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A phenomenological study of faculty members' beliefs about teaching-learning process

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Abstract

Purpose – It is important to understand professors' beliefs to promote better teacher preparation and professional development, as well as to understand the potential discrepancy between stated versus observed beliefs. The purpose of this study was to describe the faculty members' beliefs about the teaching-learning process.

Design/methodology/approach – A qualitative method was used to study the professors' beliefs by selecting the faculty participants via a purposeful sampling strategy. The study was conducted at one of the biggest universities in Iran. In total, 20 professors were interviewed.

Findings – Analysis of the interviews indicates that professors' beliefs about teaching and learning activities fall under four main themes (beliefs about teaching methods, beliefs about curriculum design, beliefs about students and beliefs about evaluation) and nine sub-themes.

Originality/value – Our findings reveal that professors have a deductive approach to teaching and learning, and due to the centralized educational system, they do not play a significant role in effectively presenting the curriculum. It seems necessary to direct professional development programs in rebuilding the professors' professional beliefs and identity.

Keywords Professors' beliefs, Teaching methods, Curriculum, Higher education

Paper type Research paper

Background

In recent decades, there has been a growing emphasis on the exploration of teacher identity as a crucial aspect in comprehending the professional development of educators. This exploration holds distinctive potential to delve into the emotions, values, commitment, motivation, well-being, and instructional methods of teachers (Sang, 2023). Beliefs, attitudes, and perceptions of humans guide the majority of their behaviors (Ahsan and Anjum, 2012). Beliefs affect the way the world is perceived and filter the information humans receive (Xu, 2012). Beliefs, influence objectives, emotions, decisions, actions, and reactions and influence education and life (Bandura, 2018).

Teachers are crucial agents in driving educational outcomes and are essential for the effective implementation of curricula. Their role in implementing curriculum decisions means that their beliefs can either bolster or hinder how students perceive these decisions. Furthermore, their actions are influenced by these beliefs (Karami *et al*., 2021). Teachers are no exception and hold different beliefs about topics, connections, and processes (Fives and Buehl, 2012). Teachers' beliefs refer to an integrated system of judgments that relate to teachers' classroom work (Peck and Herriot, 2015). Teachers' educational beliefs are among the most important belief systems through which they interpret their actions and their duties, and appreciate their students, and their subjects (Romanowski, 1997). Extensive literature demonstrates the significance of teacher beliefs in shaping student outcomes and driving policy implementation (Sabarwal *et al*., 2022).

Gaining more insight into those beliefs about the quality of education can contribute to faculty development and educational reforms because teachers are the facilitators of educational change (Incik, 2018; Ottenhoff-de Jonge *et al*., 2021). Proponents view (Kember and Kwan, 2000) that fundamental changes to the quality of education rely on changes in educational beliefs. Therefore teachers will be able to correct educational beliefs by being aware of their beliefs in the teaching process and, as a result, improve educational methods and

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the quality of education and be receptive to changes in the educational system. Thus Teachers' beliefs must be viewed as a key area that needs to be addressed in the context of most educational reforms and improve teaching practices (Verloop *et al*., 2001).

There is increasing attention paid to teaching in higher education (Maclellan, 2015). Teaching can be defined as the use of pedagogical techniques to create learning outcomes for students. It involves several dimensions, including the effective curriculum and content design, various learning experiences, the use of feed-up, feedback, and feedforward, and effective assessment of learning outcomes (Hénard and Roseveare, 2012). The present study investigates teaching in the classroom including initiatives that help teachers achieve their mission, encouraging them to support improvements to student learning.

In recent years numerous studies have focused on the relationship between beliefs and practice (Clayback *et al*., 2023). Available studies in higher education have explored the educational beliefs of professors and have proposed classification rubrics (Fives and Buehl, 2016; Light and Calkins, 2008; Postareff and Lindblom-Ylänne, 2008; Uztosun, 2013; Valckx *et al*., 2021). Existing studies have identified two approaches to teaching: "transmissionism" (i.e. teacher-oriented) and "connectionism" (i.e. learner-oriented) approach to teaching (Khokhotva and Elexpuru Albizuri, 2020; Hoekstra *et al*., 2009; Meirink *et al*., 2009; Ottenhoff-de Jonge *et al*., 2021). A teacher-oriented approach to teaching focuses on externally directed, reproductive, and individual learning. Teachers apply a directive style and concentrate on knowledge transmission and knowledge reproduction (Hattie, 2008). In a learner-oriented approach, teachers apply a supportive style. They stimulate students to take responsibility for their learning process, activate knowledge building, observe the students' learning strategies, and encourage students to evaluate their learning process (Bakkenes *et al*., 2010; Trinidad, 2020). Several studies have shown that student-centered learning is effective in encouraging deep learning and academic engagement (Islam *et al*., 2022; Tümkaya and Ulum, 2020) Although these beliefs about teaching appear to be dichotomous, they may form a continuum of positions that teachers adapt depending on the contexts and how the teachers view the contexts (Sing Chai *et al*., 2009).

Many studies have investigated different features of teaching-related beliefs through the quantitative approach. However, few qualitative investigations have explored beliefs about teaching and learning among teachers, for example, Northcote (2009) has illustrated how students' and teachers' educational beliefs influence their learning and teaching practices. A clear thematic structure emerged from the data analysis process which indicated four major themes (Beliefs about teachers and learners, Beliefs about the processes of teaching and learning, Beliefs about the content taught and learned, Beliefs about the purposes of teaching, and learning. Ottenhoff-de Jonge *et al*. (2021) identified a new belief dimension and adapted or refined other dimensions to apply in the context of medical education. Their new framework sharpens the boundary between teaching-centered and learning-centered belief orientations. Hofer (2008) suggests that the theoretical models of personal epistemology and models linking personal epistemology to other variables in the educational context should be widely tested in diverse cultures. It appears that more qualitative research is still required into the area that represents teachers' educational beliefs about both teaching and learning.

