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Designing a Teaching Pattern from Students' Lived Experiences of the Teaching Process in Universities of Iran (Technical and Engineering Disciplines)

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Abstract

Purpose: The present research aimed to designing a teaching pattern from students' lived experiences of the teaching process in universities of Iran in technical and engineering disciplines.

Methodology: This study in terms of purpose was applied and in terms of implementation was qualitative from type of phenomenological. The study population consisted of postgraduate and PhD students in technical and engineering disciplines of Australian universities (Melbourne, Monash and Swinburne) in 2018 year who had the experience of studying at the undergraduate and graduate levels in Iran country. The research sample according to the theoretical saturation principle was determined 10 people who were selected by purposive sampling method. Data were collected through semi-structured depth interview method which its validity was confirmed by the method of reconstruction of reality and its reliability was confirmed by conducting interviews in a quiet and unbiased atmosphere and to analyze data used from thematic coding method.

Findings: Findings showed that students' lived experiences of the teaching process in Iranian universities in technical and engineering fields had 197 initial concepts and 38 final concepts in 3 main components: professor (23 concepts), student (7 concepts) and content (8 concepts). Also, based on the concepts and components derived from the students' lived experiences of the teaching process, the teaching model in technical and professional fields was designed and approved based on the opinion of experts.

Conclusion: According to the results, planners and officials to design curriculum and professors to improve their teaching can use the teaching model designed in this research to improve the quality of education in universities.

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1. Introduction

Universities are one of the community organizations that have the task of educating people and preparing and empowering them to enter society. Universities and higher education centers have an effective and important role in strengthening and consolidating the accepted human and social values of the society and creating desirable cultural changes, and this will be realized when education is done efficiently and effectively and professors have appropriate knowledge, attitude and skills. Be active students and have appropriate, efficient and practical content (Niazazari, 2014). The front line of the higher education system and universities is the professors and the turning point of curriculum planning is the teaching or teaching-learning process, and in the light of teaching, all the personality of the professor and learning is realized in different areas (Naghieh & et al, 2019). The teaching approach is a floating and multidimensional concept and there is no agreement on the concept of the approach. In general, the concept of teaching approach is a special type of classification in the field of teaching to refer to teaching and learning processes, and in this context there are many concepts and terms such as teaching style, teaching approach, teaching strategy and even teaching method (Cao & et al, 2019).

Teaching is an activity that is performed by one person to facilitate the learning of another person using a series of strategies (Rusch & et al, 2018). In another definition, teaching is a set of activities performed to facilitate learning, speed up the information process, and activate learning. In other words, teaching is to provide appropriate assistance in the learning process so that the needs of learners are met and they develop independence of action, initiative and responsibility (Cabezas, 2017). Successful teaching requires professional knowledge, professional practice and professional commitment. Vocational knowledge includes content knowledge, knowledge of learners and knowledge of teaching and teaching-learning process (Howard & et al, 2020). In the last century, technical and engineering education courses in the world have undergone dramatic changes and the training of efficient and professional engineers has been the latest product of the process of implementing technical and engineering curricula in industrial universities or technical engineering colleges. Engineers were initially known as technologists with technical skills in the community, but over time, universities changed the outlook and strengthened the importance of cultivating engineering mentality and intelligence, designing curricula that increased the power of abstraction among students and graduates of technical and engineering disciplines. However, the lack of sufficient skills of university graduates from vocational universities and technical and engineering colleges in meeting the specialized needs of employers in the industry, which occurs due to improper training of students in Iran, highlighted the need to pay attention to effective teaching model (Zeynal & Mansoorzadeh, 2018).

Little research has been done on the design of the teaching model and no research has been done in this field on technical and engineering disciplines. For example, Mohammadi, et al (2020), while researching teachers 'lived experiences of mindfulness while teaching, concluded that teachers' experiences were classified into three main categories and twelve subcategories, including effective classroom management (social role modeling, teacher interaction with students). Strengthen social skills and self-control skills), facilitate effective learning (effective teaching, increase focus on learning activities, enjoyment of learning, understand the difference in learning power and recognize students' individual characteristics) and promote mental health (reduce anxiety, manage emotions and Emotional connection with students). In another study, Zare Khormizi et al. (2020) reviewed teachers' lived experiences of optimal time management as an effective component of the curriculum and reported that 422 primary codes were organized into 15 subcategories, 5 categories, and three concepts, including explanation and identification. The effective components in saving time were explaining and identifying the effective components of lack of time and explaining and identifying the effective components in planning and time management. In addition, Kamali, et al (2018) in a study that examined the teachers' lived experiences in the field of how the components of classroom management concluded that classroom management has five components and eleven categories, including classroom planning based on critical thinking (three categories of context formation). Learners

