



Research article

Students' perceptions and experiences in a health promotion course using interactive learning

Ahlam Al- Natour^{a,*}, Amal AlNatour^b, Reem Ahmad Ali^c, Fatmeh Alzoubi^a, Maysa H. Almomani^d, Mohammed ALBashtawy^e^a Community and Mental Health Nursing Department, College of Nursing, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan^b Language Center/Yarmouk University, P.O. Box 566, Irbid, Jordan^c Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan^d College of Nursing, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan^e Princess Salma Faculty of Nursing, AL al-Bayt University, P.O Box:130040, Mafraq, 25113, Jordan

ARTICLE INFO

Keywords:
Interactive Learning
Health promotion
Undergraduate

ABSTRACT

There is lack of studies that describe the experience of studying a health promotion course using an interactive approach and students' perceptions about this method of teaching. The purpose of this study is to describe students' experiences and perceptions about health promotion course using an interactive learning approach. A descriptive qualitative design was used among 16 undergraduate university students at a governmental university. Four main themes emerged from the data analysis including: (1) fruitfulness and satisfying experience of interactive learning, (2) interactive learning versus traditional learning, (3) barriers to interactive learning, and (4) suggestions to enhance interactive learning. Students reflected positive attitudes toward interactive learning. Interactive learning helped students to be engaged in learning process physically and cognitively. Students mentioned several advantages of learning health promotion course using interactive learning, including, enhancing understanding, sharing ideas and opinions, promoting self-esteem and self-confidence, keeping their minds active and attentive, and improving interpersonal communication. Updated and contemporary learning strategies and methods should be introduced for enhancing interactive learning courses.

1. Introduction

Health promotion (HP) is defined as the process of enabling people to increase control over and to enhance their health. It moved beyond focusing on individual behaviors towards a wide range of interventions on social and environmental determinants of health and other health related aspects of life (World Health Organization (WHO), 2021). The purpose of HP is to promote and influence individuals and communities healthy behaviors, create suitable environment that supports healthiness and productivity, and strengthen community actions and efforts to adopt healthy behaviors among public.

According to McDaid (2018) the investment in HP activities and diseases prevention is still low in many countries. However, health promotion initiatives are considered as one of the most cost-effective and investing methods used to prevent health problems and combat serious risky behaviors (McDaid, 2018); O'Mara-Eves et al., 2015; Wright et al. (2016). McDaid (2018) mentioned some beneficial cost-effective

approaches that could help in promoting health and preventing diseases among the public. These approaches included; promoting physical activities, combating smoking cigarettes, assuring safe driving, enhancing healthy diet and dietary habits, activating social relations and promoting mental wellbeing.

Some individuals specialized in HP education became certified after taking theoretical and training courses. Others performed certain health education functions as part of their job description such as medical and nursing treatment, health education, social work and counselling, teaching, physical therapy, occupational therapy, oral hygiene, and others.

Health promotion requires intensive specialized studies, and trainings. Over 250 colleges and universities in the US offer undergraduate and graduate (Masters and Doctorate) degrees in HP and health education (Mills et al., 2007). Nationally, the HP courses offered in few Jordanian universities aimed at enhancing the students' potential, improving quality of life, and increasing productivity (Altun, 2008).

* Corresponding author.

E-mail address: asalnatur@just.edu.jo (A. Al- Natour).

Moreover, HP and health education courses were recommended as effective approaches to meet students' continuous challenging demands and needs to promote present and future health (Guevarra et al., 2015).

Learning process dictates effective interactions and efforts within the learning environment and when the students are encouraged to be creative and use critical thinking approaches (Kumar et al., 2016). Interactive learning enhanced students' interactivity, increased their motivation to learn, promoted their attention, provided updated comprehensive feedback and improved their understanding, increased their problem-solving abilities and critical thinking; and thus, improved their participation and performance (Meguid and Collins, 2017). Interactive learning provides students with opportunities to interact and communicate with their peers, instructors, and practitioners (Kagawa et al., 2006). According to Kumar et al. (2016), in order to facilitate the interactive learning, it is important for the instructor to shift role as a traditional lecturer to a facilitator.

Kim and Suh (2018) conducted a randomized control trial study to evaluate the effect of an interactive nursing skills mobile application for nursing students. The experimental group showed a significantly high value for knowledge after 1 week of intervention via their mobile application than the control group ($t = 3.34$, $p = .001$). In addition, they showed a significantly improved self-efficacy before and after intervention ($t = 2.46$, $p = .017$) than the control group.

In a study examined the effectiveness of interactive style in teaching 29 nursing students compared to traditional style in Iran, significant statistical differences were observed in terms of students' mean score in the interactive teaching method compared to traditional lectures (Afrabiabifard and Asadolah, 2019).

