ethics learning (WBEL) is one such approach, conceptualized by the authors as a strategy for teaching ethics in undergraduate medicine using the workbook as a structured resource. The conceptualization of WBEL was grounded in the gaps identified in delivery of ethics education in the Middle East region (2–4). Here the socio-cultural structure is established on communitarian perspective, based on religious principles, with people living in closely inter-knitted family systems (5). Their cultural values frequently influence social, educational and professional activities, that are often different from the western norms. In this scenario, delivery of calibrated undergraduate medical ethics education becomes difficult due to the scarcity of local contextually relevant guidelines, pertinent literature and availability of trained ethics educators in medical institutes (6). Addressing these factors which constrain delivery of ethics education in the study region is the main consideration in development of WBEL strategy.

The aim of WBEL strategy, therefore, is to enable the process of ethics education by filling the gaps in available resources for students and faculty within their socio-cultural context. The strategy is underpinned in the framework of a contextually relevant ethics education model (7). The model (Fig. 1) incorporates students' environments, contexts, experiences, reflections and feedback, and addresses the requirements of medical ethics education in various socio-cultural contexts. The process of WBEL includes an ethics workbook for students, containing culturally relevant readings on various medical ethics topics, learning

activities like role-plays and student presentations and writing assignments, along with opportunities for reflection and feedback. The workbook facilitates students' learning and guide the "non-ethics-trained" teachers in delivery of ethics education. Thereby, specifically addressing the factors that limit the delivery of contextually relevant ethics education in the region.

An initial survey, using quantitative feedback from students of Rabigh Faculty of Medicine, King Abdulaziz University (8), Jeddah, Kingdom of Saudi Arabia, regarding the use of a workbook for ethics education, revealed encouraging findings (9) and became the trigger for conducting a more in-depth study to refine and develop it into an educational strategy. Hence, this study was designed to systematically refine the preliminary version of WBEL through consultation and feedback from multiple sources, in order to enhance its effectiveness for ethics education in that particular context. This paper builds on the previous work in this area and describes the development of WBEL as a potentially effective strategy for teaching ethics in undergraduate medical education.

## **Methods Used In The Research**

An exploratory qualitative methodology (10, 11) was employed for this study. The method was chosen for its ability to facilitate exploration of the workbook within its context of ethics education using consultative feedback from variety of sources, hence looking from different angles, ensuring better understanding of its multiple facets (12) and enhanced the data credibility (13) through triangulation (14). The methods and sources for data collection included:

- Focus group discussions with students who attended the ethics course
- In-depth interviews with faculty members that facilitated the course
- Expert critique through consultation with external experts in the field

The study was conducted at Rabigh Faculty of Medicine (RFM), a relatively new undergraduate program and faculty at KAU, for male students only. The students at RFM are a mix of conservative and modern Saudi nationals. Faculty at RFM comprises mostly of specialists from various countries in the region (Table 1).

Table 1  
 Characteristics of participating Faculty members and Experts

<b>Faculty members</b>			
	<b>Specialty/ Discipline</b>	<b>Nationality</b>	<b>Work experience</b>
1	Pediatrics	Egyptian	Egypt & Saudi Arabia
2	Pediatrics	Pakistani	Pakistan & Saudi Arabia
3	Surgery	Pakistani	Pakistan, Saudi Arabia & UK
4	Family Medicine	Pakistani	Pakistan & Saudi Arabia
<b>Experts in the field</b>			
	<b>Specialty/ Discipline</b>	<b>Nationality</b>	<b>Work experience</b>
1	Ethics	Turkish	Turkey
2	Ethics	Turkish	Turkey
3	Education	Saudi	Saudi Arabia
4	Education	Saudi	Multiple countries in the Middle East
5	Education	Egyptian	Egypt & Saudi Arabia
6	Ethics	Philippine	Philippines
7	Ethics	Pakistani	Pakistan & UK
8	Education & Ethics	Pakistani	Pakistan & Kenya
9	Ethics	Pakistani	Pakistan
10	Education	Canadian	Multiple countries in the Middle East & Canada
11	Ethics	Mexican	Mexico

The preliminary version of the workbook was used for teaching and assessment during a two-week stand-alone course on medical ethics in the academic year 2017–2018. The main objective of this course was to prepare students for their clinical rotations. The experience of using the workbook for learning was new for students as well as teachers.