'cognition, shaping the learners' emotional and mental background and gaining preparation by the teacher), organizing a class based on critical thinking (two categories of adopting a cognitive approach in teaching and adopting active teaching methods), class leadership based on critical thinking (three categories of establishing a psychological atmosphere) Safe in the classroom, strengthening the internal factors influencing the development of critical thinking and creating a space for the formation of constructive and principled critique in the classroom), critical thinking based on critical thinking (two categories of adopting a deterrent approach to classroom discipline and corrective approach to disorder) and Class evaluation was based on critical thinking (a category of critical thinking position in class evaluations). The results of Mosavi Dehmordi, et al (2017) on teachers' lived experience of teacher duties as a philosopher-teacher showed that there were 20 themes in 4 themes. The first theme is the main tasks of the teacher including 7 themes of goal setting, establishing a friendly relationship, paying attention to individual differences, motivating, strengthening group spirit, strengthening responsibility and evaluation of students, the second theme is the development of critical thinking including 5 themes of creating a challenging environment. Question or Problem, Creating Opportunity for Thinking and Reflection, Criticism and Criticism, and Participatory Method, Third Theme, Creating Creative Thinking, Includes 6 Themes of Exploratory Method, Creating Opportunity for Practical Activities, Creative Encouragement, Creative Patterns, Creative Questions, and Curiosity The fourth theme, entitled Knowledge Meditation, included two research themes and teaching aids. In another study, Shahnemati, et al (2017) described the lived experience of elementary teachers on the ideal pattern of art teaching methods: group teaching methods including grouping, group participation, educational games and methods of cultivating thinking, and individual teaching methods including narrative, experience-based, intelligence-based. Introduced based on creativity and based on the application of art development. Seiahi Atabaki, et al (2016) while researching students' lived experiences of teaching based on the development of critical thinking, concluded that in the view of students, teaching methods have the characteristics of not attractive class, lack of loving relationship between teacher and student; students do not participate in teaching. Monotonous teaching, teacher inflexibility, teacher dominance, inappropriate content, emphasis on grades, inadequate planning, clandestine learning, disregard for students' opinions, retaliation against students, lack of attention to the needs of students in the classroom, management There was a lot of content, a stressful classroom, a lack of classroom discourse, educational banking, not having the same view of everyone, belonging to a peer group, paying attention to student personality development, creating competition among students, and teacher responsibility for student achievement. According to them, the ideal classroom has the characteristics of changing teaching methods, creating a suitable physical space, team-based space, applying teaching, teacher flexibility, teacher responsibility, Teacher not up to date, recognizing students' needs, establishing a loving relationship and creating a discourse space. Also, the results of Arkan, et al (2018) Regarding students 'lived learning experiences, it was shown that the educational environment, individual characteristics of learners, the impact of learners on learning, the impact of education and curricula on the educational institution and students' experiences related to learning played an important role in the teaching process. Syrmpas, et al (2017) while researching the experiences and beliefs of physics teachers about the teaching process concluded that most teachers use the reproduction approach instead of the production approach and many factors such as classroom management, time management, discipline and responsibility they affect their teaching.

Although some research has been done on the teaching model of the lived experiences of students and teachers, very little research has been done on the lived experiences of students and university professors and no research has been done on students of technical and engineering fields. Another important point is that by having a suitable model of teaching, steps can be taken to improve the quality of teaching and optimize teaching. Also, this model can serve as a model in guiding future research and help higher education professionals and officials in the field of teaching. As a result, the present study was conducted to

design a teaching model of students' lived experiences of the teaching process in Iranian universities in technical and engineering fields.

2. Methodology

This study was applied in terms of purpose and phenomenological type in terms of quality implementation. The study population consisted of postgraduate and doctoral students in the technical and engineering fields of Australian universities (Melbourne, Monash and Swinburne) in 2018 that had undergraduate and postgraduate study experience in Iran. The research sample was determined according to the principle of theoretical saturation of 10 people who were selected by snowball sampling method. Because the researcher did not have enough knowledge of the people in the community, so after selecting the first person, he asked him to introduce other people and continued in the same way until the number of samples reached 10 people. It should be noted that data were collected by semi-structured in-depth interview method. For this purpose, the samples were asked to express their lived experiences during their studies from the teaching methods of the professors and the interviews were given to the interviewees after the notes to check and confirm their accuracy. After 10 interviews, a topic was posed to identify the concepts and components, and finally a model was designed for it. In this study, in order to determine the validity, the method of reconstructing reality and confirming the content was used by the interviewees themselves. And check and confirm their status. Finally, thematic coding method was used to analyze the data.

