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Research Paper

Identification, Validation and Ranking of the Challenges of Implementing a Competency-Based Education System at Imam Hussein University (A Mixed-Methods Approach)

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Abstract
The aim of this study was to identify and prioritize the challenges of implementing a competency-based education system at Imam Hussein University (A.S.). The research was applied in terms of its purpose and mixed-methods (qualitative-quantitative) in nature, with an exploratory approach. The qualitative sample consisted of professors with over 25 years of experience at Imam Hussein University (A.S.), while the quantitative sample included all faculty members of the university, totaling 432 individuals. In the qualitative section, the sample size was determined based on the principle of theoretical saturation, amounting to 11 individuals. The sample size for the quantitative section was calculated using Cochran's formula, resulting in 217 participants. Data were collected through interviews and a researcher-designed questionnaire. Thematic analysis was used for data description, while Structural Equation Modeling (SEM) and Friedman tests were employed for data analysis. The findings revealed that the challenges of implementing a competency-based education system could be categorized and validated under seven components: weaknesses in the educational structure, the gap between theory and practice, ineffective implementation, inadequate understanding of the nature of the competency-based education system, neglect of individual differences among students and faculty, deficiencies in facilities and infrastructure, lack of proper monitoring and evaluation, and inherent limitations in establishing a competency-based education system ($p<0.05$). Based on the findings, recommendations were made to the Ministry of Science, including collaboration with industry and the labor market, updating and revising educational programs, launching practical training programs, advancing educational technologies, and creating continuous learning opportunities to address the challenges of the competency-based education system.

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Introduction

Since knowledge and the processes related to it are considered as vast resources and wealth of a society, universities and educational systems are seen as bridges to facilitate access to this wealth. However, there is no path that is always smooth and free of complexities. Changes and transformations in cultural, economic, social, and scientific spheres are among the factors that create inconsistencies in the field of education. Imam Hussein University (A.S.), as the most important educational institution in the country for producing specialized knowledge and training experts in this area, holds a critical responsibility. As a military organization, the university places significant emphasis on education and the use of effective educational models, which serve as essential tools for fulfilling its important mission of training competent, responsible, and committed graduates (Shasti, 2010). In this context, the necessity of competency-based education within this institution is clearly evident. By laying the foundation for the development of various competencies, an opportunity can be created for students to equip themselves with the necessary skills and competencies for entering the workforce. Competence is defined as the ability to apply a combination of knowledge, skills, and attitudes to perform a task within a specific context. The process of developing theoretical knowledge and information is typically achieved through higher education. Skills are acquired and developed through the repeated application of knowledge in real-life settings. Skill development leads to improved performance quality. Attitudes, in turn, are the mental images that define and shape the realm of human thought and action. A person's understanding of phenomena around them and their decision-making process is based on these mental images.

In competency-based education, the goal is to identify and nurture the unique intellectual, emotional, and physical capabilities of learners and to help them achieve success. Competency is examined on three levels: at the individual level, it includes the knowledge, potential skills, capacities, capabilities, and qualifications of personnel. At the organizational level, it involves a unique approach to combining various organizational resources. In other words, competency includes the interaction of employees' knowledge and skills with other organizational resources, such as knowledge of systems, ongoing operations, procedures, and technological products. At the strategic level, competency involves creating and maintaining competitive advantage through a particular combination of knowledge, skills, structures, strategies, and processes.

On the other hand, Imam Hussein University (A.S.) faces several challenges related to the implementation of a competency-based education system, which need to be examined and addressed. The concept of competency-based education, particularly in professional education, has a long history. Competency-based programs were first introduced in the United States and grew with teacher education in the late 1960s.

They were formally recognized in vocational and professional training programs in Australia in 1990 (Koster, Schalekamp, & Meijerman, 2017). The competency-based approach has been shown to impact not only the development of job skills but also the structure and delivery of formal education and apprenticeship programs. To trace the origin of the competency-based movement, some writers have linked it to Taylorist management theories, although it is clear that some elements of competency-based education align with Taylor's methods and may have been influenced by them. Competency-based education directly emerged from the behavioral subjects movement in the 1950s in the United States, influenced by the ideas of educators such as Benjamin Bloom. This movement supported specific and objective topics that are directly observable and refer to the behaviors a person must demonstrate to successfully perform their role. Behavioral subject writers are encouraged to define practical outcomes, leading to stable observations and avoiding misinterpretations. To achieve this level of reliability, educational subjects must begin with actions that describe student behavior, such as stating, listing, naming, choosing, calculating, etc (Shafighian, Ghourchian, & Bagheri, 2021).

Although the reasons for introducing competency-based education vary across different countries and time periods, the basic principles and goals of this approach have essentially remained unchanged since the 1960s. These principles are:

1) Focus on outputs: The primary characteristic of competency-based education is its focus on specific outputs (related to the competencies required to perform a task). This focus on outputs is often in contrast with many traditional educational program approaches, which are based on inputs such as student selection, intern qualifications, course duration, class size, teacher-student ratio, etc.

2) Closer alignment with the workplace: Competency-based education focuses more on the work environment than on the content of educational programs. It is often believed that competency-based courses emphasize applying theory or knowledge to perform practical tasks and job roles.