Constructivist theory indicates that learners construct their own knowledge, and link new information to their prior knowledge and experiences actively (Jonassen & Rohrer-Murphy, 1999). It assumes that learners are able to perform analysis, evaluation and synthesis for ideas (Jha, 2012). Contrary to the traditional belief, which indicates that learning takes place before acting, educators in constructivist classrooms act as more of a guide to help students create their own learning and understanding action by using cognitive tools, problem-project space, related case studies and scenarios, information resources (literature, internet), and conversation and collaboration tools (Jha, 2012; Jonassen, 1999). This theory shaped the base of the authors' understanding of interactive teaching and helped them to understand students' ideas and perceptions of interactive learning.

Key features of constructivist theory indicate that learning should be an active and meaningful process in which learners should construct their own knowledge rather than accepting that given by the educators (Jonassen, 1999; Kafai and Harel, 1991). This points out that learning process is controlled by the student. Learning should be interactive to promote higher-level of learning and social presence, and to help develop personal meaning (Papert and Harel, 1991). Therefore, this theory could inform interactive teaching in which the focus of learning is on the student.

The literature identified two key components of constructing knowledge: the physical construction of artefacts ('learning by doing') (Papert and Harel, 1991) and social constructivism, which builds on 'social construction' (Berger and Luckmann, 1966). Vygotsky (1978) stated that people learn through their interactions and communications with others. He stated that learning takes place when students interact with their peers, educators, and other experts. He added that interactive teaching courses, taking into consideration learning by doing and social interaction, could improve education outcomes.

Integrating interactive learning in HP courses showed not only a significant improvement in university students' adoption of healthy behaviors and self-care but also helped in promoting close relationships, defining resources of stress, and enhancing relaxation and stress management techniques (Altun, 2008). Furthermore, teaching HP course using interactive approach provided students with fruitful opportunities to gain knowledge in a meaningful beneficial approach and develop their knowledge (Mincey and Gross, 2017).

In a study that examined the effectiveness of mental health training using interactive training techniques in Somaliland, Syed Sheriff and others examined medical students' cognitive, psychomotor, and affective aspects of using interactive lectures, group discussion case studies, and role play. The study showed improvements in the medical students' exam performance and outcomes. "Multiple Choice Question Exam" (MCQ) ranged from 50.7% pre-course to 64.4% post-course. The students achieved an average in "Objective Structured Clinical Examination" (OSCE) mark of 71%. After the course, students also strongly agreed with the statement "I now do understand more about the overlap between mental and physical health" (Syed Sheriff et al., 2013).

Moreover, an experimental study conducted with a purposive sample of 112 undergraduate nursing students who attended a health promotion course revealed that undergraduate nursing students showed significant improvements on the meaning of life, positive beliefs, and well-being immediately after the course (Tsai et al., 2020). PowerPoint, YouTube, e-books, and Internet movies were all utilized in the interactive health promotion course.

In the literature, there is lack of studies that describe the experience of studying HP courses using an interactive approach, and students' perceptions concerning this method of teaching. Therefore, the purpose of this study is to describe students' experiences and perceptions about an interactive HP course. A qualitative descriptive study is used to provide an in-depth understanding of the students undergoing the learning experience, and a good opportunity to obtain insight into the value of this new experience.

The findings may provide new knowledge and insights about the effectiveness of integrating the interactive approach when teaching HP courses. The students were introduced to new and updated approaches that could facilitate their adoption of new healthy behaviors and retention of scientific knowledge about health. Moreover, the findings may give educators insights about the importance of integrating interactive learning in different curricula to enhance students' retention and promote healthy lifestyles among graduates and undergraduates.

2. Methods

2.1. Research design

A descriptive qualitative design was used to introduce an in-depth description and understanding of students' experiences and perceptions of taking a HP course using an interactive approach.

2.2. Participants and setting

The study was performed in a teaching facility in a governmental university, which offered a HP course. Student participation was voluntary. A purposive sample of 16 students (8 males and 8 females) participated in the current study. Regarding the purposive sample, participants were recruited to be over 18 years of age, fulltime students at the governmental university, and have completed the HP course using interactive learning approach. These participants were purposively selected because they were likely to provide an enrich description of their experience during the interactive learning. Students were interviewed separately to describe their experience during the course.

2.3. Description of the interactive health promotion course

Health promotion is an elective course offered by the School of Nursing to undergraduate students at a governmental university in northern part of Jordan. This is a three credit course where classes are given during the regular semesters for five hours a week. It includes different subjects that seek to enhance the students' knowledge and awareness about several health issues, such as growth and development, intimate partner violence and bullying, preparation for marriage, family planning, sexually transmitted diseases, and pregnancy. It includes

lectures on cardiovascular and respiratory diseases, diabetes mellitus and cancer, and approaches to promote a healthy lifestyle through nutrition and exercise.

The students enrolled in the course were from different majors including engineering, science and art, agriculture, dentistry, pharmacy, physiotherapy, medical technology, and computer science and information technology. Before 2016, instructors used the traditional approach of teaching to teach the HP class. Using the traditional approach instructor used to lecture students and use white board and power point presentation.