3. Findings

The sample size of this study was 10 students from Australian universities who had studied in Iran. Table 1 presents the demographic characteristics of the interviewees.

Table1. Demographic characteristics of the interviewees

Row	Gender	Age	Degree and University of Study in Iran	Degree and University of Study in Australia
1	Man	42	Bachelor / Azad University of Technology and Engineering, Tehran	Master / University of Melbourne
2	Man	37	Bachelor / Azad University of Technology and Engineering, South of Tehran	Master / University of Melbourne
3	Female	32	M.Sc. / Tehran Azad University of Technology and Engineering	PhD / University of Melbourne
4	Female	36	Master / Shahid Rajaei University of Tehran	PhD / University of Melbourne
5	Female	42	Bachelor / Tehran Azad University	Master / Monash University
6	Female	28	Master / Ferdowsi University of Mashhad	PhD / Swinburne University
7	Female	34	Bachelor / Al-Zahra University of Tehran	Master / Swinburne University
8	Man	28	Bachelor / Jundishapur University	Master / Swinburne University
9	Female	40	Bachelor / Engineering of Najafabad Azad University	Master / Swinburne University
10	Man	42	Bachelor / University of Tehran	Master / Swinburne University

According to the results in Table 1, most of the interviewees were women and about 40 years old, most of whom were studying in Iran at the undergraduate level and in Australia at the postgraduate level. A review of the interviews showed that there were 197 initial concepts, and after removing duplicate concepts and aggregating some of them, 38 final concepts were finally identified. Table 2 presents the final concepts and components of students' lived experiences of the teaching process in Iranian universities in technical and engineering fields.

Table2. Final concepts and components of students' lived experiences of the teaching process

Components	Final concepts
Professor	1. Master's scientific knowledge and ability
	2. Lack of favorable access to professors and professors' communication channels
	3. Top-down view from professors to students
	4. Irregularity of professors and students in the classroom
	5. Optimal classroom management
	6. Low motivation of professors and students in teaching and learning
	7. Ignoring the practical and skill part of the lessons
	8. Master-centered teaching and use of lecture method
	9. Interpersonal relationships with aggression, insult and humiliation by the teacher to the student
	10. Do not use up-to-date educational technologies
	11. Lack of initial and formative evaluation
	12. Master tyranny in the classroom and teaching by pure lecturing
	13. Gender discrimination and sexual abuse of women
	14. Ignorance of student rights
	15. Neglect of students' interpersonal, communication and social skills
	16. Negative view of being a string change
	17. Lack of up-to-date scientific professors
	18. Inflexibility of the teacher in his teaching methods
	19. Poor ability to express teachers
	20. Ignoring research in students
	21. Scientific pride of professors
	22. Not using appropriate non-verbal communication
	23. Lack of educational flexibility and lack of attention to the practicality of learning
Student	1. Decreasing students' self-confidence
	2. Large number of students in the classroom
	3. Lack of timely and appropriate information about exams and their times
	4. Anxiety and depression exams
	5. Unhealthy competition and jealousy among students
	6. Lack of income for students at the same time
	7. Spending time in class for attendance
Content	1. Many general courses that are not related to the field of study
	2. High volume of lessons
	3. Incompatibility between the content of education and the content of exams
	4. The gap between educational content and its uses in real life
	5. Lack of attention to leisure
	6. Limited library facilities
	7. Uncertainty of the framework and training program
	8. Problems related to the multiplicity of concepts and terms

