# Evaluating Teaching Performance in View of Learning and Innovation Skills among Saudi University Instructors

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**Abstract:** This novel study evaluated Saudi university instructors' teaching performance at King Khalid University, College of Education, in view of learning and innovation skills from their students' perspectives in postgraduate programs. The study adopted descriptive analytical method. A checklist of appropriate teaching performance was prepared in view of learning and innovation skills. Based on the checklist, an electronic questionnaire was prepared and distributed on line in the form of a five-point rating scale. The participants consisted of (136) male and female students, enrolled in master and doctoral programs in six majors. The study tool was applied during the academic year 2018/209AD. The results revealed that Saudi university instructors' level of teaching performance was high with a rate of (78.8%), and there was no statistically significant difference at (0.05) between the level of teaching performance and the competence level, specified educationally at (80%) in overall performance. The results also indicated that there were no statistically significant differences at (0.05) within the instructors' teaching performance degree in the light of learning and innovation skills regarding the demographic variables of the participants. Briefly, many applications are suggested for the university beneficiaries.

## 1 Introduction

In view of the rapid changes and tremendous developments, taking place in the society of the twenty-first century in various fields, especially in the field of science and technology, the programs for preparing future teachers must keep pace with these changes and developments that occur in the current era. The teachers of the future must have the ability to nurture a generation capable of coexisting in an advanced and changing society, a generation capable of effective communication and efficient use of technology, a generation capable of inventing solutions to the changing and evolving problems in the environment, a generation capable of facing challenges and solving potential problems in the future, a generation able to produce and innovate by applying scientific knowledge in all aspects of their life and benefiting from it to the maximum extent possible. This would be a distant dream if faculties of education did not enhance these skills in their students with different educational programs.

Twenty-first century skills are now closely linked to the field of education to prepare students who are ready to meet the demands of a developing world. These skills require every citizen of the twenty-first century to increasingly engage in intercultural communication, critical thinking, technological integration, and much more. As teachers and university faculty members, students depend on us to prepare them for these new expectations and needs. As education is undergoing an educational transformation, it does no longer focus on rote memorization of facts and figures. Instead, education focuses on seeking answers through analysis, thinking, and reflection on unfamiliar objects and issues [1]. Hence, it is necessary to change the practices of faculty members in university education to keep pace with the skills of the twenty-first century.

Al-Wattban [2] explained that the current era is the era of knowledge and economic competition among countries, and there is a need in this era for individuals who possess skills that enable them to work and live, to rely on communication

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with others on modern technologies, and to possess skills to solve problems in creative ways. This era requires from educational institutions to teach students the skills they need in life and work, and this is what education in the Kingdom of Saudi Arabia aims to tackle to achieve Vision 2030. Such Vision is stated at the forefront of the goals of education. There is a need to harmonize the outputs of the educational system with the needs of the labor market, in addition to providing students with the knowledge and skills necessary for future jobs.

Al-Kasi, Tammam, and Azzam [3] emphasized that the era in which we live now is the era of a knowledge-based economy, and that economic competition among countries depends on the skills possessed by the workforce that are consistent with the characteristics of this era. Therefore, education must provide learners with the skills necessary to succeed in the twenty-first century society. These skills include: digital age skills, creative thinking, effective communication, and global productivity.

The teacher who possesses the skills of the twenty-first century has a major role in keeping pace with the rapid changes and developments in the field of science and technology in the current era, and in the success of the educational process to achieve the future education goals. Without the trained teacher who is able to keep pace with the rapid change in the era of science and technology, the educational process will not exist. The teacher is the corner stone upon which the human-making process is built. In this regard, Peers [4] stresses that there are two important issues in teaching the twenty-first century skills: the first relates to the complexity of the teaching process, and the importance of creativity and reflection on it. The second relates to teacher preparation. Education for the twenty-first century requires a twenty-first century-style teacher: educated, creative, and reflective. Otherwise, how else would he equip the students with these skills if they had not become part of his normal daily behavior and teaching? Therefore, there has become an urgent need for institutions for preparing teachers and curricula belonging to the twenty-first century.

Twenty-first century skills are one of the new movements that emerged in 2002, with the aim of supporting students in the university and in their careers after their graduation through their mastery of knowledge content and skills. These skills are being advocated across disciplines through the Partnership for 21st Century Skills. The Partnership for 21st Century Learning was founded in 2002 to bring together the business community, educational leaders and decision makers with the aim of identifying the skills needed to engage in various business fields efficiently and effectively, and to achieve citizenship and a decent life for learners, starting from the pre-school stage. This consortium has resulted in the development of a framework for learning in the twenty-first century, in which these skills are articulated in detail. This coalition included a partnership between the US Department of Education and a group of non-governmental organizations, such as: Microsoft, Apple, Dell, Cisco, The National Education Association, and others. This partnership has now become one of the most important leaders in the development and education of 21st century skills in the world. This partnership has prepared five guides in supporting education systems: standards, assessment, professional development, curricula and teaching methods, and learning environments. These guides are not just a support for education but a means to a larger goal: to help learners develop the cognitive, psychological skill and the competencies they need to succeed in 21st century life. They also assist politicians, school leaders, and teachers in developing 21st century skills within the learning process [5,6].

Twenty-first century skills are those skills that students need to succeed in school, work, and life. There are multiple classifications of twenty-first century skills, but the most popular is the classification developed by the Twenty-first Century Skills Partnership, which includes three main areas of twenty-first century skills: Learning and innovation skills, information, media and technology skills, life and career skills. According to the Partnership for Twenty-first Century Skills, learning and innovation are skills that differentiate students who are preparing for life and work in the twenty-first century. The skills included in this group are responsible for developing students' abilities for professional and personal success in this century, so the focus on innovation, critical thinking, communication and collaboration is essential to preparing students. Many studies [4,7,8,9,10,11,12,13,14,15,16,17,18] state that Learning and innovation skills include the following sub-skills:

1. Critical Thinking and Problem-solving Skills: Critical thinking and creative problem solving are hallmarks of scientific thinking, and complex problems are often the basis for scientific study. Therefore, through scientific education, learners' abilities can be developed to think about the concepts that they learn and apply in their daily lives. Students use their skills to critique the issues and problems they face. Through the analysis that leads to the identification of the essence of the problem, and through comparison and contrast, alternatives to possible solutions are identified and the effectiveness of the proposed solutions is judged. Criticism of the alternatives is presented in order to choose the optimal solution and evaluation of its effectiveness in dealing with the problem at hand. Critical thinking and problem solving is defined as the application of higher-order thinking skills to new problems and issues using appropriate and effective ways of thinking to analyze the problem and make decisions about the most effective ways to solve the problem. Critical thinking and problem solving include the following sub-skills:

A.  The skill of thinking effectively: It means that the learner is able to use different types of thinking (induction or deduction) appropriate to the situation.

B.  The skill of using systemic thinking: It means that the learner is able to analyze how parts interact to produce total outputs in complex systems.

C.  The skill of making judgments and decisions: It means that the learner is able to analyze and evaluate evidences, arguments, hypotheses, and beliefs effectively, analyze and evaluate basic and alternative points of view, make connections between knowledge and arguments, interpret data and reach conclusions based on analysis, and to think critically about learning experiences and processes.