3) Outputs as observable competencies: The next goal of competency-based education is to define clear outputs and observable work performances. This allows job requirements to be better articulated, educational program objectives to be redefined with greater precision, and the likelihood of correct judgment regarding achieved competencies to increase (Frank et al., 2010).

The aforementioned points highlight that traditional organizational training methods no longer meet the needs of organizations and their members. Knowledge domains have expanded, and filling employees' minds with scattered knowledge and information does not significantly help organizations. New educational approaches argue that training should be competency-based and directly aligned with employees' job functions. This goal cannot be achieved unless a model for competency-based education is developed

(Dushi, Iams, & Lichtenstein, 2015). Studies show that despite the formulation and introduction of models in this field, competency-based education is not universally applicable across all organizations. Each organization has its own unique conditions and situations, requiring a specific model.

Today, the term "competency" has become a multi-purpose concept, used with different meanings in various scientific fields. The literature on competency contains diverse definitions, mostly focused on job roles and responsibilities. However, upon reviewing them, it becomes clear that there is no single, fixed definition of competency, and different definitions stem from the varied perspectives and approaches of different scholars and thinkers. Competency is defined as a set of knowledge, skills, attitudes, and generally characteristics upon which effective job performance is based and which improves through education and development (Prabawati & Aoktariyanda, 2018). Competency is also described as measurable knowledge, skills, abilities, and attitudes that learners can acquire (Dushi et al., 2015). Khorshidi, in a study, defines competency as a set of interconnected knowledge, attitudes, and skills. Thus, competency enables an individual to perform a task skillfully (such as making correct decisions and performing tasks effectively) in complex and uncertain situations, such as professional work, social commitments, and personal life.

Competency-based education is designed based on a system that focuses on the characteristics expected from employees. In such a system, performance holds significant importance, and evaluating performance is a fundamental component of establishing meritocracy. Competency-based education is outcome-based, and the evaluation of learners' achievements determines whether they can demonstrate their ability to perform a task (Gravina, 2017).

The main goal of competency-based education (CBT), like other skill-training methods, is to supply the skilled workforce needed by the labor market. However, this form of skill training has unique features that distinguish it from other methods, which are outlined as follows:

1) Every industry requiring skilled labor plays a crucial role in preparing and developing job skill standards, implementing on-the-job training or similar environments, delivering training outcomes, and evaluating professional levels.

2) The emphasis on output-driven education leads to a focus on the pre-existing skills and competencies of trainees.

3) Since individuals do not have equal entry competencies to perform specific tasks, the system categorizes training into multiple levels, including competency levels, skill package levels, and unit competency levels, allowing for the selection of training courses based on the trainee's skill needs or the employer's expectations.

4) The duration of skill acquisition is determined by the trainee's capabilities and pace.

5) Competency-based education prioritizes skills over knowledge.

From another perspective, these features can be summarized as follows: the educational activities are designed to foster individual talent and capabilities; students have sufficient opportunities to gain experience and acquire the necessary competencies and skills; the evaluation criteria in this model measure the extent to which students achieve competencies and attitudes; and educational opportunities are provided based on learners' talents and interests (Moon, 2007). Given these considerations, the main research question addresses: What are the challenges in implementing a competency-based education system at Imam Hussein University (A.S.

Research methodology

This research was conducted with the aim of identifying and prioritizing the challenges of implementing a competency-based education system at Imam Hussein University (AS). Therefore, the findings of the study can be directly applied. Thus, this research is practical in terms of its objective and mixed in terms of its nature, comprising both qualitative and quantitative components. Mixed-methods research typically falls into three categories: descriptive (explanatory) and exploratory. The present study follows an exploratory approach. In exploratory mixed-methods research, the qualitative approach (subjective data) serves as the foundation, with the data then validated quantitatively. Exploratory mixed-method research is one of the types of scientific studies used to present a model for representing the phenomenon under investigation. This method is particularly useful in scientific studies aiming to design models and frameworks.

The statistical population for the qualitative part consisted of all experienced professors (with over 25 years of experience) at Imam Hussein University (AS). The statistical population for the quantitative part included all professors at Imam Hussein University (AS), totaling 423 individuals. Sampling for both the qualitative and quantitative components was conducted separately. In the qualitative section, the sample size was determined based on the principle of theoretical saturation. The sampling method for the qualitative part was non-random purposive sampling. Purposive sampling involves selecting specific individuals who have extensive knowledge about the subject under investigation. This method, also known as judgmental, selective, or subjective sampling, is a non-probability sampling technique where researchers rely on their judgment when selecting members of the population for participation in the study. The sample is chosen in such a way that it closely represents the actual characteristics of the population. Thus, the researcher, based on prior familiarity with the population, purposefully selects individuals who possess deep and extensive knowledge and understanding of the subject. This method is particularly useful when the number of individuals possessing the necessary

characteristics or conditions in the studied field is limited. Purposive sampling is a specific form of snowball sampling, which is highly useful in qualitative analyses when the population is small and the sample must be specific. This technique is widely used in grounded theory, thematic analysis, and other qualitative methods.