According to the results of Table 2, 38 concepts in three components of professor (23 concepts), student (7 concepts) and content (8 concepts) were identified in the study of students' lived experiences of the teaching process in Iranian universities in technical and engineering fields. Therefore, in Figure 1, the teaching model of students' lived experiences of the teaching process in Iranian universities in technical and engineering fields was presented. It should be noted that the validity of the model was reviewed and confirmed based on the views of the interviewees.
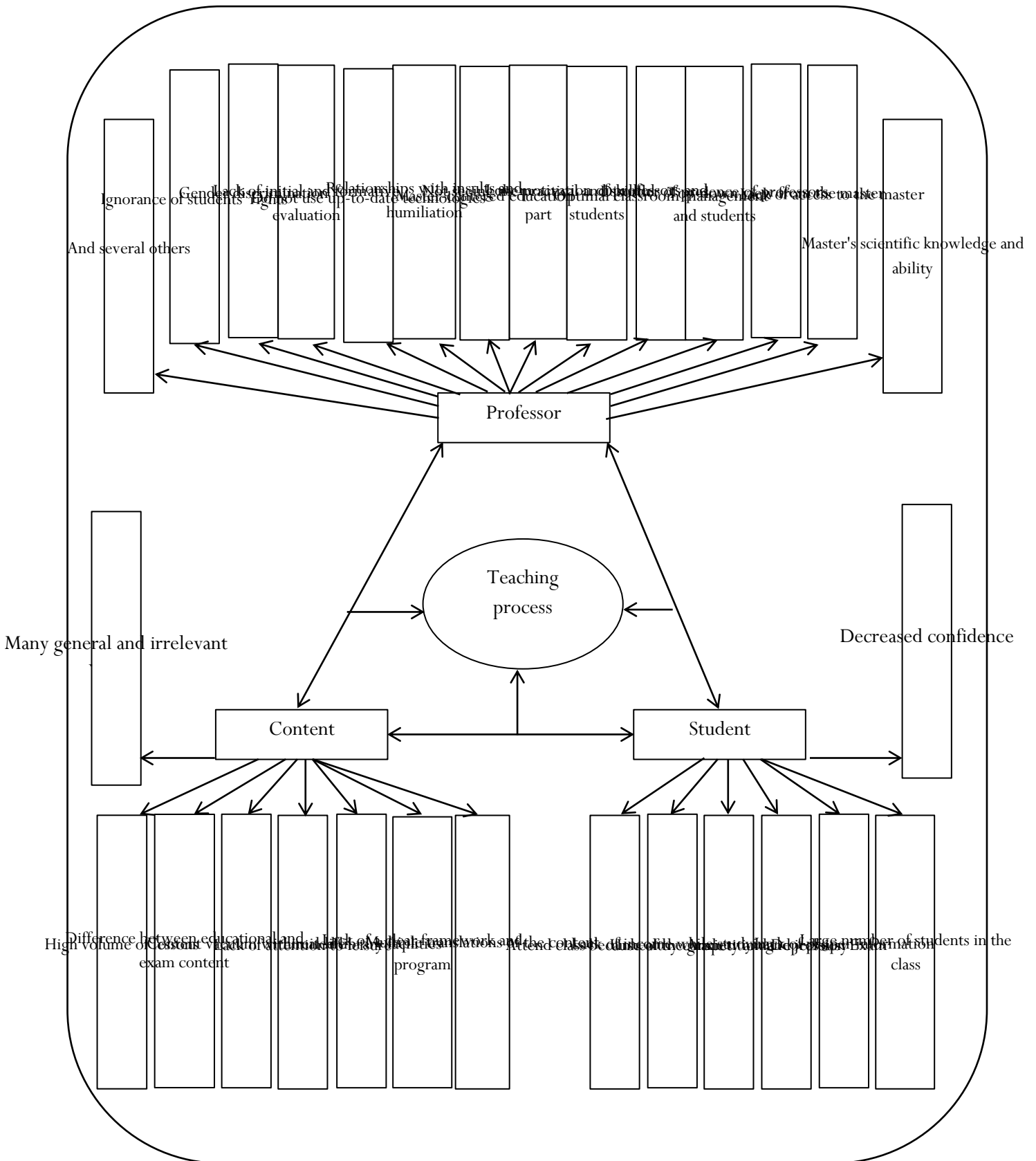
Figure1. Teaching pattern derived from students' lived experiences of the teaching process

4. Discussion

Examining students' lived experiences to design an appropriate teaching model can play an effective role in improving the quality of teaching. As a result, the present study was conducted to design a teaching model of students' lived experiences of the teaching process in Iranian universities in technical and engineering fields. In the present study, the findings showed that students' lived experiences of the teaching process in Iranian universities in technical and engineering fields have 197 initial concepts and 38 final concepts in three main components: professor (23 concepts), student (7 concepts) and content (8 concepts). Also, based on the concepts and components obtained from students' lived experiences of the teaching process, the teaching model in technical and professional fields was designed and approved based on the opinion of experts. These findings are in line with the findings of Mohammadi, et al (2020), Zare Khormizi, et al (2020), Kamali, et al (2018), Mosavi Dehmordi, et al (2017), Shahnemati, et al (2017), Seiahi Atabaki, et al (2016), Arkan, et al (2018) and Syrmpas, et al (2017) were consistent.