## Focus group discussions (FGD) and In-depth interviews (IDIs)

The FGD and IDI were conducted by the same researcher (MSS) to ensure homogeneity during data collection, using inquiry protocols developed specifically for this research (15). The inquiry protocol contained questions, for guiding the FGD and IDIs regarding the main themes, identified apriori for evaluating the use of workbook in the ethics course, and outlined the process for data collection (16).

There was a total of 46 students in year 3 at RFM who used the workbook during the medical ethics course. All of them were informed about the study and invited to participate in the FGDs. Twelve students volunteered in groups of 5, 4 and 3, and focus group discussions were conducted with these three groups. The FGD sessions continued for about 30–40 minutes each.

The ethics course was facilitated by five faculty members with interest in teaching ethics. They were invited to participate in the IDIs and four of them consented to participate. Semi-structured, one-to-one key informant IDIs were conducted with these four faculty members. They belonged to various disciplines (Table 1) with varying teaching experience in the region. Each interview was of approximately 40 minutes duration.

The researcher collecting data was well known to the participants as a helpful and friendly faculty member and colleague. This may have helped in reducing anxiety in study participants and ensuring data credibility (17, 18), and may also be seen as a limitation (as discussed within the limitations section). The FGDs and IDIs were digitally recorded. During the sessions, the researcher also took notes of the discussed points and main suggestions by the participants to maintain an audit trail (19). After each session, the researcher confirmed the noted points and suggestions with the participants. The digital recordings of FGDs and IDIs were transcribed verbatim and de-identified before analysis. Two of the four interviewees confirmed the transcripts ensuring appropriateness of the transcribing process through member checking (19). Thematic content analysis of each transcript was done independently by two reviewers (MSS and NZ).

## **Expert Critique**

The experts in the field of ethics and/or education from various geographical regions were selected according to criterion-based purposive sampling technique described by McKenna & Main (20, 21). The criteria for selecting the experts for this study included:

- Formal qualification and positions in the field of ethics and/or medical education
- Have experience in the field of medical ethics and/ or medical education in the developing country context
- Have published in the discipline of ethics education in peer reviewed journals, confirming their ability to communicate
- Are willing to participate voluntarily without any personal gain (conflicting interests)

The researchers (MSS and NZ) identified twenty experts who fulfilled all the selection criteria. These were invited to provide consultative feedback on the draft workbook via email. The email included information regarding the primary researcher, study purpose, process of informed consent and maintaining confidentiality, along with guidelines for critiquing the attached workbook. Eleven out of twenty responded with the required qualitative feedback. The response was extracted from their emails, anonymised and saved electronically for thematic content analysis, as for other data sets.

## **Ethical considerations**

The ethics approval for this study was acquired from the ethics review committee of KAU, reference no. 393 – 15, where the study was conducted and the University of New South Wales (UNSW), approval no. HC15640, Australia, where the primary author is enrolled as a PhD scholar. The potential participants were informed about the researchers and the study in detail. The Participant Information Statement and Consent Form prescribed by UNSW was used to seek informed consent from students and faculty participating in the study. All the data were anonymized prior to analysis.

## **Thematic content analysis of focus groups, interviews and expert critique**

The transcripts were analysed independently by two researchers (MSS and NZ) using NVivo software for coding into the main themes. This analysis informed the coding framework (Table 3), agreed upon after consensus of the research team. The framework was then used for driving and documenting inferences from the data on the strengths, weaknesses and areas for improvement, that can be used for refinement of the ethics course and the workbook. The documents were then reviewed manually, with repeated readings, to understand the views of participants and develop subthemes (10, 11). This deductive method of analysis enhanced the researchers' understanding of the views of each participant and influenced the systematic development and refinement of the workbook (10). Figure 2 illustrates the process for generating codes, themes and subthemes in this analysis. As the collected data from students, faculty and experts were analysed, comparison between data sets was undertaken to inform interpretations and theories (22, 23).