D.  Problem solving skill: In this field it means the non-routine problem-solving skills. Problem solving skill includes the ability of the learner to solve different types of unfamiliar problems in traditional and creative ways, and to ask important questions that clarify multiple points of view for better solutions. In a similar vein, non-routine problem-solving skills are divided into six components, they compromise: inventory of information to reach a diagnosis, the ability to see if a problem-solving strategy is appropriate for a solution, and to move to another strategy if the current one is not working, generate new creative solutions, integration of seemingly unrelated knowledge, recognize patterns that beginners do not notice, Knowledge of how knowledge is conceptually linked.

2.  Creativity and Innovation Skills: Science, by its nature, is a creative human endeavor that results in scientific and technological innovations through scientific processes based on prior scientific knowledge, and through the application of theories in real-world situations. The problems and challenges faced by modern societies require new innovative scientific and technological approaches, as well as thinking skills to work across different disciplines, hence, integrating learning and innovation skills into science education curricula becomes an imperative to prepare students for the future. Creativity and innovation are the use of knowledge and understanding to create new ways of thinking, to find new solutions to new problems, and to create new products and services. Creativity includes a number of sub-skills, such as: creative thinking, innovative work, and implementing innovations. To elaborate, it could be stated that thinking creatively means that the learner is able to use a wide range of ways for generating ideas, such as brainstorming to create new and worthwhile ideas, to add, refine, analyze and evaluate his ideas to improve the innovative efforts to the maximum degree. Defining innovative work with others, it means that the learner is able to develop and implement his ideas, communicate with others' ideas effectively, be open and responsive to other viewpoints, ensure teamwork input and feedback within his work, show originality and innovation at work and understand the limitations of the real world to adapt his ideas, see failure as an opportunity to learn, and understand that innovation and creativity are processes in which success alternates with errors. Regarding implementation of innovations, it means that the learner is able to work on innovative ideas to reach a tangible and useful contribution to the field in which the innovation operates.

3.  Communication and Collaboration Skills: Knowledge is by its nature a collaborative process. Collaboration is meant to highlight the spirit of teamwork and leadership, adapt to different roles and responsibilities, work productively with others, and respect different points of view. Collaboration means working with others respectfully and effectively to create, use and share knowledge, solutions and innovations. Effective communication is essential to the practice of scientific study. Scientists usually describe their work and share it with others so that the study can be re-applied again, and their results can be verified by others, and also for public understanding of these results. Such communication takes place in various ways, including oral, written, mathematical, graphic representations of data, notes, and etc. Communication skills are the skills to process and interpret both verbal and nonverbal information that we receive from others in order for us to respond correctly. A skilled communicator is one who is able to identify the main or salient points of an idea in order to express them either verbally or non-verbally. Communication and sharing skills include the following sub-skills:

a.  Communicating clearly: It means that the learner is able to express ideas and opinions effectively using verbal, written and non-verbal communication skills in a variety of forms and contexts, to listen effectively to reach meaning, to use communication for a range of purposes (for information, directing, motivating, prompting), to use of multimedia and technology and know to how to judge its effectiveness (initially) and evaluate its impact (in the end), and to communicate effectively in diverse and multilingual environments.

b.  Collaborating with others: It means that the student is able to demonstrate the ability to work effectively and respectfully with diverse groups, to show flexibility and willingness to be cooperative,

to make the compromises necessary to achieve an end goal, and to appreciate shared responsibility in teamwork and individual contributions carried out by each team member.

The prospective and in-service teachers' twenty-first century skills in general and the skills of learning and innovation in particular is important to cope with the challenges, and to carry out their professional roles efficiently and successfully at the present time. Rashid [14] indicated that providing learners with the skills of the twenty-first century should be added to the general the objectives of teaching in various disciplines. These skills are an essential part of the progress of life and in keeping pace with the changes in this era, which require learning new skills that must be focused on in the educational process, moving from focusing on learning knowledge to learning thinking skills and deepening the learning process. Twenty-first century learning skills are essential in the sustainable development of the learner. Hanafi's study [9] and Rashid's study [14] recommended the inclusion of twenty-first century skills in the teacher preparation courses at the colleges of education, in-service teacher training programs, and the development of teacher preparation programs in line with the requirements and characteristics of the modern era, and the preparation of the studyer and innovative teacher for the digital teacher, the competitive teacher, the democratic teacher, the citizenship teacher, the multicultural teacher who can benefit from the successful global educational applications and experiences at the level of educational institutions, especially in providing the learners with the skills of the twenty-first century.

Some literature has indicated that incorporating the twenty-first century skills into the learning curricula will enable teachers to successfully achieve educational goals. Such skills enable students to learn and achieve their goals in the school subjects, as well as provide a structured framework that ensures student involvement and engagement in the learning process. They help students build confidence, prepare them for creativity and leadership in the current century, and enable them to participate actively in working life [15,19].

Omar [10] explained that faculty members in university education have a major role in enhancing twenty-first century skills among their students, through: using interactive strategies that motivate students to participate in educational activities, providing opportunities and appropriate conditions for students to practice the twenty-first century skills, using appropriate assessment methods for these skills, and develop the learning environments suitable for dialogue and discussion that lead them to search for evidence and experimentation. Developing the skills of the twenty-first century among students of the college of education will have an important role in qualifying these students to play their future roles in raising a generation capable of practicing learning and innovation skills, a generation capable of information culture, media and technology skills, a generation that has life and profession skills that enable individuals to adapt and work efficiently in the light of the challenges and requirements of the twenty-first century.

The Twenty-first century skills provide students of the college of education with real experiences during which they practice thinking and problem-solving skills, use technological tools and social networks, communicate and share knowledge among themselves, and work to develop it in order to create solutions to the problems they face. These skills ensure that these students adapt to the requirements and changes of the current era. They also guarantee them great chances of success in fulfilling the requirements of practicing the teaching profession in the future [10].

The study of Stevens [20] emphasized the need for the next generation of learners to possess the skills of the twenty-first century, such as critical thinking, innovation, imagination, communication, and others in order for this generation to be able to confront and challenge the rapid changes in life and work in the current century. Woods-Groves and Choi [21] revealed a positive relationship between kindergarten teachers' ratings of their students' twenty-first century skills, and students' behavioral and academic performance. The findings indicate that the 21st century skills enhance learner behavior and academic achievement. Thus, there is an urgent need for Saudi university instructors to play their role in enhancing the twenty-first century skills of future teachers so that they can play their role in enhancing these skills in their students in the future.

Given the importance of the twenty-first century skills in general, and learning and innovation skills in particular, different studies focused on these skills. Those studies aimed at developing science curricula in the light of the twenty-first century skills [5,17,22,23]. There are studies that focused on evaluating the school subjects in the light of the twenty-first century skills. Among the curricula that were evaluated are Sharia sciences [24], social studies [25,26,27], and mathematics [28]. Claro, Preiss, San Martín, Jara, Hinostroza, Valenzuela, Cortes, and Nussbaum study [29] aimed at assessing ICT skills among 15-year-old students in Chile. Al-Baz study [5] also aimed to assess the level of 21st century skills among students of the second and third grades of middle school.