The interactive approach has been used by the university instructors, who have taught the classes in the summer course, since 2016. The classes were presented by masters-prepared and PhD-prepared nursing instructors. University instructors received special training in interactive teaching from United Nations Population Fund (UNFPA), the Royal Health Awareness Society (RHAS), and by the Academic Development Centre at the university. The training enabled the instructors to display the course material using interactive techniques. This more refined approach was designed to improve students sensory and formal skills by introducing a broader verity of different tools and methods. Instructors were educated about interactive methods and the advantages for using them. Also, they were trained to apply interactive methods in the course subjects that they teach. Updated interactive approaches, such as online group discussion, case studies and simulation methods, were used.

For each educational goal or topic of information, a group of experts designed a tool to achieve the goal. Tools included puzzles, cards, pictures, Legos, stories, balls, games. Experts included (nursing educators, IT experts, human resources experts, and artists). The tools were gathered in a bag and provided to the educator to use them in class.

Several methods of interactive learning were applied, including role-play, group discussion, games, reflectional method, concept mapping, documentary films, brainstorming, using white board writing, and case studies and scenarios. For example, students have seen a video on family violence, then been divided into groups, and been asked to analyze the incident on a board and discuss and debate to find the solution. Finally, each group has presented their viewpoints to the rest of the class.

2.4. Data collection

Data collection was performed by the study primary investigator (PI). The study PI was female and had a PhD in nursing. The study PI conducted several studies using quantitative and qualitative research.

For recruitment, students were informed about the study during the first week of the semester (Summer, 2017) by their educators and via the e-learning system at the university. About 16 students were asked to participate in the current study, and they all agreed to participate voluntarily. Students who agreed to participate in the study replied with consent via email. Prior to data collection, participants were provided with information about the aim of the study, possible risks and benefits of participation, voluntary nature of study, and participant's rights of withdrawal. The consent also included audiotaping and an assurance that participating in the study would not affect the academic relationship with their educators or their grades in the course. students. Interviews were scheduled with the principal investigator at a time and place that were convenient to the students at the end of the course. Face-to-face semi-structured interviews were conducted and lasted for 45–60 min. Students were interviewed individually in a private room for one time.

A study guide using open-ended and probative questions was used. Participants were also asked about their feelings toward this experience and if there were any barriers of the interactive learning. Table 1 outlines the interview questions. Data collection ended after the researchers reached the point of saturation and no new themes emerged. All of the interviews were recorded using audiotape. The participants' responses verbatim were transcribed, and each script was given an alphabetical serial code. The scripts were then translated into English. Approval by

Table 1. Examples of interview questions.

1. Main question: Describe your experience in studying health promotion class using interactive learning?
2. Other questions:
3. What are the advantages of interactive learning?
4. What are the barriers encounter interactive learning?
5. How can we improve and enhance interactive learning?
6. Probing questions
7. a. Please can you tell me more about your experience?
8. b. Please can you give me an example?
6. Ending: Is there anything that you can add?

Jordan University of Science and Technology Institutional Review Board (IRB) (# 26/96/2016) was obtained before conducting the study.

There were no known risks in participating in this study by assuring students' rights and their confidentiality and privacy during the entire study process. The confidentiality of students' participation and personal information was assured. The audio record and scripts were kept in a secure place with the principal investigator. Data collection took one month to be completed.

2.5. Data analysis

Conventional content analysis was used to analyze the participants' scripts. Two expert researchers in qualitative research have participated in the data coding process. Conventional content analysis approach was introduced to gain an in-depth description and understanding of student entire experience. The process followed several steps. Data were collected using open-ended questions then been read word by word to extract codes. An initial line-by-line coding was completed to highlight the exact words from the script that appeared to capture key thoughts or concepts of the study phenomenon. The coded data were labled to reflect different thoughts, were summarized into patterns to draw conclusions about the research questions, then were grouped in relevant categories. Emergent patterns and categories were used to organize and group codes into meaningful clusters, and then organized into a conceptually clustered matrix (Patton, 2002). The categories and subcategories were organized and combined into smaller number of categories in which each category and subcategory were identified from study data and participants responses. After that, each relevant category and subcategory was identified in relation to each other for their existence, and occurrence. Finally, data categories were "rolled up" to study 4 main themes. Data analysis process is illustrated in Figure 1.

2.6. Rigor and trustworthiness

Trustworthiness is applied to this study to ensure quality and rigor (Lincoln and Guba, 1985). Credibility indicates telling the truth. Prolong engagement with the phenomenon, member checking, peer debriefing and validation of the research process was carried out. The dependability was established by reviewing all research procedures and findings by research colleagues, and by referring to the participants to ensure subsequent acceptance of the findings. Transferability, the ability of the study findings to help other researchers to interpret and understand similar situations and settings, was achieved by thick description of the participants' experiences and recording conversations, field notes, observations, and interpretations during data collection.