In general, according to the research, teachers' beliefs are key factors regarded as essential determinants of instructional activity and students' learning process. Examining teachers' beliefs provides a means for understanding the relationship between beliefs and student outcomes, and it also provides insight into teachers' classroom practices (Opre, 2015; Woodcock, 2021).

As the educational system in Iran is centralized, the same curriculum is implemented in all universities. Despite this limitation, professors have been given the authority to develop their lesson plans, include learning experiences, lesson sources, and learning assignments, and even choose their assessment methods. Moreover, they are required to implement the programs in the classroom. In such circumstances, the teachers' belief is a fundamental factor playing a key role in the development and implementation of the operational curriculum, contributing to the

quality of the educational system by changing the quality of the educational system. Identifying existing beliefs based on cognitive development models such as the one presented by William Perry can facilitate their development plan and improve the quality of educational measures.

Centralized systems undermine teacher autonomy and change their beliefs by diminishing their accountability, imposing a uniform curriculum, limiting their influence on the results of their work, and implementing unsuitable metrics for assessing teacher effectiveness (Runté and Runte, 1998). The modern history of higher education in Iran showcases a remarkable period of rapid growth, democratization, social and political engagement, pursuit of academic freedom, and scientific advancement. Despite recent efforts towards decentralization, the higher education system in Iran remains largely centralized. The Supreme Council of Cultural Revolution and the Ministry of Science, Research, and Technology (MSRT) are the two key state entities governing the higher education system. MSRT is responsible for allocating government funds to state institutions and accredited colleges and universities, as well as overseeing the regulation of higher education through the establishment of capacity and price limits. Additionally, MSRT administers the national entrance exam for colleges and universities, known as Concours (David and Amey, 2020).

Although the higher education system in Iran is centralized, the authority for revising the curricula has been yielded to the top ten universities in the country in recent years. Since faculty members are responsible for revising the curricula, their beliefs can play a significant role in this revision.

Therefore, given the importance of identifying university professors' beliefs in faculty development and educational reforms and the lack of qualitative research in this regard, conducting qualitative research to identify university professors' beliefs seems to be necessary. Conducting research in the context of higher education in Iran, a centralized educational system can be viewed as an advantageous factor compared to past studies.

Purpose and objectives

The current study investigates Faculty members' beliefs about teaching and learning through in-person interviews to explore the nature of their beliefs on the teaching-learning process using the Perry Scheme as a theoretical lens. Based on this theory, the perception of people about knowledge influences their educational actions and falls into a nine-stage continuum from dualistic thinking to relativism. The main purpose of this research is to examine professors' beliefs about the teaching and learning process based on Perry's scheme. The objectives guiding the study include: Identifying professors' beliefs about teaching methods, students, content, and assessment.

Literature review

Teachers' beliefs

Beliefs have multiple meanings, leading to the creation of several definitions (Rodríguez-Izquierdo *et al*., 2020). Beliefs often travel incognito, assuming various forms such as attitudes, values, judgments, axioms, ideologies, perceptions, conceptions, conceptual systems, preconceptions, implicit theories, explicit theories, personal theories, internal mental processes, action strategies, rules of practice, practical principles, perspectives, and repertoires of understanding (Khokhotva and Elexpuru Albizuri, 2020). Teacher beliefs encompass the knowledge, thoughts, and personal convictions that teachers hold (van Rijt *et al*., 2020).

The beliefs that teachers hold seem to strongly impact their actions in the classroom. Specifically, teachers' beliefs about their students and their roles are crucial in the development of inclusive practices, making them a key focus of this study (Aas, 2022).

They affect how teachers act in class and, thus, influence student learning (Jonge *et al*., 2019). Teachers' action is affected by teachers' minds because teachers' beliefs represent a rich store of knowledge, influencing their instructional planning and practices (Yeung *et al*., 2014). Therefore, teachers' beliefs are associated with their coping strategies in dealing with challenges in their academic life and their well-being, and even they shape students' learning environment and influence student motivation and achievement (Cheng *et al*., 2020; Collie *et al*., 2015; Thomas, 2013). As an example, based on William Perry's classification of cognitive development, the teacher who believes that knowledge is right and wrong often creates a closed and inflexible classroom environment, delivers mono-lectures, and uses benchmark tests for evaluation, while the teacher who believes knowledge is relative often thinks of students as the creators of their knowledge and attempts to assign the responsibility of learning to the students by engaging them in the problem-solving process via a flexible learning environment. Moreover, the teacher uses formative evaluations to assess learners' activities during the learning process, such as reflective essay. The teacher's beliefs are distinct from knowledge. That is, knowledge can be externally verified, while beliefs are subjective claims that a person accepts as true (Michelle *et al.*, 2015).

Perry's scheme of intellectual development

Multiple theories describe the levels of epistemological development in learners, such as epistemological reflection (Magolda, 1987), reflective judgment (King and Kitchener, 1994), and Perry's stages of intellectual development (Perry, 1970). While theories may vary in their specific details and range, they generally propose a shared pattern of progression that begins with simple, binary thinking and evolves towards an examination of diverse perspectives, culminating in complex, relativistic thinking. At the core of this gradual cognitive development lies a profound shift in an individual's epistemology, moving from a belief in knowledge as a set of facts to a perspective that recognizes knowledge as contextual and constantly evolving (Marra, 2005).

Perry's theory is widely acknowledged as a pioneering work in the realm of personal epistemology, shedding light on the development of college students' understanding of knowledge. (Zhu and Cox, 2015). Perry outlined a theory that consists of nine positions representing the development of a person's epistemological thinking from a dualistic to a relativistic approach. These positions can be categorized into four main stages: dualism, multiplicity, relativism, and commitment within relativism (West, 2004). Table 1 provides a summary of Perry's scheme of intellectual development (Marra, 2005).