The final sample size for the qualitative section, based on the principle of theoretical saturation, was determined to be 11 individuals. To determine the sample size for the quantitative section, Cochran's formula was used. Based on Cochran's formula, the minimum sample size for a population of 423 is 202. Therefore, 217 professors were selected as the sample for the quantitative part of the study using non-random convenience sampling.

For identifying the qualitative objectives of the study, in-depth interviews were conducted. After collecting the qualitative data, the interview transcripts were coded using thematic analysis. Thematic analysis is a qualitative research method focused on identifying, analyzing, and interpreting patterns of meaning within qualitative data. The theme is the key element in this method. Themes represent the most valuable units in content analysis and refer to specific meanings derived from a word, sentence, or paragraph. Themes do not occupy a fixed or defined space, as one sentence can contain several themes, or several paragraphs may only represent a single theme. Like other qualitative analysis methods, thematic analysis has experienced significant growth in social sciences management research. Thematic analysis is sometimes confused with content analysis and is recognized as one of the most straightforward and effective methods in qualitative research. In fact, thematic analysis is the first qualitative analysis method that researchers should learn. It provides the essential skills needed for many qualitative analyses and serves as a general and common skill in qualitative analysis. For this reason, it is considered not as a specific method but as a flexible tool applicable across various research methods. Some scholars regard coding in thematic analysis as a prerequisite process for more advanced qualitative analyses, while others, such as Braun and Clarke, argue that thematic analysis should be considered a distinctive method, with flexibility being one of its advantages.

Finally, based on the key themes identified, a Likert-type questionnaire (5-point scale; ranging from 1 to 5) was designed and distributed to the quantitative sample of the study to collect quantitative data.

Table 1- Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE) for the Dimensions

Dimensions	Cronbach's Alpha	Composite Reliability (C.R)	Average Variance Extracted (AVE)	Coefficient of Determination (R^2)

Weakness in the Educational Structure	0.946	0.952	0.538	0.712
Gap between Theory and Practice and Weakness in Implementation	0.970	0.973	0.719	0.844
Inadequate Understanding of the Competency-Based Education System	0.857	0.893	0.583	0.510
Lack of Attention to Individual Differences among Students and Professors	0.921	0.940	0.759	0.816
Weakness in Welfare and Structural Facilities	0.717	0.841	0.639	0.542
Absence of Proper Supervision and Evaluation	0.710	0.873	0.775	0.439

Based on the results from the table above, the reliability of all dimensions is greater than 0.70, indicating that the reliability of the questionnaire is at an ideal and desirable level. The composite reliability for all dimensions is also higher than 0.70 and exceeds the Average Variance Extracted (AVE), which demonstrates convergent validity. Additionally, the AVE for all dimensions is greater than 0.50, further confirming the convergent validity of the questionnaire.

To assess discriminant validity, the Fornell-Larcker method was used. Additionally, for examining discriminant validity, the HTMT (Heterotrait-Monotrait ratio) was applied. The results of the HTMT criterion are presented in the table below:

Table 2 - HTMT Index Results for Assessing Discriminant Validity of the Questionnaire on Challenges of Implementing a Competency-Based Education System at Imam Hussein University (AS)

Dimensions	Weakness in Educational Structure	Gap between Theory and Practice and Weakness in Implementation	Inadequate Understanding of the Competency-Based	Lack of Attention to Individual Differenc	Weakness in Welfare and Structural Facilities	Absence of Proper Supervision and Evaluation

			Education System	es among Students and Professors		
Weakness in Educational Structure	-	0.641	0.472	0.780	0.790	0.473
Gap between Theory and Practice and Weakness in Implementation	0.641	-	0.678	0.846	0.694	0.808
Inadequate Understanding of the Competency-Based Education System	0.472	0.678	-	0.705	0.774	0.739
Lack of Attention to Individual Differences among Students and Professors	0.780	0.846	0.705	-	0.732	0.697
Weakness in Welfare and Structural Facilities	0.790	0.694	0.774	0.732	-	0.509
Absence of Proper Supervision and Evaluation	0.473	0.808	0.739	0.697	0.509	-

The HTMT criterion has replaced the traditional Fornell-Larcker method. If the HTMT values are less than 0.90, the discriminant validity is considered acceptable. Based on the data from the table above, all values are below 0.90, confirming the discriminant validity of the model. In the process of confirmatory factor analysis, it is essential to assess the construct validity to determine whether the indicators chosen for measuring the desired constructs are accurate. Based on the results of composite reliability, average variance extracted (AVE), and the HTMT criterion, the construct validity of the model (convergent validity and discriminant validity) has been confirmed. All participants were assured that the study was purely research-based and that there was no need to provide their full names. Their information would remain completely confidential. This approach helped to gain the consent of all participants, who willingly responded to the research questions. The data analysis was performed in three sections: demographic information, descriptive statistics, and inferential statistics. In the demographic section, factors such as age and work experience were examined. In the descriptive section, central tendency indices and measures of dispersion of the researcher-made questionnaire were reported. In the inferential section, the research questions were addressed. After collecting the quantitative data, the information was analyzed. For analyzing the qualitative findings, thematic analysis was used with the help of MAXQDA software. In the analysis of the quantitative findings, Cronbach's alpha test was used in the SPSS environment to examine the reliability of the questionnaire. For assessing the construct validity of the questionnaire, including convergent validity (AVE) and discriminant validity, factor loadings and the Fornell-Larcker technique were applied. Finally, confirmatory factor analysis was performed, and to prioritize the challenges of implementing a competency-based education system at Imam Hussein University (AS), the Friedman test was utilized.