3. Results

Sixteen students (8 male and 8 female) participated in this study. Their ages ranged from 19 to 22. Ten were Jordanian and the rest were from Sudan, Yemen, Saudi Arabia, and Oman. Four main themes emerged from the data analysis describing the students' perceptions of

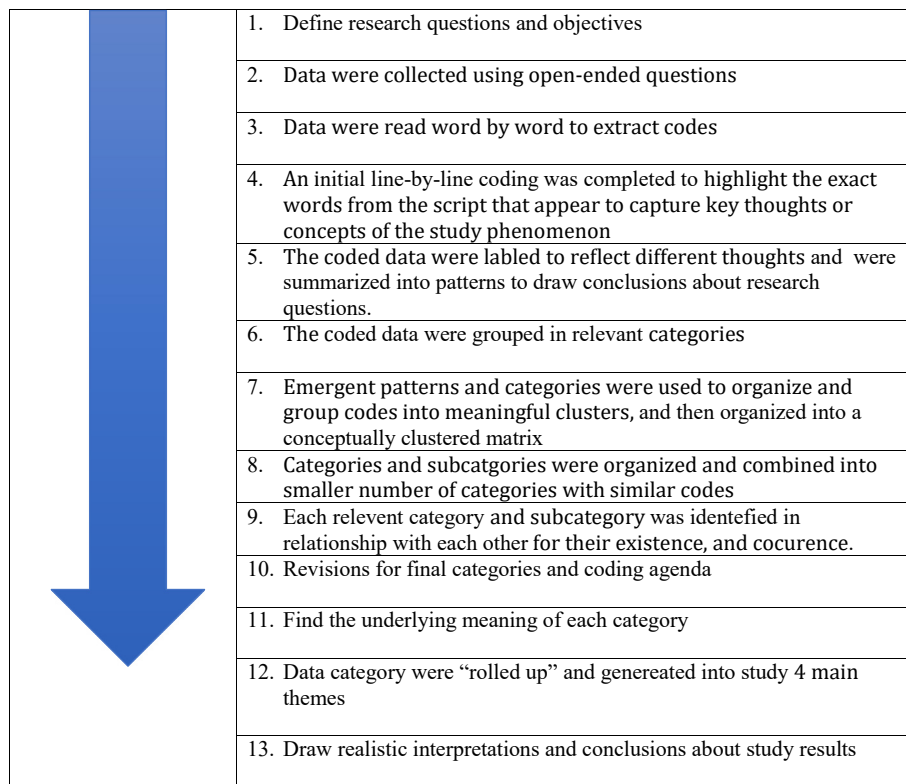


Figure 1. Illustrate the process of Conventional content analysis.

the interactive HP course: (1) fruitfulness and satisfying experience of interactive learning (2) interactive learning versus traditional learning, (3) barriers to interactive learning, and (4) suggestions to enhance interactive learning. The study themes are presented in Table 2.

3.1. Theme #1: fruitfulness and satisfying experience of interactive learning

Students in the current study have described the experience of interactive learning as fruitful and beneficial. Students believed that it might increase their awareness and understanding of important health issues that might affect their entire life. They have described their satisfaction and happiness with the new experience in several ways. One

student said, “this course increased my awareness for different health-related subjects, and changed my way of thinking and my vision to healthy lifestyles”. Another student expressed his opinion about this experience and said “for me, it was a new approach of learning. Interactive learning was great and I am so satisfied with what I have learnt”.

The students mentioned several advantages for studying the HP course using interactive learning, like increasing knowledge and awareness to health-related issues. For example, a student said “this course helped me in gaining new information, confirming other information, and correcting many misconceptions that I had previously had”. Moreover, Interactive learning enhanced information retention and the memorizing process. Students also emphasized the importance of interactive learning in improving their final performance and average scores.

Table 2. Study themes of the students' experiences of interactive learning.

Themes	Main Ideas
(1) Fruitfulness and satisfying experience of interactive learning	<ul style="list-style-type: none"> • Students were satisfied with experience • Interactive learning has several advantages a) Improve understanding and awareness b) Enhance participation in class c) Improve Knowledge d) Improve information retention e) Improve performance and grades f) Promote self-esteem and self confidence g) Enhanced students' communication skills h) Promote student attendance
(2) Interactive learning versus traditional learning	<ul style="list-style-type: none"> • Interactive leaning as a new learning approach that used several updated methods and approaches • The opportunity to participate effectively in interactive learning • Through traditional lecturing approach; information received with minimal interaction • Traditional learning focused on lecturer as an information source • Through traditional learning student feedback was very limited.
(3) Barriers to interactive learning	<ul style="list-style-type: none"> • Large number of students in the class • Short lecture time • Students' shyness about some sensitive subjects • Applying interactive learning for different subjects and courses • Suggested health promotion course as a core course not as an elective course
(4) Suggestions to improve interactive learning	<ul style="list-style-type: none"> • Large number of students in the class • Short lecture time • Students' shyness about some sensitive subjects • Applying interactive learning for different subjects and courses • Suggested health promotion course as a core course not as an elective course

A student said “learning HP using the interactive approach enhanced my learning process which was reflected positively in mid-term and final grades”.