In interpreting these findings, it can be said that the main component in the teaching process, which has a very important role in the teaching process, is the responsibility of the professors and the professors choose according to the content, method and tools used. Based on lived experiences, it was found that professors of technical and engineering fields in Iran have a high level of knowledge and scientific ability, and this is a very high score. The level of science and knowledge of the teacher plays an essential role in conveying educational concepts and such professors can be a good transmitter for students. In contrast, these professors, due to their busy schedules and scientific pride, interpersonal relationships with insults, humiliation, and aggression, cannot convey concepts to students properly. Because students in such an atmosphere often hate the teacher and their mind is constantly busy to avoid insults, humiliation and aggression of the teacher. Also, lived experiences indicate that another major component in the teaching process is the learner or student, which in Iranian universities is not given much importance to the learner, and going to class for the student is more due to attendance and grade attendance and complete Booklets are the ones that students take notes on, and these booklets are the criterion for the final exam. According to the definition of teaching, if we consider teaching as a spectrum, one side of this spectrum belongs to the student and the other side to the professor and in between there is the content. As a result, great importance must be given to the student; the content must be appropriate and practical so that the student is eager to learn the material.

In addition, lived experiences indicate that the third and last major component in the teaching process is content. No matter how appropriate and appropriate the content is, it does not become a behavior in the learner without teaching by the teacher, and concepts and skills are understood and learned by teaching. Accordingly, the more appropriate the methods, the more effective the learning. In fact, it can be said that by implementing teaching methods, opinion becomes action and curriculum and teachers' decisions are implemented. If the method is not chosen carefully, some of the decisions, contents and curriculum will be deleted. In fact, one of the most important issues that has always occupied the minds of planners and educators and other stakeholders in education systems is what should learners learn? This attention is due to the fact that no matter how appropriate and accurate the goals of education are, without good and appropriate content, it will not be possible to achieve the goals and growth and development. The lived experiences of technical and engineering students in the field of teaching process were that there is a content component in the teaching process and it is part of the teaching process and the content includes space and position in teaching. In Iranian universities, the content of general courses is large and some of these courses are unrelated to the field of study and the space and educational facilities are limited and do not have acceptable quality. In general, the results showed that students' lived experiences of the teaching process in Iranian universities in technical and engineering fields had 38 final concepts in three main components: professor (23 concepts), student (7 concepts) and content (8 concepts). Therefore, the three components of teacher (teacher), student (learner) and content (subject of education) are very important

and these components are considered as the main components in the teaching process. In the Iranian educational system, less attention is paid to space (situation) and method (teaching methods and tools). As a result, it can be said that in the technical and engineering fields in Iranian universities, the two components of space and method, which play an important role in teaching, are not used in a new and practical way, and the teaching process is dry and inflexible based on the principle of professor-centeredness and mere use of The lecture method is seen with limited educational resources. In such cases, students are given little importance and students are often inactive. Also, in universities, research is not given enough importance, and libraries are limited in time for the student and have few facilities, and even the student himself is not allowed to pick up the book of his choice.

This research has also faced some limitations, such as a small research background on lived experiences of the teaching process in universities, a relatively small sample, and the limitation of the research community to three Australian universities. Therefore, it is recommended to do more research on the lived experiences of the teaching process in educational systems such as the education system and the higher education system, to use more sample size and to study the lived experiences of students from other countries of the teaching process. According to the results, planners and officials to design curricula and professors to improve their teaching can use the teaching model designed in this study to improve the quality of education in universities. Another important point based on the results of this research is that in order to improve the teaching process, many changes must be made in the three main components of teacher, student and content. For example, in the field of teacher, the relationship between teacher and student can be created by creating bridges of communication between them, strengthening emotional relationships between them to reduce insults, humiliation and discrimination, good classroom management and using new and up-to-date methods to provide efficient and practical educational materials, Improved to increase motivation in students. Also, in the field of students, it is possible to increase students' self-confidence through workshops and reduce their anxiety and depression, reduce the number of students in the classroom, and provide the ground for the growth of all students instead of jealousy and unhealthy competition. In addition, in the field of content, it is possible to reduce the Hajj curriculum and eliminate some general and non-curricular courses, and select the educational content so that it can be used in real life while having a specific framework.

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