Table 3  
Summary of suggestions from the data

<b>Suggested additions</b>	<b>Data source</b>	<b>Action taken</b>
<b>Guiding the facilitators in conducting the course</b>		
Guidelines for new facilitators	(F12 & F13) (E201 & E301)	Facilitator guide developed and included in the EWB
Use of cases scenarios that explicitly represent opposing viewpoints	(E601)	Added in EWB and facilitator guide
Summary or take-home message	(FG1 & FG3) (F11)	Incorporated in facilitator guide
<b>History and philosophy of ethics</b>		
Development of bioethics principles and their application in medical profession	(E501, E801)	Section added in EWB
<b>Differing perspectives from legal and cultural aspects</b>		
Local and international laws related to medical profession	(FG1, FG2 & FG3)	Excerpts from local codes and guidelines added in different sections of EWB
Sensitive issues related to women's health in local culture and law	(FG2 & FG3)	
More on Islamic perspective in local culture, Islamic rules from Hadith and comparison of Islamic ethics with ethics of other religions	(F11) (E701 & E1201)	Section on Islamic ethics in EWB enhanced
More on euthanasia to understand the two sides of views	(E601)	
Identifying and managing presuppositions and biases, and understanding opposing views on different issues	(E301, E601 & E1001)	Added in EWB and facilitator guide
Concept of privacy	(E101 & E1201)	Added in facilitator guide for discussion
<b>Interactive learning activities</b>		
More feedback, role-plays and videos	(FG1, FG2 & FG3) (F11)	Added in EWB
Reflective writing exercises should be added to video clips and role-plays	(FG2 & FG3) (F14)	Incorporated in EWB
More to enhance students' communication skills	(FG1 & FG2) (F13)	Added in EWB and facilitator guide
Links to learning resources	(E601)	Added in EWB and facilitator guide
<b>Clarity of goals to achieve through different activities</b>		
Message to be taken from each session	(FG1 & FG3) (F11) (E601)	Constructive alignment of the EWB enhanced and table added in EWB
Learning objectives with video clips and role-plays	(FG2 & FG3) (F14)	Added in EWB
<b>Suggested deletions</b>	<b>Data source</b>	<b>Action taken</b>

Suggested additions	Data source	Action taken
Repetition in the consent part	(F14)	Corrected
Avoid the use of culturally controversial words like “Mesiah”	(E601)	Deleted from EWB
Common controversies in last section is not required at this level	(F12) (E101 & E201)	Deleted from EWB
Prenatal issues and fetal rights are not required at this level	(E101)	Deleted from EWB
Student presentations were not effective for learning of all students	(FG1, FG2 & FG3)	Removed from the course
FG = students focus group, FI = faculty interview, E = experts’ opinion, EWB = Ethics Workbook		

## Findings From The Study

The analysis generated twenty-one sub-themes within the four main themes: design features, content, teaching methods and assessment exercises in the workbook (Table 2). The views of participants are described under each main theme. This will allow the themes to be viewed through the lenses of each group of participants. The language of quotes is minimally corrected for better understanding, while maintaining the originality of what was said.

Table 2  
Content analysis framework

Main Themes/ Categories	Sub-themes generated from coding						
<b>Design features</b>	User-friendly & enjoyable (S,F)	Facilitates understanding (S,F)	Active learning (stimulating critical thinking) (S,F)	Integration of teaching methods (S,F,E)	Internalization of learning (S,E)	Language and flow (F,E)	Sustainability
<b>Content</b>	Topics covered (F,E)		Size (S,F,E)	Depth of information (F,E)		Contextuality (S,F,E)	
<b>Teaching methods</b>	Reflection (S,F,E)	Role play (S,F)	Case discussions & experience sharing (S,F)	Videos (S,F)	Feedback (S,F)	Student presentations (S,F)	
<b>Assessment exercises</b>	Quantity (S,F,E)		Amount of information (S,F,E)	Level of difficulty (S,F)		Relevance and contextuality (S,F,E)	
S = students, F = faculty, E = experts							

## Theme 1: Design Features

The students reflected on their learning experience during the workbook-based ethics course and compared it with their previous experience of didactic teaching of ethics. Participants credited the design of workbook as the main strength of the course in making it an enjoyable and engaging learning experience. They attributed this to the method of course delivery through the combination of the content of the workbook, including exercises and activities, and various teaching methods. They believed the course influenced their way of thinking and reflection of ethical issues in the hospitals.

*“I have learned that it was wrong what I was thinking ... it (the course) has changed the way I think” (FG 1); “What you learn, you have to write it in the workbook, and when you write things, you remember better” (FG 3)*

This potential ability of the workbook for making the learning experience active in nature and influencing the students' thought process was also recognized by the experts in their feedback. They predicted that moral experiences through learning activities and ethical decision-making exercises within the workbook can modify the way students think.

*"It is not about information, but about the process of thinking in reflection and how they can anticipate the consequences for each option in decision making" (E201 medical educationist, Saudi Arabia); "(The workbook supports) competence development appropriately for the level of education ... providing moral experiences" (E 501 ethics teacher, Mexico)*

The experts among the respondents generally considered design features appropriate for ethics course delivery, however, identified areas for improvement by suggesting to remove certain topics from the workbook, enhance integration of teaching methods with assessment exercises and highlighted the need for a teachers' guide to using the workbook. They indicated that the workbook should be a dynamic document, with potential for modifications as per the requirements of teachers and students.