Group discussion and active participation enhanced students’ self-esteem and self-confidence. These approaches were mentioned as the most effective and preferable approaches used in the interactive learning. For some students, this course provided the space to express ideas, thoughts, and debate with other students about health issues and the rich experience that they had not had previously in other courses. Also, interactive learning has given students the opportunity to describe and reflect on their personal experiences and their colleagues. It has enriched the discussion and encouraged new perspectives. One student said, “Interactive learning allowed me to share my knowledge and experiences openly with other students, therefore increased my self-esteem and confidence. In addition, the educator supported and encouraged me to express my ideas even if they were wrong”.

Furthermore, interactive learning enhanced student interpersonal communication skills through active participation and case presentations as a student said. “I am an engineering student; the interactive approach enhanced my communication skills and improved the interactions with my instructors and colleagues from different disciplines and schools”.

In addition, students have found interactive approach as an interesting one because it has conserved their energy and activity during classes. Also, they were attentive till the last moment of the class. Interactive learning also has enhanced students’ attendance and reduced absenteeism as a student said “It was an interesting lecture, it held my full concentration and attention to the last moment of the lecture, and I attended all the lectures and did not miss a class”.

The students mentioned that interactive learning has brought positive energy to the class and prevented them being bored or passive. Interactive learning promoted critical and analytical thinking. A student said “Interactive learning stimulated our cognitive abilities and thinking process, kept our brains active, forced us to think in a different critical way, and enhanced understanding and our learning process accordingly”.

3.2. Theme #2: interactive learning versus traditional learning

Students in the current study have compared traditional learning styles and interactive learning. Interactive learning was a new approach that has used several methods and approaches that promoted and enhanced students’ learning. Students were given the opportunity to participate effectively in the class using role-play, group discussion, and games. As one student stated that “it was a new and different experience, our educators provided health information through using new and varied approaches and methods to assure our learning and active involvement in the class”.

Through the traditional lecturing approach, students used to receive information with minimal interaction. Traditional lecturing approach focusses on the lecturer as the main source of information while students are just receivers and their feedback is very limited or ignored. One student said “interactive learning promoted our active participation in different subjects, while traditional lecturing kept us as passive recipients relying on our educators: total spoon feeding”.

3.3. Theme #3: barriers to interactive learning

Students in the current study have criticized the approach of interactive learning. They have presented some barriers encountering interactive learning when having health promotion course. They have described the barriers in terms of big classes, short class time, and student’s shyness toward some sensitive subjects introduced in the lecture. The large number of students (50 students) was described as a barrier in establishing interactive learning. The time for the lecture was too short, which made it tight and stressful for the educator to use all interactive methods and updated learning strategies. “Our class was very big and we

were 50 students, which sometimes prevented some students from participating or discussing.”.

Shyness about some sensitive subjects was also a barrier for some students to participate openly in class discussions. One student said; “Some students were shy and embarrassed when sensitive issues and subjects were introduced, such as family planning methods and sexually transmitted diseases. Therefore, they were reluctant to participate actively in such sensitive topics”.

3.4. Theme #4: suggestions to enhance interactive learning

Students in the current study have witnessed the effectiveness of interactive learning on their academic performance, understanding, and self-confidence as well. Students suggested using and applying interactive learning in different subjects and courses in the university because it could improve learning outcomes and performance. One student said, “Introducing HP should be one of the core courses, not an elective course, and all undergraduate students should take it because it is important for their health and entire life. Also, using an interactive approach is very beneficial for teaching HP courses. In my opinion, it should be adopted for other courses”.

Students in the current study have recommended HP course to other university students from different disciplines because it could be beneficial for them in both levels, the personal and the academic one. One student said, “I recommended the HP course using this new approach of learning to students from different specialties. This course could increase their awareness to many health issues and improve their own health outcomes and health behaviours accordingly”.

4. Discussion

The university students in the current study have reported the benefits of teaching the HP class using interactive learning. They have reported their satisfaction and happiness with the experience. Similarly, a study by [Kagawa et al. \(2006\)](#) indicated that students enjoy interactive learning because of their active involvement in the learning process, exchanging different ideas, and being introduced to other students’ needs. Students also have reported their satisfaction in being given the opportunity to listen to others’ ideas and stories.

The university students in the current study have mentioned several advantages of teaching HP course using interactive learning, including, enhancing understanding, sharing ideas and opinions, promoting self-esteem and self-confidence, keeping their minds active and attentive, and improving interpersonal communication. Similarly, students in [Ernst and Colthorpe \(2007\)](#) study reported positive experiences in participating in interactive learning. They enjoyed non-traditional teaching approaches that kept them alert and attentive, motivated to learn, and engaged effectively in the learning activities.