Methodology

Research design overview

A deeper understanding of teachers' beliefs in different contexts requires the use of qualitative approaches where researchers can get at the inner experience of participants, to determine how meanings are formed through and in culture. We used a phenomenology research method for this study. The main goal of phenomenological research is to figure out the essence of a single phenomenon. The exploration of the phenomenon occurs by studying a group of people who have all experienced the phenomenon (Creswell and Poth, 2016). In a phenomenological study, personal narratives are used to describe a person's lived experience with a particular phenomenon (Bernard *et al*., 2016). Therefore, phenomenology is perhaps ideally suited to the "messy" construct of teachers' beliefs, as the development of a complex, detailed understanding of teachers' beliefs can be established by talking directly with teachers and allowing them to tell their stories (Olafson and Grann, 2014).

This qualitative study was undertaken, using in-depth, semi-structured interviews with the twenty faculty members of different faculties (Educational Sciences and Psychology, Literature and Humanities, Basic Sciences, Engineering, Theology, Administrative Sciences

Table 1. Perry's of epistemological development

Perry position	Knowledge	Learning
1. Basic dualism (hypothetical)	Knowledge is right or wrong, and is a collection of facts	Students receive the right answers from authority
2. Multiplicity pre-legitimate	Knowledge is generally right or wrong. Complexity or uncertainty is either an error or a teaching tool	Authorities are the source of the right answers or give us problems so we can learn to find the truth
3. Multiplicity legitimate but subordinate	Knowledge is right or wrong, and some knowledge is unknown temporarily	Authority is the source of answers or the source of methods to find the answers
4. Multiplicity	Some knowledge is right or wrong, but most are not yet known. Where authorities do not know, everyone is entitled to his/her own opinion	Authorities are the source of ways to think
5. Contextual relativism	Most knowledge is contextual and can be judged qualitatively	Students learn the methods and criteria of their discipline Metacognition begins
6. Commitment foreseen	Knowledge is not absolute but student accepts responsibility for making judgments	Students accept responsibility for making a commitment-based on their values
7, 8, 9. Commitment within relativism	Commitments are made within a relativistic world as an affirmation of one's own identity	Choices made in the face of legitimate alternatives and after experiencing genuine doubt

Source(s): Table courtesy of Marra (2005, p. 138)

and Economics, Agriculture, Sports Sciences, Veterinary Medicine, Mathematical Sciences) at the Ferdowsi University of Mashhad, Mashhad, Iran. Ethical considerations, including voluntary participation, anonymity and confidentiality of information, the right to withdraw from the study at any time, and the removal of recorded files after obtaining the results, were observed in the present study. The study protocol was approved by the. This study was carried out in Iran following the applicable rules concerning the review of research ethics committees (The Research Ethics Committee of the Ferdowsi University of Mashhad). The participants were informed about the interviews and the researchers' reasons and interests for this study. They were, then, asked to attend the individual interviews after signing the informed consent forms. All data were kept confidential and were only accessible to the investigators.

To identify and select the participants, a purposeful sampling strategy was used, as shown in Table 1. For the individual interviews, we invited Faculty members who had thought for at least five years.

Participants

Participants were selected among the faculty members of the Ferdowsi University of Mashhad using the purposive sampling method. To have a deep and comprehensive understanding of individual experiences, we gathered the data from the ones who had the necessary experience. Therefore, Participants met the following criteria: at least 5 years of teaching experience as a university faculty member, teaching at undergraduate and postgraduate levels, and teaching specialized courses. Maximum variation sampling was also applied to diversify the participants; we tried to select informants with different faculty, field, academic rank, and gender. All invited participants participated (participation rate of 100%) and none of the interviews were repeated.

No relationship was established between the interviewer and the participants before the study. Each participant made an appointment for an in-person interview. Decision-making about the number of participants was made based on theoretical data saturation. So that after

each interview, we checked whether new information had emerged. Interviewing continued until saturation was reached. The demographic information of the participants, based on their faculty and educational group, is given in the table below (see Table 2).

Research setting

In Iran, higher education is provided by universities, institutes, and colleges. Universities. The governance of higher education in Iran is dispersed among state-run, private (Azad), and distance-learning universities (Rasian, 2009). Over the past decades, Higher education in Iran has made strides in promoting its internationalization process and enhancing its competitiveness.

This study was conducted at Ferdowsi University of Mashhad in Iran which is the third biggest university in Iran. The university was established in 1949, making it the third oldest major university in Iran. It is among the five top universities in the country according to statistics published by the Ministry of Sciences, Research and Technology. FUM offers 180 bachelor's, master's, and Ph.D. programs to 26,000 international and local, male and female students studying under about 900 faculty members with the aid of 2,500 staff employees. Ferdowsi University of Mashhad is one of the nation's premier and prominent research universities. A vast range of majors and courses are available at Ferdowsi University of

Table 2. Characteristics of the participants

Educators ($N = 20$)			
No	Faculty	Field	Academic rank
1	Educational Sciences and Psychology	Psychology	Professor
2	Literature and Humanities	Social Sciences	Associate Professor
3	Literature and Humanities	Social Sciences	Associate Professor
4	Sciences	Biology	Professor
5	Engineering	Electrical Engineering	Assistant Professor
6	Administrative Sciences and Economics	Accounting	Assistant Professor
7	Engineering	Mechanics And Industries	Associate Professor
8	Engineering	Chemistry	Associate Professor
9	Engineering	Mechanics And Industries	Professor
10	Agriculture	Physiology of ornamental plants	Associate Professor
11	Agriculture	Ruminant nutrition	Professor
12	Theology	Islamic jurisprudence	Associate Professor
13	Mathematical Sciences	Pure Mathematics	Associate Professor
14	Veterinary	Basic Sciences	Associate Professor
15	Literature and Humanities	English literature	Assistant Professor
16	Science	Geology	Professor
17	Educational Sciences and Psychology	Information science and epistemology	Professor
18	Educational Sciences and Psychology	Curriculum studies and instruction	Associate Professor
19	Engineering	Construction	Assistant Professor
20	Sports Science	Motor behavior and sports management	Assistant Professor