*"Facilitates effective and active learning ... (encourages) students to think and develop ideas ... combines theory with practice" (E 1001 ethics teacher, Turkey); "broad range of issues that lend themselves to active, practical examples that can challenge the students in terms of their decisions" (E 301, Canada)*

Faculty's experience in undergraduate education in the region reflected in their views and suggestions regarding the workbook, which they considered to be aligned with "adult learning", "self-directed learning and guided learning" principles. They expressed their satisfaction with the overall design features of the workbook as basis for enhancing students' interest and motivation during the course.

*"Those (students) who were always dormant started coming out of their shells, and we felt that with the help of this (work)book they even started interacting verbally as well, and therefore they become a part of the whole discussion." (F1 2).*

Like the experts, they also suggested combining different teaching methods to enhance students' learning and make it more effective.

## Theme 2: Content

The critical review of the workbook was evident by the constructive criticism by faculty and experts on various sections of the workbook. Most considered the section on "*controversies in contemporary ethics*" in the workbook as too complicated for the level of student ability. For example, one of the experts deliberated that such complex issues in the content may cause "*cognitive overload*" for the students. They suggested to replace this section with topics that are more relevant to the level of undergraduate students.

*"... content at times is too sophisticated and too extensive for such a target audience" (E 101 ethics teacher, Pakistan)*

Participants emphasized that faculty and students should have a clear understanding of the objectives of different activities, therefore learning objectives should be clearly stated with every topic and activity. Faculty and experts also noted the lack of guidance for facilitators within the workbook. They mentioned that, for most topics, the facilitator has to bring in contextuality in the discourse. They suggested to add guidance for facilitators in the form of contextually relevant examples, that are aligned with the course objectives, to generate discussions during the course.

Regarding the content of the workbook and topics discussed within the course, students expressed a range of views. On one hand the majority appreciated that most of the topics in the workbook are relevant to problems that they may have to face as professionals. On the other hand, some students pointed-out that there were only "*few things about religion and culture*" in the course and suggested to add more from local cultural, religious and legal perspectives to enhance relevance.

*"(Workbook should contain more on) the principle of ethics, and the ethics of Islam as a religion because this is an Islamic country so that gives them interest as well, and relatedness as well. (FI 4)*

Their response reflected the socio-cultural structure of their region. However, this response was not unanimous, as there were others who disagreed and supported the view that medical ethics should be taught independent of religion. These students believed that patients can be from various belief systems and cultures, but they must be treated in the same *"standard ethical manner"*.

*"... in every country they have different religions and different social issues and social problems. Like here in Saudi Arabia the woman must wear hijab and male doctor, or male student cannot examine a woman easily. This is very (big) problem in Saudi Arabia but outside it's not that (big a) problem, so the ethics (course) or workbook must contain the two ideas" (FG 2)*

This observation was also seen in the responses from some of the experts. The experts from within the region recommended adding information regarding the Islamic (clerical) rulings on different aspects of healthcare issues, doctor-patient interaction, and differences (and similarities) between ethics of different religions. They endorsed that the content should reflect the differences between eastern and western cultures, along with taking care of the society's perceptions and sensitivities in using the terminologies like *"God"* and *"Messiah"*, which are perceived differently in local context.

*"Use the designation Allah rather than God in the document (workbook). Exemplifying healers as the "Messiah prophet" is a controversial issue (in the region)." (E601 medical educationist, Saudi Arabia)*

## Theme 3: Teaching methods

Students considered teaching methods, like videos and role-plays, as an integral part of the course that gave them *"experience of real situations"* and recommended more connection between them and reflective writing exercises. The videos were considered supportive for understanding issues and useful in creating a favorable learning environment. Students appreciated the individual feedback which was given to them during the course on their reflective writing assignments.

*"The process in the book was very good, and the content of the workbook was applied by videos and other methods ... made everything clear and helped form my point of view" (FG 2).*

One of the main weaknesses related to the student presentations. Some of the students expressed their concerns regarding the topics given for presentations, and the majority expressed their dissatisfaction suggesting that group presentations should be replaced with more small group discussions and reflective writing; *"Presentation is good for the one who is making (it)" (FG 1).*

## Theme 4: Assessment Exercises

Students reflected that incorporation of assessment within the workbook, through assignments and classroom quizzes conferred to them a *"sense of freedom"* from end-of-course exams and reduced the stress related to the course. However, one of the focus group participants pointed out that some students may not take the course seriously because there was no exam at the end. In his opinion, it may cause a potential problem in future courses.