Research Findings

- What are the challenges of implementing a competency-based education system at Imam Hussein University (AS), and how are they categorized?

Through interviews, information was gathered regarding the challenges of implementing a competency-based education system at Imam Hussein University (AS). The data were coded using thematic analysis (also known as "content analysis") with the help of MAXQDA software. The results are presented in the table below:

Table 3 - Results of Coding Interview Texts Using Thematic Analysis to Identify the Challenges of Implementing a Competency-Based Education System at Imam Hussein University (AS)

Superordinate Theme	Organizing Themes	Basic Themes
	Weaknesses in the educational structure	Lack of Workshops for Professors
		Weakness in Internship and Experience-based Learning
		Outdated Educational Structure
		Lack of Technical and Experience-based Education
		Weakness in Teaching Methods and Pedagogy
		Weakness in Creating a Dynamic and Active Educational System
		Weakness in Competency-based Education
		Lack of Proper Educational Needs Assessment
		Gap between the University and the National Academic Community
		Weakness in Non-technical Programs
		Weakness in Metacognitive Education
		Interdisciplinary Discrepancies
		Lack of Unified Program
		Weak Interaction between the University and the Implementation of Detailed Programs
		Mismatch between Curriculum Content and Competency Implementation
		Compatibility of Competency Implementation with Educational Goals
		Lack of Status Assessment
		Weakness in Translating Theory into Practice

Challenges of Competency-Based Education System	The gap between theory and practice and weaknesses in implementation	Inadequacy of Higher Education and Academic Specialization
		Limitations in Operationalizing Competency
		Lack of a Roadmap for Implementation
		Lack of Accountability for Competencies
		Diversity in Methods for Assessing Competencies
		Idealism and Normative Nature of the Competency Discussion
		Failure to Adhere to Defined Standards for Competency Implementation
		Lack of Protocols and Specific Guidelines
		Lack of Willingness and Motivation for Implementation
		Weakness in Practical and Experience-based Aspects
		Theoretical Focus in Courses
		Weakness in Behavioral Skills
		Mismatch between Curricula and the Competency System
		Gap between Career Prospects and Competency Implementation
		Gap between Competency and Student/Professor Recruitment
		Passive Policy-making and Strategies
		Inefficiency of the System in the Existing Political Framework
		Lack of Competency Centrality
		Lack of Acceptance of Competency by Professors

	Inadequate understanding of the nature of competency-based education system	Wide Range of Competency Dimensions
		Lack of Understanding of Competency and its Dimensions
		Absence of a Culture of Acceptance for the Competency System
		Lack of Defined Resources for Competency Assessment and Theory
		Lack of Validation for Competency Resources
		Lack of Defined Dimensions for Various Types of Competencies
		Failure to Define the Nature and Qualifications of Competency
		Lack of Clarity on the Nature of the Competency System
		Failure to Recognize the Importance and Necessity of Competency Implementation
	Lack of attention to individual differences of students and professors	Weakness in Considering Personality Traits
		Existence of Various Individual Differences
		Lack of Creativity among Professors
		Failure to Understand the Characteristics of Effective Managers
		Failure to Consider Student Potential and Capacity
		Existence of Biased and Subjective Judgments among Students
		Lack of Awareness of Students' Personal Rights
	Weakness in welfare and structural facilities	Lack of Adequate Facilities and Infrastructure
		Weakness in Preparing Required Content

		Existence of Adequate Educational Facilities
	Lack of proper supervision and evaluation	Lack of Coordination between Professors
		Failure to Properly Select Students and Trainees
		Lack of Supervision and Evaluation of Professors
		Existence of an Educational Gap in the Competency System
	Inherent limitations of establishing a competency-based education system	Weak Student Involvement in the Competency System Implementation
		Systematic Thinking among Students
		Contradiction between Competency Implementation and Individual Growth
		Sufficiency or Insufficiency of Competency Implementation
		Lack of Concern for Competency System Implementation