Source(s): Authors' own creation

Mashhad. The university is regarded as a prominent institution in attracting international students from Central Asian republics, Afghanistan, Turkey, Lebanon, Syria, Pakistan, Thailand, India, China, Yemen, Bahrain, Africa, and many other localities of Asia. The university is ranked third in Iran amongst other universities in recruiting foreign students. It has 63 departments and offers about 400 courses. This university has been recognized as the scientific hub in the east of the country.

Data collection procedure

We developed a semi-structured interview protocol based on the objectives of the research. For this purpose, a limited number of key questions were identified in advance, but many probing questions were asked during the interview to clarify the participants' mental processes in the situation. The interview guideline was developed based on the theoretical principles of teaching. It encompasses the preparatory aspects such as lesson planning, the implementation phase during teaching (including teaching method and learner involvement), the subject matter, and the assessment of learning outcomes. These elements formed the framework for creating the interview questions.

The results presented here mainly refer to the answers to the following interview questions: What comes to your mind when you think about Teaching? In your view, lessons are best taught in which ways? What makes the most successful teaching? Elaborate your belief on the content and its role in teaching. What do you think should be the role of students in the classroom? What is your approach to assessing your students' achievement?

Then, we conducted a pilot study on two participants to examine the content validity. The professors were informed about the interviews and the reasons and interests of the researcher of the study. Then, they were invited for individual interviews. All interviews were conducted individually using a face-to-face method. Each interview lasted for 30–45 min. During the interview, notes were taken by the researcher and all interviews were recorded and transcribed verbatim. None of the interviews were repeated. All interviews were conducted in the first half of 2021. The transcripts were returned to the participants for comments and corrections. All data were kept confidential and were only accessible to the researchers of this study. Consent forms were signed by the participants. Eleven faculties were involved in the data collection and 20 professors from different faculties were interviewed. All professors who were invited agreed to participate (participation rate of 100%).

Data analysis procedure

Three successive phases were used to analyze the interviews using the guidelines of Miles and Huberman (2003) on qualitative data analysis. In other words, data reduction by coding, data structuring by categorization, and data interpretation by discussion. The second author imported all interview transcripts into the MAXQDA software package and coded all items. The codes were defined and the first coding dictionary was prepared. To assess inter-rater reliability, 50% of the interviews were selected, and coded by another coder (MK). In each category, the average Kappa values were between 0.81 and 0.89. ($M = 0.86$). The first author revised the coding dictionary by removing the code duplicates and discussing the codes. The first and Second authors structured the codes and discussed their structures to identify the dimensions of faculty members' beliefs towards teaching and learning activities.

During the analysis process, sub-themes were created or reduced by merging them thus allowing the analysis to reach internal homogeneity and external heterogeneity. Developing the emerging themes continued in an iterative process via the thematic analysis by going back and forth through the researchers' assumptions, ideas, questions, and explanations and, then, a validation of these themes by comparing them with the interview texts. The analysis was continuously discussed and re-evaluated by authors to enhance the reliability of the analysis through the exploration of different aspects, contradictory information, and interpretations. The participants were not asked to provide feedback on the findings. The data interpretation

via discussion was the connecting activity throughout the whole analysis process and during the decision-making process about the relevant quotes.

To establish the trustworthiness of our findings and ensure that they accurately represent the perspectives of the respondents (Lincoln and Guba, 1985), we employed credibility, transferability, dependability, and confirmability criteria. Credibility was upheld through peer debriefing during initial analysis and subsequent collaboration among the authors to finalize the findings and agree on the themes. Transferability was ensured by offering a detailed description of the themes and presenting them in a manner that others with similar experiences could recognize. The dependability of the findings was achieved by providing a thorough account of the data collection and analysis process for replication. Confirmability was established through comprehensive discussions to address potential biases and confirm the findings objectively.

Result

Analysis of the interviews indicates that professors' beliefs about teaching and learning activities fall under 4 main themes (beliefs about teaching methods, beliefs about content, beliefs about students, and beliefs about assessment) and 9 sub-themes. In the following section, each of the main themes and sub-themes is explained and supported by the quotations of the participants.

Beliefs about teaching methods

Using deductive teaching method to facilitate learning. Data from interviews with participants showed that their dominant approach to teaching was deductive. Teachers' ability to transfer information was the most important characteristic representing their professional competence.

For example, participant No. 4 stated:

> I believe that teaching is a process through which a person with a high level of knowledge in a specialized field can best transfer it to a group.

Most of the interviewed professors argued that to convey information effectively, they needed to associate the subject with a real context using practical examples and provide a pre-organizer before starting a new lesson. According to the majority of the professors, the deductive teaching method in the classroom was useful for conveying information. For example, participant No. 16 said:

> I think the best way to teach is to cover the basics of the lesson in the first few lessons and then use questions and answers and give them assignments only when their knowledge has been improved.

Based on the above statements, professors' belief in knowledge transmission is better captured by strategies of direct approach to learning.

Using instructional technology as a medium to transfer knowledge. During the interviews, participants emphasized the use of educational technologies in teaching. For example, participant 8 stated:

> In my view, using teaching aids such as PowerPoint, projector, and instructional videos to present information to the student will facilitate learning.

Thus, despite the teachers' belief in the necessity of using instructional technology in teaching, they considered educational technology just as media.