Faculty members considered design of assignment exercises to be *"thought-provoking"* and *"constructivist"* in nature, thereby making students responsible for their learning, and engaging students' interest and active participation.

The experts appreciated the assignment exercises. The ethics educationists found them *"adequate"*, *"useful"*, and *"creative and diverse"*. However, they suggested to improve them by adding relevant topics in the case scenarios and assignments, like social issues, medico-legal laws and regulations in the country.

*“The scenarios (vignettes) need to be more structured and ill-defined, as in real clinical practice. The students may not have enough background knowledge from practice or legal orientation on how to deal with difficult cases like in Scenario 1 & 2, related to DNR. Student learning can be enhanced by providing options for decision making and teacher should be ready to discuss the consequences of each one” (E201 medical educationist, Saudi Arabia).*

## Discussion

The WBEL is a new strategy for medical ethics education in regions where contextually relevant guidelines, culturally pertinent literature and trained ethics educators are scarcely available in medical institutes. This study critically examined the preliminary version of the WBEL strategy and enabled its refinement by analysing the data gathered from a range of stakeholders, including students, course faculty and external experts. Multiple sources for data collection enhanced the rigor in research and credibility of findings in this study (24, 25).

Among these data sources, the diverse educational and cultural backgrounds of course faculty (Table 1) reflected on their personal experience of using the strategy in the ethics course. Their critical observations about the effects on students informed comprehension of evidence gathered from students’ themselves (21). The external experts, on the other hand, mainly reflected on the design, content and possible influence of the strategy on the learners. It was evident that among these experts, those with a background in medical education reviewed the workbook from a technical angle. Their primary concern was towards the possible influences on the process of learning. While the experts with a background in teaching ethics focused on how it may impact on learners’ ethical development. This combination and mixed backgrounds of study participants interjected diversity in the research findings, which was particularly beneficial for the refining process of the educational strategy.

The cognitive load in a learning experience is considered the most notable factor affecting the students’ ability to learn (26). This was noted by the study participants who contemplated the size and depth of information in the workbook to be appropriate (extraneous load); the content to be *“easy to understand”* and *“enjoyable”* (intrinsic load); and the reading material and exercises to be thought-provoking (germane load). It was also apparent from the findings that any significant change in the cognitive load will not be favourable and the refinement process should enhance the educational potential of WBEL without increasing the cognitive load for students.

## How the process refined the strategy:

Based on the inferences drawn from the study findings (Table 3), efforts were made to enhance the identified strengths and reinforce the weak areas. Thereby, new sections were added in the workbook dealing with, history of development of medical ethics, local and international laws governing ethical conduct of healthcare providers and religious and socio-cultural factors relevant to the care of sick. These additions encompassed relevance augmenting the contextuality in the strategy. Similarly, the already present sections were reinforced with addition of learning objectives, and new contextually relevant case scenarios, reflecting exercises and video clips where indicated by the study participants.

One of the primary goals of medical education (27) and teaching ethics (28) is to modify students’ way of thinking, internalization of new information. In this study, students acknowledged that the process used for delivery of the ethics course was the main reason for their motivation to learn and internalise the new knowledge. They acknowledged that internalisation or (change in their thinking) was achieved through a combination of short readings from the workbook, along with interactions with facilitators and peers in the form of lectures and group discussions; followed by reflective writing exercises and feedback. All of these combined as *“authentic learning activities”* (29) for transforming knowledge from abstract to useful and applicable, thereby modifying students’ way of thinking.

In addition, the study participants provided noteworthy suggestions regarding other teaching methods used within the ethics course. These methods, including case discussions, demonstrations and role-play exercises, were used to supplement preliminary WBEL strategy during the course (9) and provide them with opportunities to experience ethical dilemma in an open

and safe environment (30). The students and course faculty suggested the supplementary methods should also be incorporated within the workbook, along with descriptions and exercises in the form of planned authentic learning activities as part of WBEL strategy.

How ethics should be assessed is an ongoing debate in world literature (31–33). Although Glick (31) seems convinced that examination gives an additional stimulation to students, Mattick and Bligh (32) argue that it does not ensure learning in the context of ethics. In this study, students' responses regarding assessment in the course were remarkable. Students considered the assessment exercises in workbook as an effective double-edged method, providing a "*sense of freedom*" because there was no end-of-course exam on one hand. While on the other hand, warranting the need to be attentive in classroom to be able to complete assessment exercises within the workbook. Similarly, faculty considered this as using the adult learning principles to their best. Based on the findings, format of assessment in the WBEL was sustained in its present form.