Based on the information provided in the table above, the challenges related to the implementation of a competency-based education system were categorized under seven components: weaknesses in the educational structure, the theory-practice gap and operationalization weaknesses, inadequate understanding of the nature of competency-based education, neglect of individual differences among students and faculty, weaknesses in welfare and structural facilities, lack of appropriate supervision and evaluation, and inherent limitations of the competency-based education system. The component of weaknesses in the educational structure includes: the lack of workshops for faculty, weaknesses in internships and experience-based learning, outdated educational structures, the absence of technical and experience-based training, weaknesses in teaching methods, lack of dynamic and active educational systems, deficiencies in competency-oriented education, lack of appropriate educational needs assessment, the gap between universities and the academic community, weaknesses in non-technical fields, weaknesses in metacognitive education, inter-disciplinary distinctions, lack of a unified program, weak interaction between universities in implementing detailed plans, incompatibility of curricula with the

implementation of competencies, the alignment of competency implementation with educational goals, and the lack of an existing situational analysis. The component of the theory-practice gap and operationalization weaknesses includes: the failure to translate theory into practice, insufficient higher education and academic specialization, limitations in implementing competencies, the lack of a roadmap for implementation, the absence of a custodian for competencies, diversity in competency assessment methods, idealism and normative approaches to competencies, non-compliance with standards for competency implementation, the absence of protocols and specific instructions, reluctance to implement, weaknesses in practical and experience-based learning, theoretical orientation in courses, weaknesses in behavioral skills, incompatibility of curricula with the competency system, the gap between career prospects and the implementation of competencies, the gap between competencies and student/faculty recruitment and selection, passive policies and strategies, and the inefficiency of the system in the existing political structure. The component of inadequate understanding of the nature of competency-based education includes: the marginalization of competencies, lack of faculty acceptance of competencies, the broad dimensions of competencies, lack of understanding of competencies and their dimensions, absence of a culture of competency acceptance, lack of defined theoretical and practical resources for competencies, failure to validate competency sources, the formulation of specific dimensions for different types of competencies, failure to define the nature and qualifications of competencies, lack of clarity in the nature of the competency system, and the neglect of the importance and necessity of competency implementation. The component of neglecting individual differences among students and faculty includes: weaknesses in recognizing personality traits, the existence of various individual differences, lack of creativity among faculty, lack of personality analysis in competent administrators, failure to consider student abilities and capacities, the presence of biased and subjective judgments in students, and lack of awareness regarding students' personal rights. The component of weaknesses in welfare and structural facilities includes: the lack of appropriate facilities and infrastructure, weaknesses in content preparation, and the existence of appropriate educational facilities. The component of the absence of appropriate supervision and evaluation includes: the lack of coordination between faculty members, improper selection of students and trainees, absence of supervision and evaluation of faculty, and the presence of a training gap within the competency system. Inherent limitations of the competency-based education system include: the marginal role of students in implementing the competency system, systemic thinking in students, incompatibility of competency implementation with individual growth, sufficiency or insufficiency of competency implementation, and the lack of concern for the establishment of the competency system. Finally, for the validation of the model and prioritization of factors, open coding was

transformed into questionnaire questions. To confirm the content validity of the questionnaire, some codes were deleted and merged, and the final questionnaire was designed. Subsequently, to assess the overall model fit, Structural Equation Modeling (SEM) was employed using the Lisrel software, and the absolute, comparative, and parsimonious fit indices were calculated as follows:

Table 4 - Results of the Model Fit Indices

Fit Index	Type of Index	Cutoff Point	Value	Status
Chi-Square/df	Parsimonious	< 3	1.18	Acceptable
CFI	Comparative-Fit	≤ 0.90	0.99	Acceptable
IFI	Incremental-Fit	≤ 0.90	0.99	Acceptable
RFI	Relative-Fit	≤ 0.90	0.97	Acceptable
NFI	Normed-Fit	≤ 0.90	0.97	Acceptable
RMSEA	Parsimonious	< 0.10	0.029	Acceptable

Based on the information in the table above, all the absolute, comparative, and parsimonious fit indices of the model were acceptable and were confirmed. Furthermore, in Figure 1, the relationships between the research variables are shown using Structural Equation Modeling (SEM) and the Lisrel software. Additionally, in Figure 2, the T-statistic value for the overall research model is presented