Increasing students' motivation through deductive teaching techniques. Findings from interviews showed that most of the professors attached a lot of importance to improving students' motivation and quality of learning. Their techniques were starting a lesson with a question, reviewing and activating their students' prior knowledge at the beginning of the lesson, using an eclectic method, questioning, and answering.

For example, participant number 17 stated:

> I think we are responsible for students' motivation. Usually, in most lessons, to trigger the students' minds, we can start with a question from the students and then give the lesson.

In general, regardless of the efficiency of interactive teaching methods in increasing students' motivation, the majority of teachers used conventional techniques to stimulate students' curiosity and motivation.

Student agency in the teaching process. Based on the findings of the interview, it was found that professors had different beliefs about student agency in the teaching process and this was dependent on the education level of students.

Most of the participants believed that professors are mainly responsible for student learning at the undergraduate level. They added that at the master's and doctorate levels, the responsibility of students would be more, and they would be expected to take on assignments. For example, participant No. 18 highlighted the major role of students in the teaching process:

> I believe teaching methods should be varied from one level to another. In bachelor's courses, because students do not have previous knowledge of the subject, I first teach the subject and then give students homework, but in the Ph.D. and master's courses, the teaching method should not be deductive at all.

In general, most professors emphasized the necessity of adapting students' learning activities to their level of education. They maintained that in higher education, professors were supposed to provide the ground for a bigger role of students in learning by giving them a greater share of learning activities such as presenting class projects, questioning and answering, and promoting group discussions.

Flexibility in teaching. Analyzing the interview reflected the professors' flexible approach to teaching. Most of the interviewed professors emphasized the necessity of tailoring their teaching method to the student's level of education and the nature of the course. Regarding the appropriateness of the teaching method to the student's educational level, participant No. 5 stated:

> I think for those topics which are theoretical, I should try to give concrete examples to make the class less serious and then start going through the theoretical concepts . . . But the practical classes it is all about discussion, that is, practically the students talk more and I do not dictate anything.

In general, the professors believed that in teaching undergraduate students, they had to rely on knowledge transmission to a great extent while in teaching master's and doctoral levels, they could easily adopt interactive teaching methods to create more space for students to participate in the classroom. They justified the differences with the prior knowledge of the students at the undergraduate level. In addition, they maintained that theoretical courses were too inflexible to allow them to use teaching methods in which the student can contribute to learning than practical courses.

Beliefs about students

The effect of students' ability on the quality of teaching. According to the participants, students with higher academic ability would encourage their teachers to be willing to work on the quality of teaching and provide them with additional and up-to-date information. Participant No. 10 said:

> The more capable students are, the better questions they will ask or the more they are active, the more willing teachers will be to study hard. I often get feedback from the students and improve my teaching method.

Participants believed that students' ability was an important factor in encouraging them to update their professional knowledge or reflect on their teaching methods.

The effect of students' motivation on the quality of teaching. There was a consensus among a group of participants that students' academic motivation had just decreased in recent years and students had shown little interest in the subjects. This, in turn, reduced the motivation of

teachers in teaching and as a result, affected the quality of their teaching. For example, participant No. 6 said:

> The more interested the student is, the more the teacher is interested in teaching and this affects the quality of his teaching.

A group of participants believed that if students did not have the necessary motivation to do academic activities, it was the teacher's job to motivate them in various ways. For example, participant No.2 stated:

> If a student is capable but not motivated, he should be guided and motivated.

Overall, most participants assumed that students' interest and appreciation of learning would influence the teacher's teaching orientation. Simply put, teachers reported that they would play a greater role in student participation in the teaching process and strive to increase the effectiveness of their teaching methods provided that students were interested in learning.

Beliefs about content

A group of participants asserted that the necessity of covering the topics imposed by the Ministry of Science, Research, and, Technology, limited their authority in reviewing and tailoring the curriculum to their students' interests, needs, and academic levels. As an example, participant No.9 mentioned:

> I think professors need to do some revisions in the content of the course they are teaching, but they do not usually have many choices because the course headlines are determined in advance.

Participants mentioned that concerning their limited authority in covering course headlines, they were obliged to select the course content based on the course topics and consider its appropriateness to the degree, level of intellectual maturity, scientific literacy, and various life experiences of the organization. As an example, regarding the appropriateness of the content with the participant's educational level, participant No. 20, stated:

> The content of the master's and doctoral courses is very different from the bachelor's degree.

About tailoring the course content to the various experiences of students' lives, Participant No. 3 also stated:

> In my view, when it comes to selecting the content of the lessons, I should try to focus more on the issues and problems of everyday life. In doing so, our knowledge would not be rusty.

Beliefs about the academic assessment

Most participants believed that the written test (mid-term and final) and the class project played a major role in assessing students' academic achievement.

Participant No. 16 stated:

> I think an exam is really important to assess student learning. In my case, 4 marks are allocated to their homework and the rest are related to the final and mid-term tests. I also take a class quiz to encourage students to study.

Overall, according to most professors, they used a limited number of methods such as paper-pencil tests and classroom projects to assess students' academic achievement, and final and mid-term exams have a major contribution to the evaluation of academic achievement.

Discussion

This study focused in particular on faculty members' beliefs about teaching and learning. The findings of this study are significant and show that the participants in this study share a set of core teaching beliefs that shape their practice as teachers.