Other studies also aimed to assess the skills of the twenty-first century, including the prospective and in-service teachers' twenty first century skills, such as Batout study [30], which aimed to know the extent to which graduates from Taibah University, Faculty of Education, in the Department of Art Education, acquire the twenty-first century skills. The study of Al-Masabi [31] asserted the weak teaching performance of science teachers at the primary stage in light of the skills of the twenty-first century. The study of Al-Kasi, Tammam and Azzam [3] aimed to determine the skills of

scientific experimentation in the light of the requirements of the twenty-first century education among students of King Khalid University studying science in the faculties of: Education, Science, and Applied Medical Sciences. Al-Huwaish study [32] aimed to determine the skills of the twenty-first century that must be available in the performance of teachers' and supervisors' perspectives. The study of Al-Hutaibi [33] focused on evaluating the importance of developing the performance of teaching science teachers at the intermediate stage in the light of the skills of the twenty-first century from science teachers' perspectives. The study of Al-Shehri, Omar and Azzam [8] concluded that the cognitive, the behavioral and the emotional constructs of the readiness to teach in general and the readiness to teach science as a whole in the light of learning and innovation skills came at medium levels, and that these levels are statistically significant less than the required level of competence. They are educationally determined by (80%) of the total performance, as the results revealed that there are no statistically significant differences at the level (0.05) between the degree of readiness to teach science in the light of the learning and innovation skills of the study sample according to the academic level.

There are studies that have demonstrated the possibility of effectively developing twenty-first century skills, including students' learning and innovation skills, using specific programs, approaches, strategies, methods or teaching methods, such as: social networks (Facebook, Google tools, and Twitter) [34,35], a project-based learning strategy [36], a model for designing teaching in the light of the skills of the 21st century [37], a proposed strategy based on the theory of multiple intelligences [38], the inclusion of media culture competencies in teaching [7], a project-based STEM program [39], and educational game-based learning [40].

Other studies have shown the possibility of developing the prospective and in-service teachers' twenty-first century skills, using specific programs, strategies, methods or teaching methods, such as: the integrated STEM approach through project-based learning [15]. There are various programs that can enhance such skills: a proposed training program in the competencies of the 21st century teacher based on the training needs of teachers [41], a proposed program in environmental education based on the lesson study strategy [10], and a proposed strategy in smart learning based on the integration between project learning and Google services [42]. Sharaf study [43] also aimed to present a proposed vision for the development of art education teacher preparation programs in the faculties of specific education in the light of the skills of the twenty-first century.

It is noted from the above-mentioned literature the multiplicity and diversity of previous studies that focused on evaluating the teaching performance of faculty members, and those that were concerned with the twenty-first century skills, including learning and innovation skills.

Although there are many studies, focusing on twenty-first century skills, particularly, learning and innovation skills, the current study emerged as a unique one in evaluating the Saudi university instructors' teaching performance in the light of learning and innovation skills from students' perspectives in postgraduate programs at the College of Education, King Khalid University. Regarding the novelty of the study, it could be stated that no studies tackled this area in Saudi context, to the knowledge of the researchers.

Khalil [44] explained that the success of the teaching and learning process depends on the quality and competence of the teacher. Therefore, paying attention to the teacher and advancing his professional development is extremely important, as he bears the greatest burden in raising young people and preparing them for life in society. The professional development of the teacher is a key element in upgrading the educational process, meeting the requirements of society and achieving its goals, and professional development is inevitable due to many challenges at the present time, most notably: the requirements of the digital age, the challenges of the technological revolution, the emergence of new educational formulas based on e-learning, the virtual learning environments, and the transition to a computerized school with its components, technology and curricula. One of the challenges is also the teacher's need to possess the skills of the twenty-first century, represented in: innovation and renewal, communication, sharing, critical thinking and problem solving. All of these challenges imposed the importance of teacher professional development in order to be able to cross the gap between reality and expectations with regard to the specialized academic field, the educational professional field, and the field of continuing professional development.

Al-Masaeed [45] pointed out that the most prominent challenges of the twenty-first century are: challenges of science and technology, challenges of economic and social development, and challenges of education development. These challenges act as a driving force towards the skills of the twenty-first century. They are to be adopted as a developmental framework for educational systems, including systems for preparing and qualifying teachers. One of the most prominent justifications that called for the development of the twenty-first century skills among students is that education is no longer limited to training in basic skills (mother tongue, mathematics, and science), but rather that educational systems and policies seek to empower students with the key competencies that qualify them to learn and work in the future. These competencies are: communication in mother tongue and foreign languages, competent use of mathematics, science and technology, digital competence, entrepreneurship and entrepreneur initiative, cultural

awareness and ability for expression, social and civic competence, learning how to learn, critical thinking, creativity, problem solving, decision making, emotional management and risk assessment.

In the light of what have been mentioned, the importance of future teachers' possession of the skills of the twenty-first century, especially learning and innovation skills, becomes clear. The great challenges facing the faculties of education to prepare such teachers are evident. There is no doubt that the teaching practices of faculty members in faculties of education have the greatest role in developing such skills among the faculties of education and their students, hence this study came to evaluate the teaching performance of faculty members in the light of learning and innovation skills from the point of view of their students in postgraduate programs at the College of Education at King Khalid University.

**Context of the problem**

The Saudi Vision 2030 targeted the restructuring of the education sector, and a modern formulation of the system of regulations, instructions and executive rules that govern the development of curricula, the enrollment of teachers in the educational corps, the organization of the educational supervision process, and raising the effectiveness of vocational development and training on an ongoing basis, which in turn set a base for predicting the skills of the 21st century that must be imparted to the next generation. Next, to achieve the vision and goals of the Kingdom, these skills have to be included in education standards; curricula and assessment, and teacher training, through curricular and extracurricular activities [46].

Although governmental institutions pay attention to education, there is an agreement among many stakeholders that there is a missing gap between the skills, learned at schools and those they need in life and work in the age of knowledge flow. The current curricula are no longer sufficient to prepare students for contemporary life, and students are currently facing a real risk in keeping pace with the demands of the labor market in the twenty-first century [17].

Rashid [14] clarified that the current curricula are no longer sufficient to prepare students for life and work in a changing and even rapidly changing world, as there are challenges facing these students that require today's learning to be different from yesterday's learning. Students must be armed with a number of skills to meet the challenges of the twenty-first century. Education in this century includes, in addition to the main topics, contemporary ideas and skills, such as: global awareness, economic, health and environmental culture, mastery of highly efficient dealing with computers, digital age skills, as well as the ability to solve problems, critical thinking, creative thinking, and the possession of the components of the integ-rated personality and other learning skills in the twenty-first century.

Bybee [47] stressed that the skills taught in university education programs do not fit the requirements of the labor market in the twenty-first century, and thus the learning outcomes are no longer sufficient to prepare the student for life and work in the twenty-first century, and that the student faces the risk of preparing him for jobs and professions that have disappeared, or might disappear in this century. Saavedra and Opfer [48] pointed out that for university students to learn the twenty-first century skills they must change the way through which they study and learn, and that the prevailing lecture method in university education, which emphasizes on the teacher and neglects students. Consequently, this method cannot contribute to the development of these skills. In addition, the assessment, based on measuring memorization of facts and concepts, rather than understanding, must be changed.