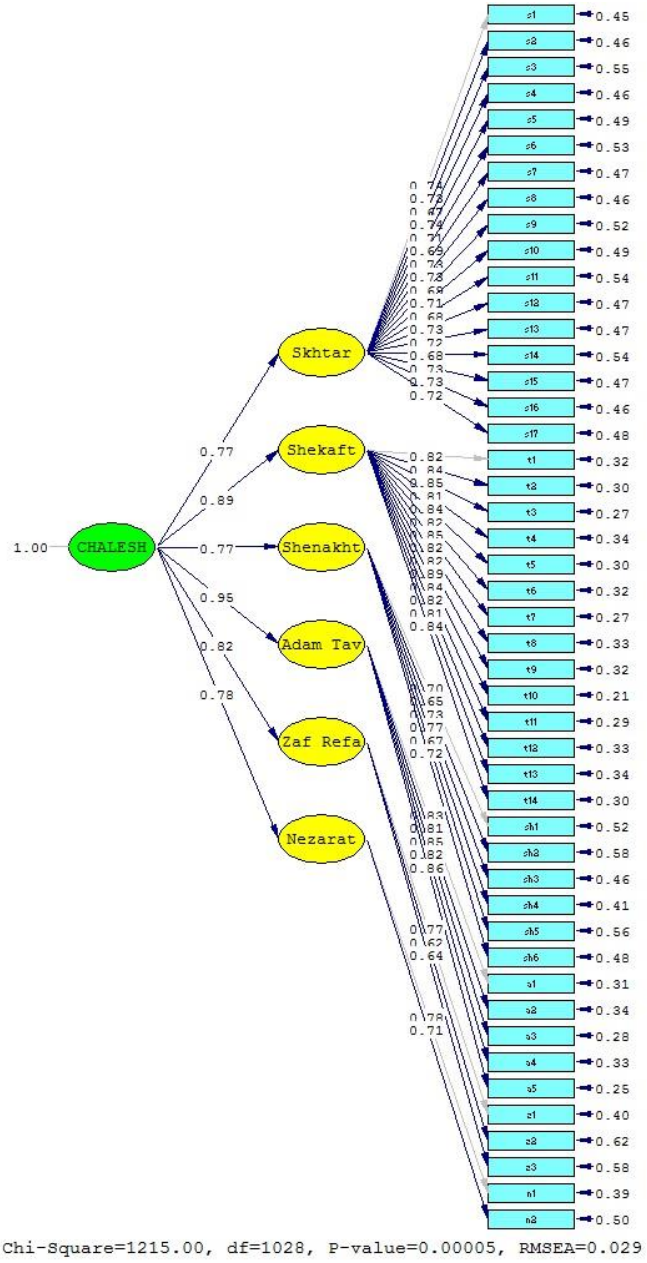

Figure 1 - The Overall Research Model Based on Standardized Coefficients

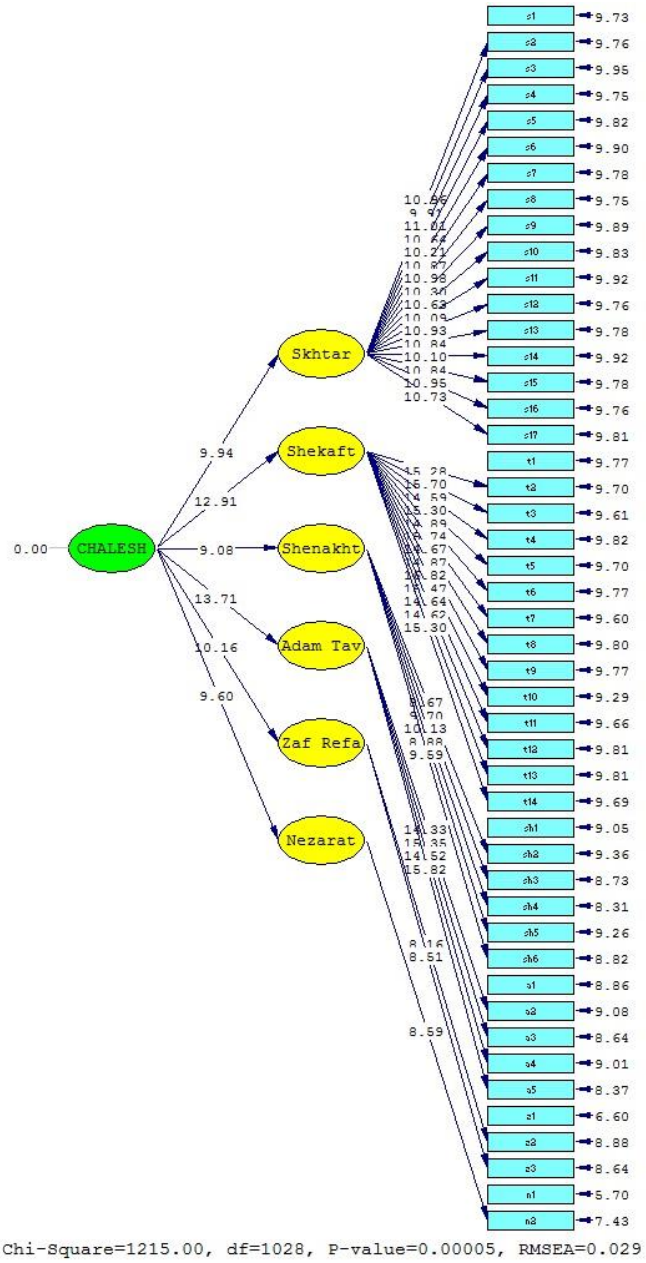

Figure 2 - T-Statistic for the Overall Research Model

Based on the results obtained from the two diagrams, all paths are significant (all paths are greater than the critical value of 0.16 in standardized coefficients), and the T-Values also fall within the critical range of -1.96 to +1.96. Therefore, all paths are significant, and the research model has a good fit.

- What is the prioritization of the challenges in implementing a Competency-Based Education system at Imam Hussein University?