[Kumar et al. \(2016\)](#) mentioned that students reported the effectiveness of interactive learning in promoting and improving active participation, group discussion, and understanding. [Hijazi and AlNatour \(2020\)](#) found that students’ motivation to learn using traditional methods of learning was very low when compared to other methods and consequently their scores were very low too.

[Meguid and Collins \(2017\)](#) found that interactive learning promoted students’ interaction, focused attention, clarified information, and provided feedback. About 95% of undergraduate students in this study have reported an increased participation rate and improved focus on key points in classrooms. In addition, about 81.7% indicated that it has improved their motivation for learning and stimulated their performance.

The results of the current study go in line with [Ernst and Colthorpe \(2007\)](#) who indicated that using interactive learning enhanced the lecture atmosphere, softened the hard science, provided ventilation and fun for students, and decreased students’ fears of science courses. Also, student’s engagement in interactive classes helped in promoting

self-confidence and self-efficacy, and assured their success accordingly. Students indicated that interactive learning helped those with poor knowledge to overcome their limitations regarding their background in science and achieve similar learning outcomes to average students with convenient science knowledge.

Another study stated that interactive learning provided a good opportunity for students to interact and communicate with their peers, instructors and practitioners. The students felt safe in disclosing their opinions and ideas. They were also exposed to each others' points of view and reflected on these new perspectives (Tsai et al., 2020).

Group interaction and discussion through interactive learning has enhanced students' reflection on relevant topics that have promoted their awareness and affected their beliefs, perceptions and attitudes. Similar findings were reported in Mincey and Gross (2017) study who stated that students had an opportunity to discuss issues together, to record other students' opinions, and to agree or disagree with others. This is supported by the social constructivism theory, which indicates that we learn through our interactions and communications with others (Berger & Luckmann, 1966; Vygotsky, 1978). Students and teachers in Miller and Metz's study (2014) reported an active positive impact of interactive learning on the students' pleasure and satisfaction, motivation to learn, examination process and scores, and retention of learned subjects.

Students in the current study have reported their perceptions about the effectiveness of interactive learning in teaching HP. They have reflected their beliefs and the value of using several methods of interactive learning. This approach could enhance students' performance and information retention. Similar results were found in Syed Sheriff et al. (2013).

Students in the current study have mentioned some barriers of interactive learning, such as being embarrassed during active participation. This could be because it was their first experience of an interactive class, which required them to actively participate and share ideas openly on issues that might be found sensitive, such as family planning and sexually transmitted diseases. Some students in Meguid and Collins (2017) study reported their fear of speaking and participating in class, and feeling anxious of giving wrong answers in front of other students. AlNatour (2018) considered anxiety as a main factor that hinders students' participating in classrooms due to their fear of negative evaluation by their teacher or peers. On the other hand, students in Robinson et al. (2016) found that working collaboratively in groups assisted their learning process and improved their performance and success.

Students in the current study have valued interactive learning being more beneficial than the traditional lecturing styles. Afrasiabifar and Asadolah (2019) revealed that students were more satisfied with an interactive style compared to traditional lectures.

Hijazi and AlNatour (2020) found that it is important to provide students with different types of activities that suits their style of learning, and this is not possible when using the traditional method of learning especially that the teacher is considered as the cornerstone while the student is a passive recipient most of the time. In addition, Taha et al. (2014) stated that the traditional teaching approaches used informative, receptive, and reproductive methods while interactive and creative methods promoted students' motivation, enhanced problem-solving skills, and encouraged logical and critical thinking. More emphasis should be given to adopting interactive learning for medical and non-medical university courses. Several updated and technological interactive methods should be well prepared and implemented to assure students' active participation and involvement in different courses.

Students in the current study mentioned time as a barrier to interactive learning. The lecture time was insufficient for all students to reflect on their experiences and to participate effectively in class. Miller and Metz (2014) reported short class time and the lack of time for preparing material as barriers for adopting interactive learning. Students in another study revealed that interactive tasks took a long time in preparation and application which limited the effectiveness of the learning experience (Robinson et al., 2016).

Moreover, students have mentioned large classes being a barrier in interacting during the lesson regarding time, turns taken to participate and individual differences between them. This goes in line with Asqalan et al. (2016) who stated that large classes is a problematic area. Large classes need an extra effort from instructors taking into considerations timing and individual differences between students.

Other barriers which were reported in the literature included educators' resistance to change their traditional learning method into an interactive approach. They were carelessness in creating interactive methods, by having more interest in conducting research rather than in teaching, especially old age educators and their refusal to change their traditional way of teaching (Altun, 2008; Miller and Metz, 2014). According to Hijazi and AlNatour (2019) this is referred to instructors' lack of strategies, techniques, insights, methods and understanding of the educational context to deliver knowledge.