The success of any educational strategy can be expected when there is consistency in approach to teaching and acceptance of teachers' perceptions of teaching context (34). It was noted in this study through faculty members' responses, in which they submitted their initial reluctance to facilitate that alleviated to some degree after going through the workbook. The workbook provided them knowledge on the topics and some idea on facilitating their sessions with students. Experts supported this view by suggesting that the WBEL should provide guidance to teachers in delivering ethics education effectively. These findings signified that to be used as a sustainable and effective strategy, the refined WBEL strategy must contain ample guidance for facilitators of the ethics course who may not have prior experience or training for such teaching and learning activities. Therefore, a topic-wise guide for facilitators was developed and incorporated in the workbook for aiding teaching faculty and ensuring homogeneity in delivery WBEL.

Looking through the lens of contextually relevant ethics education model (7), the refined WBEL strategy for delivery of ethics education incorporates contextually relevant task or experience to initiate the process of learning through social interactions in the form of discourse, reflective exercises and feedback. The process provides learning opportunities for students to make sense from newly acquired knowledge and complete the given task using the workbook. Reflection and feedback during the learning process enhance students' motivation and internalisation of knowledge (27). Social interaction with other students and facilitators during these activities enrich the experience of acquiring and understanding of the new information (35). Hence, the WBEL strategy tends to allow learners to see beyond their personal beliefs within their cultural context and encourages them to engage in discourse in ethics education.

The consultative approach employed in this study can be utilized for various purposes (1). However, this study explicitly applied it in the specific socio-cultural context of Saudi Arabia for developing a contextually relevant educational strategy for medical ethics. With an increasing number of medical institutes in the Middle East and South Asian regions (36), a wider applicability of this approach can be explored in countries with similar contexts.

## **Limitations:**

The potential of study design was maximized through early identification of possible limiting factors (37). These, a relatively small sample of students due to small class size and potential language issues, were addressed by the research group at the beginning of the study while designing the methods for this research project. Single gender among the participating students was a limitation that was beyond the researchers' control as the institute only had male students at the time of the study. This may have implications on the analysis of responses from students. Similarly, the small number of 3 to 5 students in focus groups is not optimal for generating discussions. This could be enhanced with more than 5 students per group. Authors expect that triangulation of data from multiple sources minimized the effects of these limitations on credibility of study findings (14).

The relationship of researcher with study participants can play a role in qualitative research (17, 18). Two of the researchers in this study, MSS and NZ, were faculty at the RFM, KAU. Their relationship with the participants and awareness of the educational environment may have helped them in understanding the issues discussed during data collection and performing in-depth analysis. However, to ensure rigor in this study, researcher (MSS) discussed these issues upfront with the participants

and informed them about the steps taken to safeguard their privacy and confidentiality. Nevertheless, this relationship can impact on the process, hence the possibility of research bias needs to be acknowledged.

## Conclusion

The consultative approach adopted in this study enabled the identification of key features that enhance the delivery of ethics education through WBEL strategy. The use of the preliminary version of the workbook as a trigger to guide this exploration enabled a structured investigation of diverse views from various stakeholders in the studied region, as study participants. These participants identified relevant issues related to design, content and contextuality and highlighted the importance of well-established principles such as constructive alignment and contextuality in the strategy.

The systematic refinement of WBEL in this study enhanced the potential effectiveness of the strategy from different perspectives. The impact of this strategy on ethics education in the given socio-cultural context will be measured in a later project. The context-specific outcomes of this study are likely to be useful to other educators who are developing educational resources to guide ethics education in similar settings.

## Abbreviations

(in order of appearance in manuscript)

WBEL

Workbook based ethics learning

RFM

Rabigh faculty of medicine

FGD

Focus group discussion

IDI

In-depth interview

KAU

King Abdulaziz University

UNSW - University of New South Wales

MSS

Muhammad Shahid Shamim

NZ

Nadeem Zubairi

## Declarations

### Ethics approval

The ethics approval for this study was acquired from the ethics review committee of King Abdulaziz University, reference no. 393-15, where the study was conducted and the UNSW, approval no. HC15640, Australia, where the primary author is enrolled as a PhD scholar.

### Consent for participation and publication

The potential participants were informed about the researchers and the study in detail. The Participant Information Statement and Consent Form prescribed by UNSW was used to seek informed consent for the study and publication from students and faculty participating in the study. All the data were anonymized prior to analysis.