The results of some previous studies have confirmed the weakness of the twenty -first century skills, including the learning and innovation skills among the students of the College of Education and in-service teachers. The results of Reda's study [35] showed the weakness of the level of the skills of the twenty -first century represented in innovative skills, cooperation and teamwork skills, and the skills of using information and communication technology among the students of the first level of the preparatory year at Jazan University, as well as the shortcomings of traditional teaching methods in their development. Sharaf [43] asserted the weakness of the teacher's preparation programs in general, the need to develop them and link them to the requirements and needs of society, and the need to develop the skills of the twenty -first century among prospective teachers in colleges of education. Mahdi [42] indicated the weakness of the skills of the twenty -first century among teachers at Al -Aqsa University. Al-Masabi [31] indicated the weakness of the teaching performance of the science teachers in the primary stage in the skills of the twenty -first century. The study believes that this weakness in the twenty -first century skills among prospective and in-service teachers might due to the deficiency in the level of the practices of faculty members in the colleges of education who ought to enhance these skills among their students.

Al-Shehri, Omar and Azzam [8] revealed that the cognitive, the behavioral, and the emotional aspects of preparation for teaching and preparation for teaching science as a whole in light of learning and innovation skills came at moderate levels among science students bachelor at the College of Education at King Khalid University, and that these levels are less statistically significant for the required sufficiency and educationally level determined by (80%) of the total performance.

Reviewing studies that targeted the evaluation of the teaching performance of faculty members in general, there seems to be a discrepancy in the studies' results. Kayal [49] confirmed that there is a contradiction in the opinions of university students about the practices of the faculty members related to the methods of evaluation, and that it is necessary to take the opinions of university students in these practices as they are the closest to the faculty members, who directly interact with them. Kayal's study [49] is in line with Al-Arabi's study [50] which showed a conflict in the results of previous studies that were concerned with assessing teaching practices among Saudi university instructors where the results of some of these studies emphasized the existence of these practices at a high level, while the results of other studies confirmed the existence of these practices at an average or below average level.

With regard to previous studies that have shown the existence of a deficiency in the level of teaching performance among faculty members the results of the study of Al-Qudah [51] indicated the weak level of teaching performance among faculty members at the Faculty of Teachers at King Khalid University from students' perspectives. Qurshom, Al-Iraqi and Al-Thaqafi study [52] showed the presence of some aspects of strength and some aspects of weakness in the various aspects of the teaching performance of the faculty members at Taif University in light of the standards of performance quality. Mezio study [53] indicated that the female faculty members of the Saudi universities have the necessary teaching performance for their success in teaching, in accordance with comprehensive quality standards, but in a moderate performance. Al-Anzi's study [54] showed that the total degree of the reality of the performance of faculty members in Saudi universities, in light of the standards of the National Authority for Evaluation and Academic Accreditation from their point of view, was moderate. Khokir study [55] revealed a variation in the level of excellence of faculty members at the College of Education for Girls at King Abdulaziz University. It was found that 15% of the sample members achieved a high level of excellence in performance, 44% of the sample members achieved an average level of excellence, and that 20% of the sample members were normal, while 21% of the sample members were not distinguished in their performance.

On the other hand, the results of other studies showed high level of teaching performance among faculty members in general where the results of the Bressem study [56] showed the differences between the average performance of faculty members at Maysan University in Iraq from the students' point of view and the hypothetical average (sufficiency level) in favor of the performance of faculty members. Ammar study [57] revealed high level of teaching performance in general among faculty members in some educational courses at the Faculty of Specific Education, Menoufia University, from the point of view of students. The of Al-Smadi's study [58] resulted in achieving a high-quality level in teaching practices among faculty members at the University of Najran in the fields of: teaching planning skills, teaching implementation skills, student learning evaluation, and communication skills, and the teaching skills as a whole. Olayan study [59] indicated that the degree of the use of faculty members in the colleges of education in Palestinian universities for modern educational technologies was great. Al-Harahsheh and Al-Khatib [60] showed that the level of performance quality among faculty members at the University of Applied Sciences were high, and that their level of use of the six thinking hats strategies was also high, except for the black thinking hat, the level of its use was low.

In the light of the above-mentioned studies, it was noted that there is a discrepancy in the results of previous studies that were concerned with assessing the teaching performance of faculty members in general. It appears that there is no study - to the reserchers' knowledge - targeted the evaluation of the teaching performance of faculty members in light of learning and innovation skills and the other skills of the twenty-first century in the colleges of education, despite the importance of these skills and the need of students of the college of education for them in the light of the requirements of life and profession in the current era. In light of this, the current study problem is identified to assess the teaching performance of faculty members in the light of learning and innovation skills in postgraduate studies programs at the College of Education at King Khalid University. Thus, the current study sought to answer the following questions:

1. What is the teaching performance list needed for faculty members for postgraduate programs at the Faculty of Education at King Khalid University in light of learning and innovation skills?

2. What is the level of teaching performance of faculty members in postgraduate programs at the Faculty of Education at King Khalid University in light of learning and innovation skills?

3. What are the differences between the level of teaching performance of faculty members in postgraduate studies programs at the Faculty of Education at King Khalid University in the light of learning and innovation skills and the level of competency determined by (80%) of the total performance?

4. What are the differences in the level of teaching performance of the faculty members in postgraduate studies programs at the Faculty of Education at King Khalid University in the light of learning and innovation skills according to the program variables, specialization, sex, years of experience, and academic level?

**The significance of the Study**

The importance of the current study is due to the following:

1. Raising the attention of faculty members at the College of Education at King Khalid University towards the importance of developing their teaching performance in the light of the learning and innovation skills.

2. The Center of Development and Quality, and the Center for Measurement and Evaluation at King Khalid University can benefit from the current study results, and take these results into consideration to develop the teaching performance of faculty members in the light of the learning and innovation skills.

3. Taking into account postgraduate students' views in the colleges of education when assessing the teaching performance of their professors in the light of the learning and innovation skills which can achieve students' satisfaction, let them gain positive feelings towards the university education system and feel self-confident when taking their role in developing this system.

4. Identifying the training needs of faculty members at the Faculty of Education at King Khalid University regarding the teaching performance in the light of the learning and innovation skills, and hence, preparing the appropriate training programs to develop their teaching performance.

5. Evaluating the level of teaching performance of faculty members in the light of the learning and innovation skills from the students' perspectives can provide feedback suitable for faculty members at the Faculty of Education, King Khalid University to develop their teaching performance.

## Limitations of the Study

The current study is restricted to the following points:

1. **Objective limits:**

▪ The teaching performance of the faculty members has been restricted to the learning and innovation skills on the electronic questionnaire from the postgraduate students' perspectives.

▪ The learning and innovation skills were limited to: creativity and innovation skills, critical thinking skills, problem solving, communication and sharing skills.

2. **Human limits:** The current study was limited to (193) male and female students at the postgraduate programs at the College of Education at King Khalid University, including (57) to represent survey sample to control the study tool, and (136) to represent the final study sample.

3. **Spatial limits:** The current study was applied at the College of Education at King Khalid University.

4. **Time limits:** The study was applied during the first semester of the academic year 1439/1440 AH.