One of the teacher's beliefs about teaching methods was employing deductive teaching to facilitate learning. This sub-theme reflected the traditional view of teachers in teaching as they adopted direct teaching techniques (providing practical examples, pre-organizing, etc.) to facilitate learning. However, research shows that to facilitate proper learning, using active teaching methods such as problem-solving, exploration-based, rhetorical, etc. should be encouraged (Meirink *et al*., 2009; Ottenhoff-de Jonge *et al*., 2021). In this regard, Andres (2020) states that education should not only emphasize a set of pre-determined principles and rote learning methods but it should actively involve students in educational activities since students are mainly responsible for learning. Sabah and Du (2018) also examined the behavioral needs of teachers in academic settings by examining the beliefs of faculty members and recommended that teachers should employ a learner-centered educational strategy. In practice, however, such a strategy was reported as less common. Relying on the direct presentation of scientific propositions as true knowledge is rooted in the way knowledge has been perceived by professors. Perceiving students as the receivers of true knowledge from an authority source called the teacher presents the early stages of cognitive development in Perry's scheme. The centralized educational system that deprives the teachers of interfering in the curricula and reduces their roles to the program executors can serve as a deterrent barrier, preventing them from accepting new information. Exploring and becoming more aware of contextual factors like institutional constraints (guidelines and expectations), time, and unplanned events allow individuals to see how these aspects both align with and challenge their teaching beliefs. By cultivating a critical understanding of essential teaching beliefs alongside influential contextual elements, professors are more likely to gain better control over their teaching practices. This enables them to adapt more effectively to meet the needs and interests of their students. Professors believed that compared to undergraduate students, master's and doctorate students should be given a greater share in learning activities in the teaching process. Although most professors acknowledged this issue, even in higher education, they considered limited activity opportunities for students such as asking and answering questions, presenting a lecture, etc., and they did not benefit from the teaching methods in which students play an active role. In this regard, Brown emphasizes that in learned-centered teaching, teachers should give learners a lot of control over the teaching process and provide them with opportunities for creativity and innovation. The substantial volume of lessons and especially materials in the post-graduate education course undermines teaching efficiency, encouraging them to present more materials in less time rather than adopting comprehensive methods). Changing such a belief requires giving importance to the result-oriented teaching approach, in which the classroom results are more important than the syllabus. Such achievements require changing beliefs to the levels of contextual relativism so that learners can accept responsibility for their learning.

According to professors, instructional technology was a medium to transfer knowledge. Despite their emphasis on the importance of educational technologies, professors limited the use of information technology to educational media and used it only to convey information to learners. However, the function of instructional technology in the classroom can go beyond this and include planning, content development, instructional design, implementation, and re-evaluation (Mangal and Mangal, 2019). Kinde (2007) also states that instructional technology-driven classes need to be interactive, flexible, and in line with active learning approaches. However, professors considered information technology as an information tool through which a lot of information in various formats such as text, audio, graphics, and video could be transferred to students and they did not use the potential of information and communication technology to implement active learning methods. However, nowadays, the concept of instructional technology is too broad to be limited to a medium and is more important than instructional design. The value of instructional media is associated with its instructional design (Reiser and Dempsey, 2017).

Professors believed that students' motivation could increase through the use of direct teaching techniques. However, stimulating students' curiosity, and attracting attention seemed

to be limited to asking questions, recalling prior knowledge at the beginning of the class, using a PowerPoint, etc. Based on the motivational model proposed by Keller, in addition to using techniques to attract attention in educational settings, it is necessary to be assured of the alignment of education with learners' needs, the creation of confidence and cooperation in a suitable environment, and the satisfaction of learners (Keller, 2008).

The traditional view of professors regarding educational technology should be associated with their lack of pedagogical knowledge. The reason is that subject experts have less opportunity to develop their pedagogical knowledge and consider educational technology as a medium to present their content knowledge. Even though conventional training workshops can contribute to the development of pedagogical knowledge to some extent, they fail to create a significant change in teachers' performances. To address this concern, new approaches, such as task-oriented learning, are recommended to provide the basis for learning transfer by linking the real issues of the work environment and education.

Professors stressed that the teaching method needs to be flexible enough to match the student's degree and the nature of the course. However, in previous studies, apart from the necessity of adapting the teaching method to the above-mentioned factors, the necessity of matching the teaching style with various other factors such as student learning style (Iurea *et al*., 2011; Kostolányová *et al*., 2011), individual differences (Anderman and Young, 1994), the needs of learners have been emphasized. Some professors believed that the quality of teachers' teaching would be influenced by students' abilities. They concurred that the high level of academic ability of students encouraged them to use more active teaching methods. In this regard, Yeager and Dweck (2012) state that teachers' beliefs about students' abilities directly affect the teaching methods and learning activities. Some added that reducing students' academic motivation harmed the quality of their teaching. Consistent with this research finding, Talebzadeh Shoshtari and Pourshafaie (2011) also found that 86% of professors believed that students' academic motivation had decreased in recent years. In their study, Mansfield and Volet (2010) also found that teachers' beliefs about students' academic motivation were very important in the learning-teaching process and emphasized the importance of the way those beliefs were formed during their teaching training and recommended their integration with teacher training courses. The university admission system for undergraduate and graduate courses in Iran is completely centralized, and admission is done through a national exam. Universities and professors cannot interfere in the admission process. In the doctoral course, the admission system is also centralized, but part of the evaluation process is the interview with the PhD applicants. This centralized system attracts students who do not meet the expectations of professors in terms of academic ability and motivation. That might explain why professors also feel little committed in the process of promoting admitted students. It is necessary to increase the commitment of professors and their meaningful participation in this field.

Faculty members play a variety of roles in the university, of which research and teaching are the most important ones. On top of that, the highest expectations of the higher education system come from research professors rather than educators. For example, in the regulations set for the promotion of faculty members and centrally notified to all universities by the Ministry of Science in Iran, there are many clauses related to research topics, of which only two are related to education. There is a clause on the quantity of teaching that indicates the number of courses taught in each semester and the quality of teaching that is obtained from the teacher through the evaluation of students at the end of each course. Accordingly, the members of the faculty mainly focus on research rather than teaching.