To examine the prioritization of the challenges in implementing the Competency-Based Education system, including factors such as weaknesses in the educational structure, the theory-practice gap, weaknesses in operationalization, improper understanding of the nature of the Competency-Based Education system, lack of attention to individual differences between students and instructors, weaknesses in welfare and infrastructure, and lack of proper supervision and evaluation, the Friedman test was used. The results are presented in the following table:

Table 5 - Results of the Friedman Test for Examining Differences in Challenges of Implementing the Competency-Based Education System

217	Sample Size
0/958	Chi-Square
5	Degrees of Freedom
0/966	Significance Level

The findings indicate that the mean ranks of the challenges are very close to each other based on the quantitative research results. The significance level of the differences between these challenges is higher, meaning that there is no significant difference between these challenges, and all of them have particular importance and necessity (sig > 0.05). Below, the mean ranks of the challenges are presented for a more detailed examination, as shown in the table below:

Table 6 - Results of the Mean Ranks of the Challenges in Implementing Competency-Based Education System

Challenge	Mean Rank
Weakness in Educational Structure	3.58
Theory-Practice Gap and Weakness in Implementation	3.56
Inadequate Understanding of the Nature of Competency-Based Education	3.50
Disregard for Individual Differences of Students and Professors	3.43
Weakness in Welfare and Structural Facilities	3.48
Lack of Proper Supervision and Evaluation	3.46

Discussion and Conclusion

This research aimed to identify the challenges in implementing a competency-based education system at Imam Hussein University. The sub-objectives of this study were to determine the main areas of challenges in implementing this system at Imam Hussein University and to prioritize these challenges. This study was applied in nature as the research findings can be directly utilized, and it followed a mixed-method approach, comprising both qualitative and quantitative sections. Mixed-method research can be categorized into three approaches: simultaneous, descriptive (explanatory), and exploratory. This study adopted an exploratory approach. To gather information, the research utilized both interviews and a researcher-made questionnaire, which was thoroughly examined for reliability and validity and standardized.

Research Question 1: What are the challenges of implementing a competency-based education system at Imam Hussein University, and how are they categorized?

The results of the coding indicated that the challenges of implementing a competency-based education system were categorized under seven components: weaknesses in the educational structure, the gap between theory and practice and weaknesses in implementation, inadequate understanding of the nature of the competency-based education system, failure to consider the individual differences of students and professors, weaknesses in welfare and structural facilities, lack of proper supervision and evaluation, and inherent limitations in the implementation of the competency-based education system. To explain these findings, the relationship between weaknesses in the educational structure and the challenges of implementing a competency-based education system at universities can be described as follows:

- Curriculum Planning Deficiency: A weak educational structure may lead to insufficient planning and failure to offer courses related to the competencies required by the job market. Therefore, a competency-based education system needs comprehensive planning that aligns with market needs.

- Structural Incompatibility: The educational structure may reflect a lack of coordination between courses and practical training opportunities, projects, and industry contacts, which can reduce students' ability to transfer skills and competencies.

- Resource and Facility Shortage: A weak educational structure can lead to a lack of necessary resources, facilities, and equipment for practical exercises, projects, and hands-on experiences. This resource reduction can have a direct impact on implementing a competency-based education system.

- Absence of Reinforcers: The implementation of a competency-based education system requires reinforcers such as promoting a culture of values and competencies, financial support, and backing from the government and industry to achieve educational goals. Without these reinforcers, the system may face challenges.

- Resistance to Change: Factors like resistance to change and the need to train new skilled professors can hinder the implementation of a competency-based education system. This resistance may arise from concerns about changing traditional educational needs, a decline in teaching quality, and resistance to conventional changes. In general, weaknesses in the educational structure can lead to challenges in implementing a competency-based education system, including inadequate planning, structural incompatibility, resource shortages, lack of reinforcers, and resistance to change. Addressing these challenges requires developing a robust educational structure and strengthening related reinforcers.

Another explanation can focus on the relationship between the theory-practice gap, weaknesses in implementation, and the challenges in establishing a competency-based education system at universities:

- Theory-Practice Gap: The theory-practice gap occurs when students master theoretical subjects but fail to experience the practical skills required. This gap can be a source of weakness in the implementation of a competency-based education system, as it requires direct links between practical experiences and theory.

- Weaknesses in Implementation: Weaknesses in implementation may arise due to a lack of resources, insufficient facilities, and equipment for practical exercises, inadequate control over practical teaching processes, and insufficient industry participation. Additionally, poor resource management and coordination across subjects may negatively affect the implementation of the competency-based education system.

In general, the theory-practice gap, weaknesses in implementation, and challenges in implementing a competency-based education system are interconnected. To address these challenges, it is necessary to develop resources and facilities for students' practical experiences, design educational programs that respond to market demands, and strengthen university-industry relations. Further, it can be stated that the relationship between inadequate understanding of the nature of a competency-based education system and the challenges of implementing this system in universities is as follows:

- Lack of Understanding of the Nature of the Competency-Based Education System: An inadequate understanding of the nature of the competency-based education system can lead to challenges in its implementation. If faculty members, students, and other stakeholders cannot comprehend and explain the concepts of competencies and market needs, the educational programs may not be effectively delivered, and the desired goals of preparing students for the workforce may not be achieved.

- Misalignment with Market Needs: Misunderstanding the nature of the competency-based education system can result in a misalignment between university programs and market demands. Consequently, university graduates may possess fewer of the required skills and competencies, which leads to reduced job

opportunities and lower employability in the market.

- Cultural and Organizational Mismatch: Competencies and competency-based concepts may conflict with the cultural and organizational environment of the university. If the competency-based education system contradicts the university's traditional culture or existing management and educational system, the implementation of this system will face cultural, organizational, and political challenges.