## Definition of Terms

### Evaluation:

"The word (evaluation) is derived from the word (value), and the value indicates "the benefit of something." Therefore, evaluation is examining the thing to measure its benefit. Specifically, evaluation is a systematic and objective process to measure or monitoring a person or something, with the aim of reaching conclusions, or using measurements that are usually governed by specific criteria, or with the aim of making a comparison. During the evaluation, the performance of a person, project, process, or product is measured to determine its value or importance. Evaluation includes the quantitative and qualitative analysis which can be done from time to time. During the evaluation process, verification is done whether the standards or goals set are fulfilled or not. After completing the meeting of performance with the standards, the difference between the actual product and the intended outcomes is determined" [61, p.2].

Evaluation is also defined as: "the process of revealing the strengths and weaknesses in the learning of students, that is, a diagnosis process only for the achievement of educational goals. But if the teacher in addition to fixing the aspects of weakness and emphasizing the aspects of strength, this is considered assessment" [62, p.215].

The evaluation is defined operationally as: the process of issuing a ruling at the level of faculty members' practices in the light of the learning and innovation skills from students' perspectives in postgraduate programs (masters and doctorates) at the College of Education at King Khalid University.

### Teaching Performance of faculty members:

Rashid and Saudi [63, p.468] defined the teaching performance as: "The set of effective teaching behaviors that the teacher shows in his educational activity inside and outside the study room to achieve specific goals that are always issued by the teacher in the form of motor or verbal responses, and in those responses appear elements of accuracy and speed in performance and adaptation to the conditions of the teaching situation."

Al-Qahfa [64, p.243] defined the teaching performance of the faculty member as: "All the procedures performed by the faculty member at the college during his preparation for the lecture and upon its implementation and communication with students inside and outside the lecturing hall, his personal work, and his service to the society."

The teaching performance of the faculty members operationally means,  those practices ,carried out by the faculty members while teaching postgraduate programs at the Faculty of Education at King Khalid University, whether inside the study hall or the tasks they assign to their students to be implemented outside the study hall, with the goal of developing their learning and innovation skills.

**Twenty-First Century Skills:**

Binkley, Erstad, Herman, Raizen, Ripley, and Rumble [65] define the twenty-first century skills as: "ways of thinking, doing, and living in connected, media-rich worlds."

According to the Partnership for 21st Century Skills, the term 21st century skills refers to: "The set of skills needed to succeed and work in the 21st century, such as: learning and innovation skills, information, media and technology culture, life and work skills" [12,66].

The twenty-first century skills are defined in the current study as: those skills that the teaching performance of faculty members at the College of Education at King Khalid University must be developed to meet the requirements of learning and innovation, information culture, media and technology, life and career in the twenty-first century for their students in the postgraduate programs at the College of Education at King Khalid University.

**Learning and Innovation Skills:**

According to the Partnership for the twenty-first century skills, learning and innovation skills are: those skills that distinguish students who are prepared for life and work in the twenty-first century from others, and are responsible for developing students' abilities for professional and personal success in this century. Such skills include critical thinking, problem-solving skills, creativity and innovation skills, and communication and collaboration skills [4,8,10,11,12,13,17,18].

Operationally, the learning and innovation skills are defined as: those skills through which the teaching performance of faculty members is evaluated from students' perspectives in postgraduate programs at the College of Education at King Khalid University. They include critical thinking and problem-solving skills, creativity and innovation skills, and communication and cooperation skills.

## 2 Methodology and Procedures

**Methodology:**

The current study adopted descriptive analytical method.

**Participants**

The study community consisted of all male and female students of the master's and doctoral programs at the College of Education at King Khalid University, which included (361) male and female students.

**Sampling**

The study sample represented (193) male and female students with a percentage of (53.46%) of the study community, of which (57) male and female students represented the initial study sample with a percentage of (15.79%) from the study community, and (136) male and female students represented the final study sample with a percentage of (37.67%) of the study community as these students are the ones who responded to the study tool designed in an electronic form from among the study community as a whole. The following table describes the demographic variables of the study sample:

**Table 1:** Description of the demographic variables of the initial and final study sample.

| Key variables | Sub-variables | Primary sample | | Final sample | |
|---|---|---|---|---|---|
| | | No. | (%) | No. | (%) |

| Key variables | Sub-variables | Primary sample | | Final sample | |
|---|---|---|---|---|---|
| | | No. | (%) | No. | (%) |
| Program | 1- Master | 33 | 57.89% | 86 | 63.24% |
| | 2- Doctor | 24 | 42.11% | 50 | 36.76% |
| Specialization | Educational Management and Planning | 20 | 35.09% | 40 | 29.41% |
| | Special Education | 3 | 5.26% | 9 | 6.62% |
| | Educational Techniques | 3 | 5.26% | 9 | 6.62% |
| | Educational Psychology | 3 | 5.26% | 8 | 5.88% |
| | Curricula and Methods of Teaching Science | 15 | 26.32% | 38 | 27.94% |
| | General curricula and teaching methods | 13 | 22.81% | 32 | 23.53% |
| Sex | Male | 36 | 63.16% | 82 | 60.29% |
| | Female | 21 | 36.84% | 54 | 39.71% |
| Years of Experience | Less than five years | 10 | 17.54% | 36 | 26.47% |
| | From five to ten years | 8 | 14.04% | 19 | 13.97% |
| | More than ten years | 39 | 68.42% | 81 | 59.56% |
| Level of study | 1. Level 1 | 22 | 38.60% | 44 | 32.35% |
| | 2. Level 3 | 15 | 26.32% | 38 | 27.94% |
| | 3. Level 4 | 20 | 35.09% | 54 | 39.71% |
| | Total | 57 | 100% | 136 | 100% |

## The study Instrument

To evaluate the teaching performance of faculty members in the light of the learning and innovation skills, the questionnaire was designed by the researchers in view of postgraduate students' perspectives, and in the light of pertinent literature [49,51, 52,56,57, 67,68,69,70,71]. The following explains the procedures for preparing the study tool:

### 1- Preparing the appropriate list of teaching performance for faculty members in the light of the learning and innovation skills:

Referring to previous literature and studies dealing with the learning and innovation skills [4,7,8,9,10,11,12,13, 14,15,16,17,18,72] a preliminary list of the teaching performance of faculty members has been prepared in the light of these skills. The number of items of this list is (44) items distributed among the following sub-skills:

1.  The teaching performance in the light of creativity and innovation skills, and it included (18) items.

2.  The teaching performance in the light of critical thinking and problem-solving skills, and it included (16) paragraphs.

3.  The teaching performance in the light of communication and sharing skills, and it included (10) items.

A list of the teaching performance of faculty members in the light of the learning and innovation skills was presented to nine jury faculty members in the faculties of education. The opinions of the juries agreed on the appropriateness of the list and its representation of the teaching performance in the light of the learning and innovation skills.

### 1- Designing the search tool:

Based on the teaching performance, the questionnaire designed for postgraduate students in the form of a five-point scale (always, often, sometimes, rarely, never); this is in order for these students to express their opinion on the teaching performance of their professors in the light of these skills. Practically speaking, the highest score in each practice is (5), and the lowest score is (1). This tool was designed in an electronic form through the Google service, and became available in its initial form.