Regarding educational content, a group of professors believed that the wide range of topics time constraints, and lack of authority were among the problems that prevented them from evaluating and changing the curriculum based on the interests, needs, and academic level of students. Wiggins (1989) argues that the problems are caused by the negligence of curriculum designers to two facts: first, by studying a vast amount of knowledge, sustained and deep learning does not necessarily occur; second, in the age of information explosion, the concept of

content source for learning has changed completely. Lam and Kember (2006) also found that the context had influenced the teaching methods of the teachers under study; In other words, standardized exams, specific curricula, and defining a pre-determined curriculum as a teachers' roadmap, as a necessary matter, were among the underlying factors that affected the teacher's teaching approach in the classroom.

In Iran's centralized higher education system, all universities are expected to work on similar curricula, which include the characteristics of the courses, the number of units, course objectives and topics, teaching methods, and learning assessment. In such an environment, professors find themselves playing the role of the executors of a pre-designed curriculum rather than the designers of learning experiences and environments.

Despite the emphasis of the new curriculum on progressive evaluation and the use of different evaluation methods (e.g. oral test, written test, qualitative assessment, checklist observation, computer-based assessment, self-assessment, etc.), the choices of some professors seemed to be limited to the midterm and final written test. They often put an emphasis on measuring student academic achievement and relied on the accumulative evaluation of students' academic achievement and paid less attention to the student's academic activities during the semester. However, research has shown that the evaluation approach, which is a good predictor of the student's achievement of specific goals and standards, is a formative evaluation approach wherein appropriate feedback has been emphasized (Klimova, 2015; Yoshida and Kurita, 2016).

In Iran, the academic curriculum is often focused on outcomes and places less importance on the involvement and participation of students in the learning process. Academic education prioritizes the plans, results, and goals of a program, whereas, in process-focused programs, the learning activities of students play a significant role (Nazarzadeh Zare and Parvin, 2024). Faculty members, as subject experts, have more content knowledge, while the effective transfer of this content requires pedagogical knowledge. Professors usually have not formally acquired this knowledge during their education, and their educational practice is more than tacit knowledge that they have acquired through experience. To address this deficiency, universities in Iran design workshops for professors in the field of teaching and assessment in an incoherent form, but usually these workshops are not well received by the professors, and there is no interest in them.

Implications for practice

Changing teachers' beliefs is not an easy task in a centralized system. According to Perry's scheme, it is difficult to transfer teachers' true and false dual beliefs to Contextual beliefs. Such a change requires time and an environment where various experiences can be gained. There is not much hope for the success of in-service training classes in this field. Instead, professors should be encouraged to get involved in setting a learning environment and learning opportunities through which real skills are being practiced.

An important recommendation for improving educational practices is to provide professors with faculty development opportunities. In these settings, they can explore and discuss the underlying assumptions about teaching within their community of practice. By engaging in these discussions in a real-world context, professors can build a social framework for teaching, develop their understanding of knowledge principles, and create conditions for their own learning about teaching, ultimately influencing how they instruct others.

Giving authority to professors gradually to decide about curriculum design based on classroom context and empowering them with new methods to design learning and gain teaching experiences means helping professors take on responsibility regarding curriculum design and development and provide the basis for changing beliefs.

Limitations

While this study focuses on faculty perceptions in Iran and its findings are specific to a single university in Iran, the methodology employed can be valuable for examining Faculty Members' Beliefs about the Teaching-Learning Process in different universities, countries, or cultures. However, our study suffers from some important limitations. Firstly, as all participants were Faculty members of the Ferdowsi University of Mashhad, their beliefs might not be generalized to the faculties in other settings. Due to this limitation, further studies need to be carried out to see whether similar perceived benefits and concerns exist among teachers in different settings. Secondly, all professors participating in this study were Iranian and their expression of feelings may differ from teachers in other cultures. It is suggested that the study be replicated in other cultures.

In addition, since the present study does not examine the discrepancies between professors' beliefs and actions, understanding such discrepancies is highly recommended.

Conclusion

The current study aimed to fill two gaps: Firstly, it expanded upon the limited qualitative research concerning professors' beliefs. Secondly, it examined these beliefs within a centralized higher education system. The theoretical framework for this study was Perry's scheme of intellectual development, which connects cognitive development with teaching practices. For a professor, as with most educators, teaching often functions on an implicit level, guided by fundamental beliefs with limited time for reflective practice. The results showed that based on Perry's classification of teaching, the teachers' beliefs about learners, content, and assessment tend towards the basic dualism and pre-pluralism epistemology, and the teacher's authority is of great importance in the teaching-learning process. Other important factors in this field include a centralized system reducing the role of the teacher to the curriculum executors, discouraging their meaningful participation in the process of designing and compiling the curriculum, and the lack of a specific source for the development of the teacher's pedagogical knowledge. This finding has clear implications for educational reforms and professional development programs. As professors are the main agents of implementing any change in the higher education system, accepting educational innovations aligned with recent advances in education requires changing their underlying beliefs. Such changes can be made through professional development programs. Instead of focusing on new techniques and methods, professional development programs should include rethinking and developing such beliefs, which are considered to be a teacher's identity. Faculty development opportunities can provide professors with chances to discuss and reflect on their views about teaching objectives, the roles of diverse learners, and essential practices for encouraging learning. Moreover, educators who understand how their beliefs influence their practice may be more willing to explore alternative instructional methods to improve their teaching.

For example, in recent years, educational reforms have been carried out in Iranian universities. As an example, we can point to the notification of the regulations on increasing the employability of students by the Ministry of Science. Based on this plan, professors are expected to hone the required skills in students by creating a link between the classroom environment and the real work environment through scientific visits, problem-based teaching, projects, and case studies. However, the experience of implementing this plan in four years shows a very low percentage of realization.