### Availability of data and material

All the data from this study is submitted to the UNSW compactus as per the University policy for safeguarding and future retrieval. The data that support the findings of this study are available from UNSW but restrictions apply to the availability of these data as they are not publicly available. Data are however available from the authors, MSS and CB, upon reasonable request and with permission of UNSW.

### Competing interests

The primary author is a PhD scholar at the University of New South Wales (UNSW), Sydney, Australia. This study is a part of the PhD thesis of the primary author. Part of the data from this work was presented at 7<sup>th</sup> International Conference on Health Professions Education & Research at Khyber Medical University, Peshawar, Pakistan, in March 2019.

There is no conflict of interest.

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### Authors' contribution

All authors have significantly contributed to the study design, analysis and development of the manuscript for publication. MSS and NZ were directly involved in data collection and analysis. The analysis was reviewed and improved by other authors. The first draft of the manuscript was prepared by MSS. All the other authors reviewed, revised and provided their input in improving the manuscript.

### Acknowledgements

None.

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36. Systematic Review

## Figures

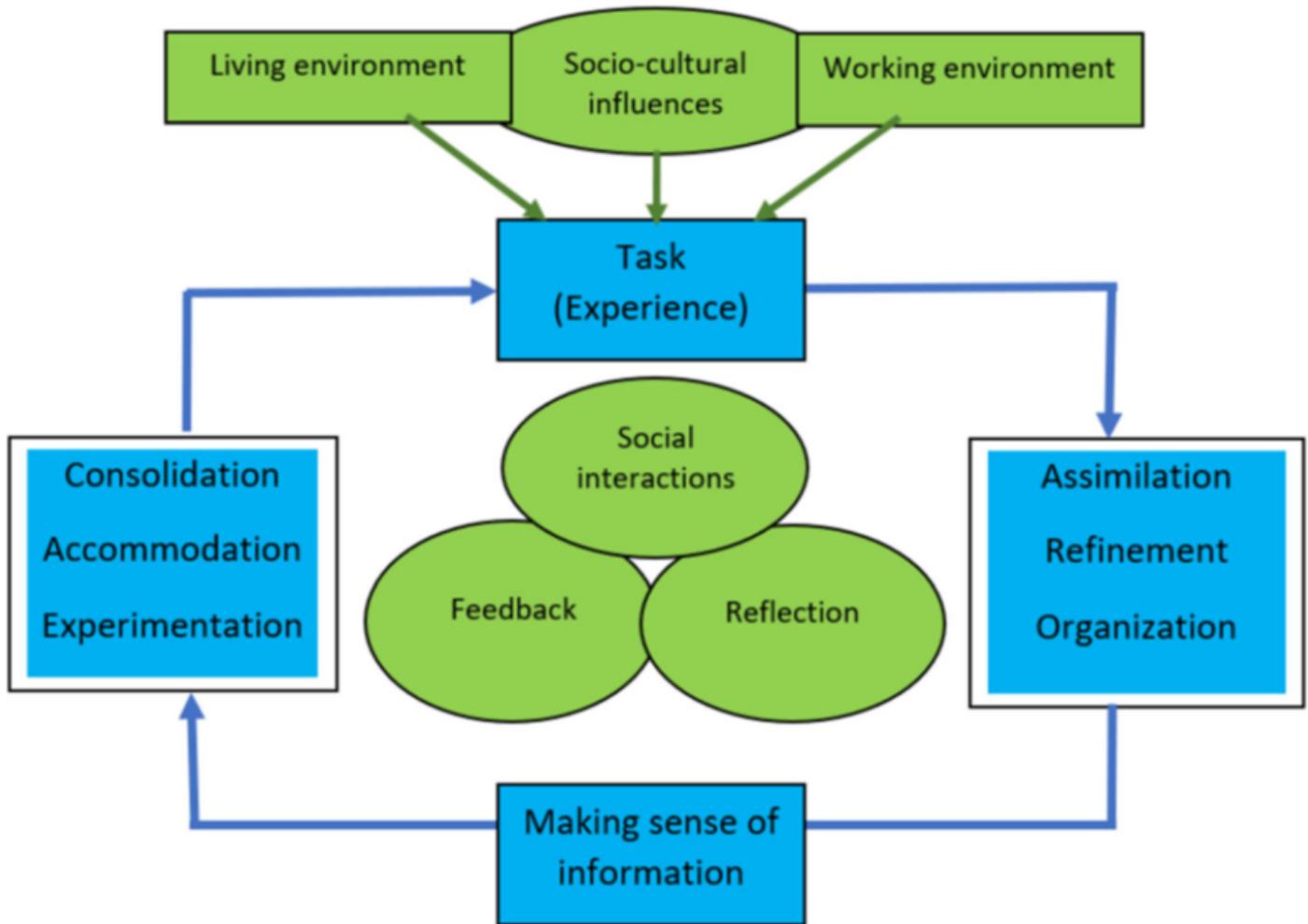
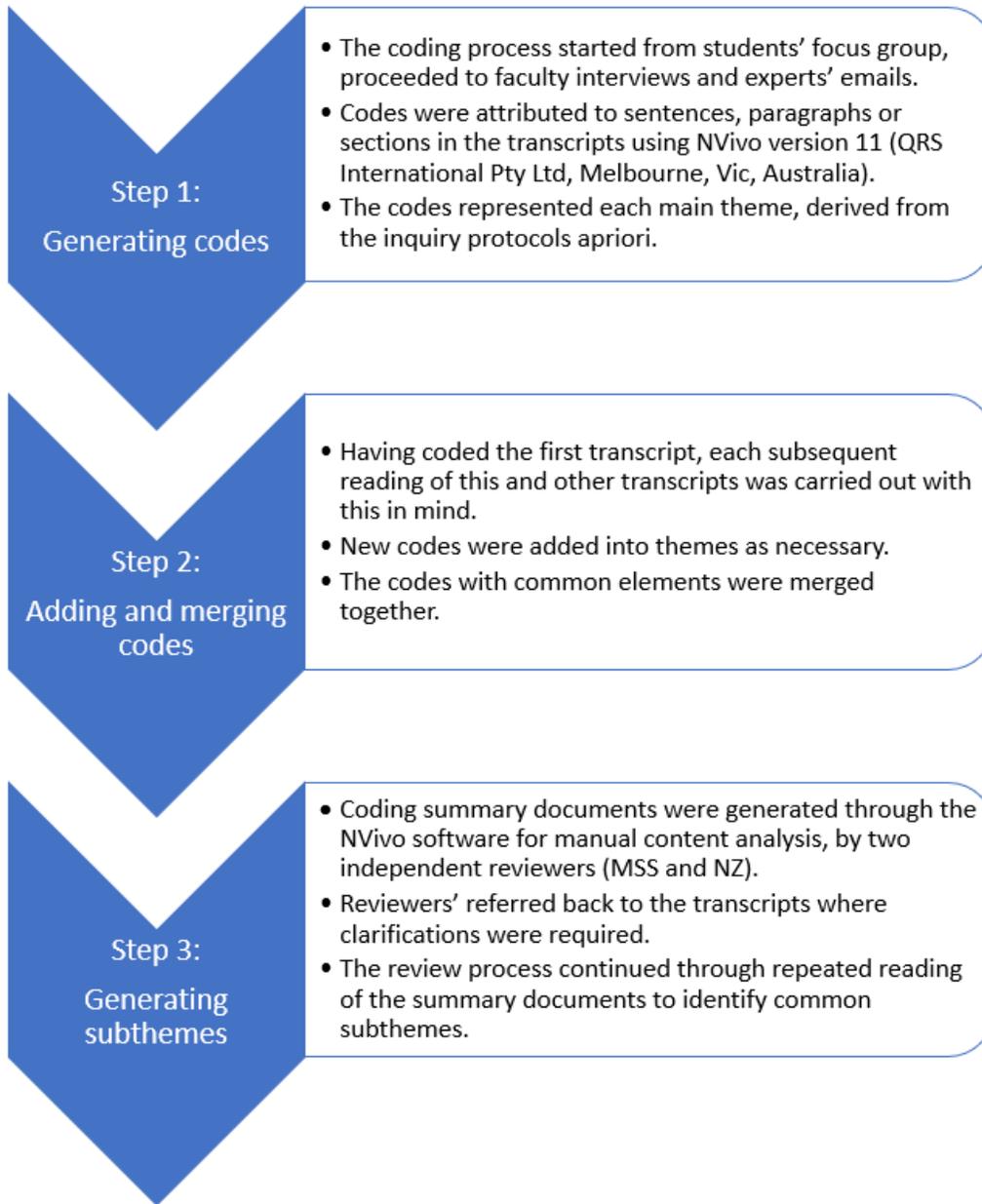


Figure 1

Contextually Relevant Ethics Education Model (CREEM) (M. S. Shamim, 2020)



**Figure 2**

Analysis process

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