### 2- Psychometric properties of the study tool:

The psychometric properties of the study tool were confirmed by applying the study tool to an exploratory sample of 57 male and female students in postgraduate programs at the College of Education at King Khalid University. The following is an explanation of the psychometric properties of the study tool:

### a- Validity of the instrument

The validity of the study tool was confirmed by utilizing the questionnaire to evaluate the teaching performance of faculty members in the light of the learning and innovation skills from students' perspectives. The questionnaire was

distributed among nine faculty jury members in the faculties of education. This is a kind of virtual validity to judge the extent to which each practice represents the list that was developed to represent it. The opinions of the juries agreed on the appropriateness of the questionnaire in achieving its objective, and in light of the opinions of the juries, some adaptation was made in the wording of some items to become clearer, but no item was deleted.

**b- Internal Consistency**

The correlation coefficient was calculated between the score of each item and each of: the score of the sub-skill to which it belongs, and the total score of the questionnaire. The results were as shown in the following two tables (2):

**Table 2**: Correlation coefficient between the score of each item and each of the total score of the sub-skill to which it belongs and the total score of the questionnaire.

| No. | Sub-skill | The questionnaire as a whole | No. | Sub-skill | The questionnaire as a whole | No. | Sub-skill | The questionnaire as a whole |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.36** | 0.41** | 16 | 0.42** | 0.52** | 31 | 0.52** | 0.77** |
| 2 | 0.27* | 0.31* | 17 | 0.43** | 0.40** | 32 | 0.60** | 0.78** |
| 3 | 0.28* | 0.29* | 18 | 0.33* | 0.34* | 33 | 0.73** | 0.72** |
| 4 | 0.42** | 0.45** | 19 | 0.64** | 0.76** | 34 | 0.65** | 0.71** |
| 5 | 0.43** | 0.48** | 20 | 0.67** | 0.82** | 35 | 0.64** | 0.73** |
| 6 | 0.43** | 0.35** | 21 | 0.68** | 0.82** | 36 | 0.65** | 0.74** |
| 7 | 0.48** | 0.51** | 22 | 0.67** | 0.78** | 37 | 0.42** | 0.48** |
| 8 | 0.42** | 0.39** | 23 | 0.72** | 0.78** | 38 | 0.50** | 0.51** |
| 9 | 0.43* | 0.33* | 24 | 0.71** | 0.76** | 39 | 0. 59** | 0.67** |
| 10 | 0.33* | 0.31* | 25 | 0.76** | 0.85** | 40 | 0.66** | 0.76** |
| 11 | 0.35** | 0.42** | 26 | 0.72** | 0.83** | 41 | 0.55** | 0.68** |
| 12 | 0.26* | 0.38** | 27 | 0.72** | 0.81** | 42 | 0.62** | 0.77** |
| 13 | 0.29* | 0.32* | 28 | 0.65** | 0.68** | 43 | 0.68** | 0.82** |
| 14 | 0.38** | 0.41** | 29 | 0.71** | 0.81** | 44 | 0.61** | 0.65** |
| 15 | 0.41** | 0.39** | 30 | 0.59** | 0.66** | | | |

*: significant at (0.05) **: significant at (0,01)

Table (2) shows the correlation of all the items of the questionnaire to the score of the sub-skill to which they belong, and to the total score of the questionnaire with positive correlation coefficient and a statistical function at levels (0.01, 0.05). These results indicate that all items have a high degree of validity, and this is supported by the high and indicative strength of the internal correlation between all items of the questionnaire.

The correlation coefficient was also calculated between the scores of the sub-skills of teaching performance in the light of the learning and innovation skills and each other and between them and the total score of the questionnaire. The results are as shown in the following table (3):

**Table 3:** Correlation coefficient between scores of sub-skills for teaching performance in the light of information, media and technology and each other and between them and the total score of the questionnaire.

| Skills | Critical thinking and problem solving | communication and sharing | Questionnaire as a whole |
|---|---|---|---|
| Creativity and Innovation | 0.81** | 0.76** | 0.91** |
| Critical Thinking and Problem Solving | | 0.89** | 0.94** |
| Communication and Sharing | | | 0.95** |

**: Significant at (0,01)

Table (3) shows the high values of the correlation coefficient between the scores of the sub-skills and each other and between them and the total score of the questionnaire. This means that all sub-skills of the questionnaire have a high degree of consistency. Therefore, the questionnaire has a high degree of internal consistency.

**c- Reliability of the Study Instrument:**

Cronbach's alpha coefficient was calculated, as an indicator of the reliability of the questionnaire. The following table (4) shows the reliability coefficient:

**Table 4:** Cronbach's alpha reliability coefficient for the assessment of the teaching performance in the light of the learning and innovation skills.

| | Sub-skills of the questionnaire | Reliability coefficient |
|---|---|---|
| 1- | Creativity and innovation skills | 0.96 |
| 2- | Critical thinking and problem-solving skills | 0.97 |
| 3- | Information and communication culture skills | 0.95 |
| | Questionnaire as a whole | 0.94 |

Table (4) shows the high values of Cronbach's alpha reliability coefficient for each sub-skill and the questionnaire as a whole, where the values of the reliability coefficient ranged between (0.94 to 0.97), and this indicates the high coefficient of the reliability of the questionnaire as a whole and its sub-skills. Thus, the questionnaire became in its final form.

**Data Analysis**

**The current study used the following statistical analysis;**

1. Weighted averages and standard deviations to determine the degree of teaching performance of faculty members in the light of the learning and innovation skills from the point of view of their students.

2. Using a one-sample t-test to identify the differences between the average teaching performance of faculty members in the light of the learning and innovation skills, and the educationally determined level of competence of (80%) of the total performance.

3. Using one-way analysis of variance to detect differences in the levels of teaching performance of faculty members in the light of the learning and innovation skills from the point of view of their students according to the variables of: the program, specialization, gender, experience, and academic level.

# 3 Results

**First: The results of the first question**

The first question of the study is: "What is the teaching performance list needed for faculty members for postgraduate programs at the Faculty of Education at King Khalid University in light of learning and innovation skills?" In light of the previous procedures, the following checklist was reached:

1- Creativity and innovation skills:

a- Fluency:

- Presenting scientific problems and directing students to generate the largest number of solutions to them.

- Asking the largest number of questions while presenting scientific topics.

- Encouraging students to provide the largest number of opinions and ideas on the scientific issues and problems being addressed.

b- Flexibility:

- Guiding students to solve scientific problems in more than one way.

- Asking open-ended questions with various answers.

- Encouraging students to provide a variety of responses to the same task.

c- Authenticity:

- Encouraging students to offer unfamiliar interpretations of scientific data, issues, phenomena, or problems.

- Motivating students to submit new solutions for scientific problems.

- Reinforce new and unfamiliar ideas presented by students during scientific discussions.

d- Creativity Development:

- Using project learning to teach course topics.

- Providing sufficient time for students to practice the processes of investigation and discovery and access to knowledge on their own.

- Presenting historical situations about the history of science and the innovations of creative scientists, past and present, to the students.

- Respecting and appreciating students' ideas and opinions, and not making fun of them.

- Encouraging students' self-confidence and their ability to carry out scientific tasks and assignments.

- Using brainstorming in teaching the course.

- Guiding students to discover new relationships between the scientific concepts included in the study topics.

- Providing an atmosphere of fun and humor while teaching the subjects of the course.

- Encouraging students to implement innovative ideas to solve real problems related to the course topics.