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Further reading

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Table A1. Interview sample

Beliefs about teaching methods	*Using deductive teaching method to facilitate learning*	No.4: *"I believe that teaching is a process through which a person with a high level of knowledge in a specialized field can best transfer it to a group."* No. 5: *"In my opinion, education is teaching scientific principles and transferring experiences at least in a way that the teacher himself feels useful to the student."* No. 16: *"I usually cover the basics of the lesson in the first few lessons and then use questions and answers and give them assignments only when their knowledge has been improved. I start the classroom by reviewing the previous session and then give an introduction to the new lesson."* No. 5: *"I will start my lesson with questioning and try to guide the student towards the answer. When it comes to teaching, I try to consider the practical aspect of the issue, and make students familiar with the disorders and problems through the lens of clients and show its applicability because they want to do occupational therapy in the future."*
	Using instructional technology as a medium to transfer knowledge	No.4: *"In each session, I first try to explain the subject matter and then use different means such as chalk and blackboard, PowerPoint, videos to convey* No. 8: *"I use teaching aids such as PowerPoint, projector, and instructional videos to present my information to the student."*
	Increasing students' motivation through deductive teaching techniques	No. 15: *"I try to motivate the students. Before the class starts, the objectives of the course and headlines are set. I try to provide the relevant content based on the objectives and involve the students in classroom activities. I ask interactive questions to invite comments from students It's not just one-sided."* No. 17: *"Usually, in most lessons, to trigger the students' minds, I often start with a question from the students and then give the lesson. Meanwhile, I give examples from the specialized context and use questioning and answering."*
	Student agency in the teaching process	No. 18 *"I believe teaching methods should be varied from one level to another. In bachelor's courses, because students do not have previous knowledge of the subject, I first teach the subject and then give students homework, but in the Ph.D. and master's courses, the teaching method should not be deductive at all."* No. 13 *"In the master's and doctoral programs, the burden of presenting instruction is on students. I ask them to study the articles or books before attending the classroom and be ready to discuss it in groups."*
	Flexibility in teaching	No. 18: *"I always try to engage the student in the learning process because an accurate understanding of the subject is important. In bachelor's courses, because students do not have previous knowledge of the subject, teaching is mostly based on the stuff that I have prepared for them, but to help them have a better understanding, I also use questions and answers. My teaching method is deductive in bachelor's courses, meaning that I first teach the subject and then give students homework, but in the doctoral and master's courses, the teaching method is not deductive at all. First I assign students to read the subject beforehand and then discuss it in class."* No. 5: *"I am teaching four lessons this semester, two of which are purely theoretical and two of which are practical. For those topics which are theoretical, I often try to give concrete examples to make the class less serious and then start going through the theoretical concepts, and in conveying information to the student, I benefit from teaching aids if the nature of course. But the practical classes it is all about discussion, that is, practically the students talk more and I do not dictate anything."* No. 4: *"Our courses do not lend themselves to debate and it rarely happens that I ask students to discuss the subject because they do not have a scientific background, even the students themselves are not willing to do so."*

(*continued*)

Table A1. Continued

Beliefs about students	*The effect of students' ability on the quality of teaching*	No. 10: *"The more capable students are, the better questions they will ask or the more they are active, the more willing teachers will be to study hard. I often get feedback from the student and improve my teaching method."*
		No. 11: *"Students' academic ability affects me. If students have a higher academic level, I try to keep myself updated to be able to answer their questions easily."*
	The effect of students' motivation on the quality of teaching	No. 6: *"The more interested the student is, the more the teacher is interested in teaching and this affects the quality of his teaching. If the students are persistent and interested, I will be much more eager to attend the classroom."*
		No. 12: *"Student indifference negatively affects the classroom. Just like a depressed person who easily makes others depressed, students can affect their teacher's teaching motivation."*
		No. 2: *"If a student is capable but not motivated, he should be guided and motivated."*
Beliefs about content	No. 9: *"I think professors need to do some revisions in the content of the course they are teaching, but they do not usually have many choices because the course headlines are determined in advance."*	
	No. 20: *"The content of the master's and doctoral courses is very different from the bachelor's degree."*	
	No. 3: *"In my view, when it comes to selecting the content of the lessons, I should try to focus more on the issues and problems of everyday life. In doing so, our knowledge would not be rusty."*	
	No. 1: *"If students are not homogeneous in terms of ability, the average ability of the class should be taken into account and the lesson content should be arranged according to the average."*	
Beliefs about the academic assessment	No. 16: *"I think an exam is really important to assess student learning. In my case, 4 marks are allocated to their homework and the rest are related to the final and mid-term tests. I also take a class quiz to encourage students to study."*	
	No. 3: *"Teachers should not just give the final test, in my case, the final exam accounts for 60% of the students' total mark and the rest go for the assignments they do in class, their participation, and continuous presence in the class."*	
	No. 4: *"I think the final test is more important. My assessment is based on the final exam and the class quiz. I am not interested in taking the mid-term test. Although students insist on taking the mid-term exam, I do not want to make the student feel stressed during the course. I want my student to be comfortable during the course. For enthusiatic master's and Ph.D. students, there are some assignments for which I assign an extra mark."*	

Professors' beliefs interview guide

(1) What comes to your mind when you think about Teaching?

(2) Let's talk about a lesson that you have conducted. How do you go about facilitating learning in general? Why do you do this process?

(3) Do you believe that the current teaching methods help your students acquire the desired goals? Please explain.

(4) In your view, lessons are best taught in which ways? What makes the most successful teaching?

(5) What role does instructional technology play in your teaching and what is your approach?

(6) What method do you apply to motivate the students to learn mathematics? Elaborate

(7) What do you think should be the role of students in the classroom?

(8) What is your approach to assessing your students' achievement?

(9) Elaborate your belief on the content and its role in teaching?

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