More attention should be paid to interactive learning to overcome the barriers to interactive learning. These approaches included, providing well-structured interactive methods, giving trainings and incentives for educators on methods of interactive learning, providing enough time for interactive classes to enable students to achieve their objectives, and designing course sections that include fewer students. Much more emphasis should be concentrated on students' communication and interpersonal skills, especially in the introductory part of the course description.

Students in the current study have recommended using and applying interactive learning for different subjects and courses in the university. Also, students in the current study have emphasized the importance of interactive learning and how it could improve their learning and their academic performance. They have also recommended that other students should attend HP classes because they would be beneficial and reflect positively on their health and adoption of healthy habits and health lifestyle.

Altun (2008) mentioned that including HP education in the university curriculum is effective in promoting healthy living and Altun considered health education being more effective and fruitful for those who pay less attention to self-care. Universities should be encouraged to develop HP program for their students through health-related courses. Some students (about 40%) in Miller and Metz (2014) study suggested that class time should be spent on active and interactive learning.

It is strongly recommended to establish HP courses using interactive methods as part of university education. Administrative support is crucial to assure the adoption of the interactive approach in teaching different medical and non-medical subjects. In addition, appropriate professional training should be given to university educators about interactive learning strategies and new updated approaches.

4.1. Study limitations

This qualitative study aimed at describing students' experiences and perceptions of an interactive health HP. The study used semi-structured interviews as the data source, which limited the type of data collected, i.e., largely limited to the participants' verbal statements. In addition, this study has taken into consideration students' perceptions and points of view. More qualitative studies needed to describe teachers' and instructors' perception and experiences about interactive learning.

4.2. Implications for policy, education, and practice

Policy makers and universities presidents are encouraged to allocate funding to provide training, resources, and materials to teach health promotion in an interactive style. More emphasis is required by curriculum planners to develop, implement and apply different interactive strategies in graduate and undergraduate courses. In addition, professional workshops, training and incentives are required to enhance educators' competencies in teaching and utilizing methods of interactive learning over traditional approaches of learning. More attention should

be paid on designing interactive learning methods to meet course requirements. Finally, the educator's role should be moved from a lecturing role to a facilitator and co-learner's role.

5. Conclusion

This study described students' experiences and perceptions about an interactive HP course. It has shed light on the importance of adopting interactive learning in teaching different social, medical and non-medical subjects. Students have reflected positively on the interactive learning, and reported the benefit of their experience in increasing their understanding for different topics and retention of information. They have described the learning environment as comfortable, innovative and creative in supporting their learning and self-confidence, accordingly.

Interactive learning has helped university students to be engaged in the learning process physically and cognitively. In addition, it has helped educators to assess students' understanding of the topic of the study and to review or move to another topic in an efficient real time. Students in the current study have recommended applying interactive learning for different subjects and courses.

Findings of this exploratory study leads to a promising future in introducing effective learning approaches including interactive learning approaches for undergraduate students use. Therefore, updated, and contemporary learning strategies and methods should be included to enhance interactive learning courses. Future research studies are needed to investigate students' perceptions of using several interactive teaching methods on medical and non-medical courses.

Declarations

Author contribution statement

Ahlam Al- Natour, Amal AlNatour, Reem Ali, Fatmeh Alzoubi, Maysa H. Almomani, Mohammed ALBashtawy: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Funding statement

This work was supported by the United Nations Population Fund (UNFPA), and the Royal Health Awareness Society (RHAS).

Data availability statement

Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

Supplementary content related to this article has been published online at <https://doi.org/10.1016/j.heliyon.2021.e07192>.

Acknowledgements

The authors acknowledge university students (medical and non-medical) who participated in this study and the Deanship of Research at Jordan University of Science and Technology for supporting the study.