2- Critical thinking and problem-solving skills:

a- Think Effectively:

- Guiding students to use the appropriate thinking pattern to solve scientific problems.

- Motivating students to practice induction and deduction according to the educational situation and the nature of the problem.

- Allowing sufficient time for students to solve scientific problems.

- Providing suitable opportunities for students to practice the processes of analysis, synthesis, and evaluation.

b- Making judgments and decisions:

- Creating scientific situations for students that require taking appropriate decisions.

- Encouraging students to analyze different points of view related to a particular issue to make the right decision.

- Motivating students to analyze and interpret data in order to make sound judgment.

- Directing students to link between scientific knowledge, available data, and arguments to reach the right decision.

- Encouraging students to self-evaluate their ideas to make the appropriate decision.

- Allowing students to evaluate each other's ideas and opinions in order to reach the right decision.

c- problem solving

- Training students to clearly define scientific problems.

- Directing students to gather information about the scientific problems presented.

- Encouraging students to develop hypotheses or suggest solutions to the scientific problems presented.

- Helping students choose and use the appropriate method to test the validity of scientific hypotheses.

- Providing the appropriate reinforcement for students when they reach the correct solutions to scientific problems.

- Directing students to generalize the solutions that have been reached to similar scientific problems.

3- Communication and sharing skills:

a- Communicating clearly:

- Using educational strategies that enhance oral communication between students and each other.

- Creating educational situations that require written communication between students and each other.

- Encouraging students to listen to others to understand their ideas.

- Allowing students to use visual media to display and illustrate their achievements.

- Allowing students to express a specific idea in different forms, such as: oral, written, or visual expression, and others.

b- Sharing with others:

- Providing educational activities that require students to work in cooperative groups.

- Encouraging students to cooperate and provide assistance to each other when needed.

- Assigning roles and tasks to students during group work, and urging them to shoulder individual and collective responsibility.

- Enhancing the students' tasks accomplished while working in a team.

- Encouraging students to share educational resources with their colleagues.

**Second: The results of the second question**

The second question is: "What is the level of teaching performance of faculty members in postgraduate programs at the Faculty of Education at King Khalid University in light of learning and innovation skills?" To answer this question; The level of teaching performance was determined based on the weighted average value where the length of the five-point Likert scale used in this tool was determined (from 1:5), and the range (5-1 = 4) was calculated, which was divided by the number of five scale periods to get the length of the period (4/5 = 0.8), then add this value to the lowest value in the scale, which is: (1). This is to determine the upper limit for the first period, and so on for the rest of the periods, as shown in Table (5):

**Table 5:** Periods and weighted averages used as a criterion for judging the level of teaching performance of faculty members in the light of the learning and innovation skills.

| No. | Items | Weight average | Performance level |
|---|---|---|---|
| 1 | (1) to - less than (1.8) | 1- 1.76 | Very weak |
| 2 | (1.8) to - less than (2.6) | 1.8 - 2.59 | Weak |
| 3 | (2.6) to - less than (3.4) | 2.6 - 3.39 | Average |
| 4 | (3.4) to - less than (4.2) | 3.4 - 4.19 | High |
| 5 | (4.2) to- (5) | 4.2 – 5 | Very high |

In light of this criterion, the level of teaching performance of faculty members was determined in the light of the learning and innovation skills, as shown in the following table (6):

**Table 6:** Standard deviations, weighted averages, and levels of teaching performance for faculty members in the light of learning and innovation skills from the point of view of their students (n = 136).

| | Skills | Standard deviation | Weight average | Percentage | Performance level | Ranking |
|---|---|---|---|---|---|---|
| 1 | Creativity and innovation skills | 0.91 | 3.84 | 76.80% | High | Second |
| 2 | Critical thinking and problem-solving skills | 1 | 3.75 | 75.00% | High | Third |
| 3 | Information and communication culture skills | 0.88 | 4.1 | 82.00% | High | First |
| | Skills as a whole | 0.87 | 3.9 | 78.00% | High | |

Table (6) shows that the weighted average of the level of teaching performance of faculty members in the light of the learning and innovation skills as a whole was (3.90), with a standard deviation of (0.87), and a percentage of (78%), and these values indicate that the level of performance is generally high.

The following figure (1) shows the percentages of the teaching performance level of faculty members in the light of the learning and innovation skills as a whole and their sub-skills:
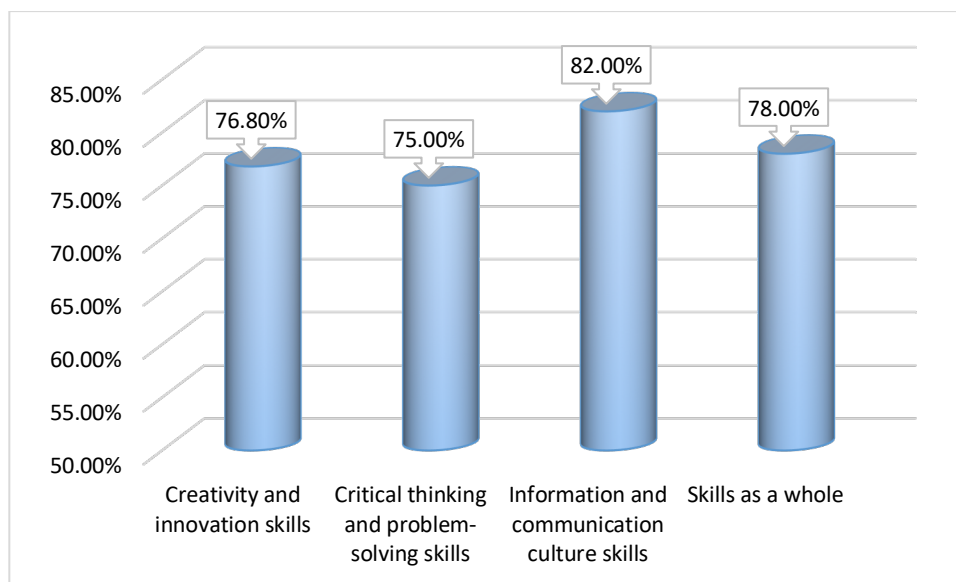
**Fig. 1.** Percentages of the teaching performance level of faculty members in the light of the learning and innovation skills as a whole and its sub-skills.

Figure (1) shows that communication and sharing skills ranked first with a percentage of (82%), creativity and innovation skills came in second place with (76.8%), and critical thinking and problem-solving skills ranked third and last with a percentage of (75%). These percentages indicate a high performance level.