- Absence of Reinforcers: Misunderstanding the nature of the competency-based education system can also lead to the absence of reinforcers, such as financial support, necessary resources, and backing from government, industry, and related entities. Without these reinforcers, implementing the competency-based education system may encounter serious challenges.

In general, an inadequate understanding of the nature of the competency-based education system can cause challenges in its implementation. Addressing these challenges requires improving understanding of competencies and market needs, developing necessary resources, coordinating with the university's cultural and organizational environment, and establishing the required reinforcers.

The relationship between failure to consider individual differences in students and professors and the challenges in implementing the competency-based education system at universities is as follows:

- Failure to Address Individual Student Needs: One of the critical factors in a competency-based education system is addressing the individual needs and differences of students. If these differences are neglected, educational programs may not meet the diverse needs of students, leading to dissatisfaction, lower engagement, and reduced educational quality, which poses challenges for implementing the system.

- Failure to Acknowledge Faculty Experience and Expertise: Professors with experience and expertise play a crucial role in implementing a competency-based education system. If universities fail to recruit qualified professors and neglect their existing experience and expertise, implementation challenges may arise related to teaching skills, evaluation, faculty development, and designing effective curricula.

- Weakness in Teaching Methods: Failure to address individual differences in students and professors may lead to the use of generic, standardized teaching methods that do not cater to individual student needs. A competency-based education system requires diverse, adaptable teaching methods that align with students' individual differences.

- Lack of Role Models for Professors: A competency-based education system requires role models for professors. If universities fail to select professors aligned with the values and objectives of the system, and do not develop appropriate role models for faculty behavior, the system will not be implemented effectively.

In general, neglecting individual differences in students and professors can lead to challenges in implementing a competency-based education system. The relationship between weaknesses in welfare and structural facilities and the challenges in implementing a competency-based education system is as follows:

- Student Motivation and Satisfaction: Welfare facilities, such as lounges, libraries, sports centers, and dormitories, play an essential role in student satisfaction and well-being. If welfare facilities are inadequate, students may not benefit from these services, leading to dissatisfaction, reduced participation in educational activities, and lower performance, posing challenges for implementing the system.

- Failure to Create Adequate Educational Conditions: University structures and services, such as laboratories, classrooms, teaching equipment, and educational technologies, may not be adequately developed or maintained, which hampers the implementation of the competency-based education system. This may result in students not acquiring the required skills and competencies.

- Lack of Financial Support: Implementing a competency-based education system requires financial resources and other reinforcers. If universities cannot secure the necessary resources, such as equipment, faculty training, and curriculum development, implementing this system may face significant difficulties.

- Mismatch with Existing Models: Existing university structures, such as administrative and organizational systems, may not align well with the competency-based education model. This can lead to conflicts and inconsistencies between existing structures and the system, further complicating its implementation.

In general, weaknesses in welfare and structural facilities can lead to challenges in implementing a competency-based education system.

Research Question 2: What is the priority of the challenges in implementing a competency-based education system at Imam Hussein University?

To assess the prioritization of challenges in implementing the competency-based education system, including factors such as weaknesses in the educational structure, the theory-practice gap, inadequate understanding of the system, neglecting individual differences, weak facilities, and lack of proper supervision and evaluation, the Friedman test was used. The findings revealed that the mean ranks of the challenges were very close to each other, with the differences between them being significant. In fact, there was no significant difference between these challenges, and all were of particular importance and necessity. The study was limited to the academic year 2022-2023. A limitation of this research was the inability to generalize the findings to similar communities. Accessing senior professors (with more than 25 years of experience) was very challenging, so professors with less

experience were also included. Based on the research findings, the following suggestions are proposed to address the challenges in implementing the competency-based education system at Imam Hussein University:

- Addressing Weaknesses in Educational Structure: Educational authorities should decide to update and improve curricula in alignment with university goals focused on competencies. They should provide opportunities for practical skills development and training related to market needs. Introducing new disciplines, enhancing content and teaching methods, and fostering interdisciplinary and collaborative programs, internships, and industry partnerships can help in this regard.

- Bridging the Theory-Practice Gap and Weaknesses in Implementation: Universities should expand their relationships with industries and external roles to operationalize their

educational programs and provide adequate practical opportunities. They should focus on improving implementation processes and managing the shortcomings related to resources and facilities.

- Enhancing Understanding of Competency-Based Education: Efforts should be made to educate students, faculty, and all relevant stakeholders about the principles and nature of a competency-based education system to overcome misconceptions and increase effectiveness. These efforts should be accompanied by training programs to develop skills and competencies among faculty members, thus ensuring the correct understanding of the system.

- Addressing Individual Differences in Students and Faculty: Universities should invest in diverse teaching methods and adjust curricula based on the needs and capabilities of students and faculty. Faculty development programs should include training on how to meet individual student needs, making learning more effective and personalized.

- Improving Structural and Welfare Facilities: Improving welfare facilities and ensuring sufficient resources for teaching and learning should be prioritized. Universities should also develop support systems to increase student satisfaction and well-being.

- Improving Supervision and Evaluation Systems: Universities should establish a transparent and effective evaluation system for monitoring the progress and results of competency-based education. This system should include assessing students' progress, faculty performance, and program success.

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