References

- Afrasiabifar, A., Asadolah, M., 2019. Effectiveness of shifting traditional lecture to interactive lecture to teach nursing students. *Invest. Educ. Enfermería* 37 (1), 60–69.
- AlNatour, A., 2018. Students' level of anxiety towards learning English as a foreign language: students' perspective. *US China Foreign Lang.* 16 (3).
- Altun, I., 2008. Effect of a health promotion course on health promoting behaviors of university students. *East. Mediterr. Health J.* 14 (4), 880–887.
- Asqalan, M., et al., 2016. Teaching large classes: what are the beliefs of yarmouk university instructors? *Arab World Engl. J. (AWEJ)* 7 (2).
- Berger, P.L., Luckmann, T., 1966. *The Social Construction of Reality: Treatise in the Sociology of Knowledge*. Doubleday, Garden City, NY.
- Ernst, H., Colthorpe, K., 2007. The efficacy of interactive lecturing for students with diverse science backgrounds. *Adv. Physiol. Educ.* 31 (1), 41–44.
- Guevarra, J.P., et al., 2015. Assessment of a public health promotion and education module at the graduate level: a basis for revision of learning resource material for teaching and training health promotion and education. 2015. *Acta Med. Philipp.* 49 (3).
- Hijazi, D., AlNatour, A., 2020. The effect of using blended learning method on students' achievement in English and their motivation towards learning it: blended learning, achievement, and motivation. *Int. J. Virt Pers Learn. Environ.* 10 (2), 83–96.
- Hijazi, D., Al-Natour, A., 2019. The level of pedagogical content knowledge of in-service English language teachers in a foreign language context. *Arab J. Arts* 16 (2), 681–700.
- Jha, A., 2012. Epistemological and pedagogical concerns of constructionism: relating to the educational practices. *Creativ. Educ.* 3, 171–178.
- Jonassen, D.H., Rohrer-Murphy, L., 1999. Activity theory as a framework for designing constructivist learning environments. *Educ. Technol. Res. Dev.* 47, 61–79.
- Jonassen, D.H., 1999. Designing constructivist learning environments. *Instr. Des. Theor. Mod.: A New Parad. Instr. Theory* 2, 215–239.
- Kafai, Y.B., Harel, I., 1991. Learning through design and teaching: exploring social and collaborative aspects of Constructionism. In: Harel, I., Papert, S. (Eds.), *Constructionism*. Ablex, Norwood, NJ, pp. 111–140. Retrieved from: https://www.researchgate.net/publication/265092317_Learning_through_Design_and_Teaching_Exploring_social_and_collaborative_aspects_of_Constructionism.
- Kagawa, F., et al., 2006. Exploring students' perceptions of interactive pedagogies in education for sustainable development. *Planet* 17 (1), 53–56.
- Kim, H., Suh, E.E., 2018. The effects of an interactive nursing skills mobile application on nursing students' knowledge, self-efficacy, and skills performance: a randomized controlled trial. *Asian Nurs. Res.* 12 (1), 17–25.
- Kumar, R.P., et al., 2016. Tutorials: an effective and interactive method of teaching undergraduate medical students. *Int. J. Community Med. Public Health* 3 (9), 2593–2595.
- Lincoln, Y.S., Guba, E.G., 1985. *Naturalistic Inquiry*. Sage Publications, Newbury Park, CA.
- McDaid, D., 2018. Using Economic Evidence to Help Make the Case for Investing in Health Promotion and Disease Prevention. WHO Regional Office for Europe, Copenhagen, Denmark. <http://www.who.int/mediacentre/factsheets/fs355/en/>. (Accessed 16 May 2021).
- Meguid, E.A., Collins, M., 2017. Students' perceptions of lecturing approaches: traditional versus interactive teaching. *Adv. Med. Educ. Pract.* 8, 229.
- Mills, P.R., et al., 2007. Impact of a health promotion program on employee health risks and work productivity. *Am. J. Health Promot.* 22 (1), 45–53.
- Miller, C.J., Metz, M.J., 2014. A comparison of professional-level faculty and student perceptions of active learning: its current use, effectiveness, and barriers. *Adv. Physiol. Educ.* 38 (3), 246–252.
- Mincey, K., Gross, T., 2017. Training the next generation: developing Health education skills in undergraduate Public Health students at a Historically Black College and university. *Front. Publ. Health* 5, 274.
- O'Mara-Eves, A., et al., 2015. The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis. *Bio Med. Central Public Health* 15 (1), 1–23.
- Patton, M.Q., 2002. *Qualitative Research and Evaluation Methods*. Sage, Thousand Oaks, CA.
- Papert, S., Harel, I., 1991. *Constructionism*. Ablex Publishing, Norwood, NJ.
- Robinson, C.I., et al., 2016. Perceptions of Taiwanese nursing students' English-language progression following interactive scenario development and role play. *Contemp. Nurse* 1–12.
- Syed Sheriff, R.J., et al., 2013. Use of interactive teaching techniques to introduce mental health training to medical schools in a resource poor setting. *Afr. J. Psychiatr.* 16 (4), 256–263.
- Taha, V.A., et al., 2014. Education of managers: learning and teaching methods enhancing students' creativity. *Innov. Approach. Busin. Educ. Select. Iss.* 103.
- Tsai, F.J., et al., 2020. The effectiveness of a health promotion intervention on the meaning of life, positive beliefs, and well-being among undergraduate nursing students: one-group experimental study. *Medicine* 99 (10), e19470.
- Vygotsky, L.S., 1978. *Mind in Society: the Development of Higher Psychological Processes*. Harvard University Press, Cambridge, MA.
- Wright, R., et al., 2016. Health behavior change promotion among latter-day saint college students. *J. Psychol. Res.* 21 (3), 200–215.
- World Health Organization, 2021. Non-communicable Diseases. <http://www.who.int/mediacentre/factsheets/fs355/en/>. Accessed on 5/2021.