**Third: The results of the third question**

The third question states: "What are the differences between the level of teaching performance of faculty members in postgraduate studies programs at the Faculty of Education at King Khalid University in the light of learning and innovation skills and the level of competency determined by (80%) of the total performance?" To answer this question a one-sample t-test was used, with a cut-off score of (4), which corresponds to (80%) of the overall performance level. This was implemented using the statistical program (SPSS), and the results were as shown in Table (7):

**Table 7:** The results of a single-sample T-test to determine the differences between the level of teaching performance in the light of the teaching and innovation skills of faculty members and the cut-off score (4), which corresponds to the level of competence specified at (80%)

| | Skills | No. | Average | Standard deviation | Calculated "t" value | Degree of freedom | P-value (Sig.) | Significance |
|---|---|---|---|---|---|---|---|---|
| 1 | Creativity and innovation skills | 136 | 3.84 | 0.91 | -2.053 | 135 | 0.04 | Significant |
| 2 | Critical thinking and problem-solving skills | 136 | 3.75 | 1 | -2.919 | 135 | 0 | Significant |
| 3 | Information and communication culture skills | 136 | 4.10 | 0.88 | 1.285 | 135 | 0.2 | not significant |
| | Skills as a whole | 136 | 3.90 | 0.87 | -1.397 | 135 | 0.16 | not significant |

Table (7) shows that the p-value (Sig.) for creativity and innovation skills, critical thinking and problem-solving skills, communication and sharing skills, and skills as a whole were in order (0.04), (0.20), (0.16). These results indicate the following:

1. There are statistically significant differences at the level of significance (0.05) between the level of teaching performance of faculty members in postgraduate studies programs at the College of Education at King Khalid University in the light of creativity and innovation skills, critical thinking skills and problem solving, and between the educationally determined competence level of (80%) of overall performance, in favor of the level of adequacy, whereas, the cutoff score (4), which corresponds to the level of competence, is higher than the average teaching performance in the light of these skills. Therefore, the teaching performance of the faculty members in the light of

these skills did not reach the required level of competence.

2. There are no statistically significant differences at the level of significance (0.05) between the level of teaching performance of faculty members in postgraduate studies programs at the College of Education at King Khalid University in the light of communication and sharing skills, and skills as a whole, and the level of competence determined educationally at (80%) of the total performance. This indicates that communication and sharing skills, learning skills and innovation as a whole have reached the required level of competence.

**Fourth: The results of the fourth question**

The fourth question states: "What are the differences in the level of teaching performance of the faculty members in postgraduate studies programs at the Faculty of Education at King Khalid University in the light of learning and innovation skills according to the program variables, specialization, sex, years of experience, and academic level?" To answer this question, one-way analysis of variance was used through the statistical program (SPSS), and the results are as shown in table (8):

**Table 8:** Results of one-way variance analysis (Anova) in the level of teaching performance of faculty members in postgraduate programs at the College of Education at King Khalid University in the light of the learning and innovation skills according to program variables, specialization, gender, years of experience, and academic level

| Variables | Source of Variance | Sum of squares | Degrees of freedom | Mean squares | Calculated 'F' value | P-value (Sig.) |
|---|---|---|---|---|---|---|
| Study program | Between groups | 1924.76 | 1 | 1924.76 | 1.26 | 0.26 |
| | Within groups | 204155.6 | 134 | 1523.55 | | |
| | Total | 206080.4 | 135 | | | |
| Specialization | Between groups | 6550.5 | 5 | 1310.1 | 0.85 | 0.51 |
| | Within groups | 199529.9 | 130 | 1534.85 | | |
| | Total | 206080.4 | 135 | | | |
| Sex | Between groups | 3215.71 | 1 | 3215.71 | 2.12 | 0.15 |
| | Within groups | 202864.7 | 134 | 1513.92 | | |
| | Total | 206080.4 | 135 | | | |
| Years of Experience | Between groups | 2307.47 | 2 | 1153.73 | 0.75 | 0.47 |
| | Within groups | 203772.9 | 133 | 1532.13 | | |
| | Total | 206080.4 | 135 | | | |
| Academic level | Between groups | 4486.22 | 2 | 2243.11 | 1.48 | 0.23 |
| | Within groups | 201594.2 | 133 | 1515.75 | | |
| | Total | 206080.4 | 135 | | | |

Table (8) shows that the (P. Value) for the differences in the level of teaching performance of faculty members in postgraduate programs at the College of Education at King Khalid University in the light of the learning and innovation skills according to the variables of the study program, specialization, gender, years of experience, and academic level, as in order (0.26), (0.51), (0.15), (0.47), (0.23) These values are all greater than the significance level (0.05). Thus, this indicates that there are no differences in the level of teaching performance of faculty members in postgraduate programs at the College of Education at King Khalid University in the light of the learning and innovation skills according to these variables. This means that the level of teaching performance of faculty members in the light of the learning and innovation skills from the point of view of their students did not differ according to: the academic program, specialization, gender, years of experience, and the academic level of their students.

## 4 Discussions

**First: Discussing the results of the first question**

By answering the first question, the list of teaching performance of faculty members in the light of the learning and innovation skills from the point of view of their students in postgraduate programs at the College of Education was reached. The number of items of this list is (44), distributed among the following sub-skills:

1- Teaching performance in the light of creativity and innovation skills included (18) items.

2- Teaching performance in the light of critical thinking and problem-solving skills included (16) items.

3- Teaching performance in the light of communication and sharing skills included (10) items.

This list agreed with the learning and innovation skills included in the framework developed by the "Partnership for Learning in the Twenty-first Century", which was addressed by many previous literature and studies and which were referenced to reach the list of teaching performance of faculty members in the light of twenty-first century skills [4,7,8,9,10,11,12,13,14,15,16,17,18,72].

**Second: Discussing the results of the second and third questions**

Through the answer to the second question, it was concluded that the teaching performance in the light of the learning and innovation skills as a whole and its sub-skills among faculty members from the point of view of their students in graduate programs at the College of Education is at a high level was at a high level. By analyzing the level of adequacy of the teaching performance of faculty members in the light of these skills, the following was found:

1- The level of teaching performance of faculty members in the light of skills as a whole, and in the light of communication and sharing skills reached the required level of competence, educationally determined by (80%) of the total performance.

2- The level of teaching performance of faculty members in the light of creativity and innovation skills, critical thinking skills and problem solving did not reach the required level of competence, educationally determined by (80%) of the total performance.

The studyers believe that the high level of teaching performance of faculty members in the light of the learning skills and innovation in general, from the point of view of their students in postgraduate programs, may be due to the requirements and specifications that King Khalid University is keen to apply in selecting faculty members to teach in these programs, as master's and doctoral programs require the election of prominent faculty members who are distinguished in science, study and teaching.

This might also be due to the nature of the study requirements for postgraduate programs; as these programs require training students in communication and sharing skills. Students are to be trained in the skills of using different communication and sharing techniques, whether through communication using dialogue, discussion and presentations inside the classroom, or through the use of formal and informal social networks within the university.

The high level of teaching performance in the light of the learning and innovation skills may be due to the high level of the culture of twenty-first century skills in general among faculty members, and their teaching of these skills to their students in postgraduate programs, as well as the clarity of these skills to them. It may be due to the faculty members joining qualitative training programs at the university, during which they were trained on how to apply these skills in the classroom. It may also be due to the faculty members' interest in taking the opinions of their students into consideration in developing their teaching performance, including teaching performance in the light of the learning and innovation skills.

Despite the high level of teaching performance of faculty members in the light of creativity and innovation skills, critical thinking and problem-solving skills, it did not reach the required level of competency, which is educationally determined by (80%) of the total performance. It may be due to the nature of these skills which are complex and described as the highest levels of thinking. Therefore, there is difficulty in applying and implementing such skills which need qualitative skills that may not be available to all faculty members. In addition, these skills require great time and effort to apply them.

These results concurred with the results of some previous studies that revealed a high level of teaching performance among faculty members in general [56,57,58,59,60]. On the other hand, these results differ from the results of some previous studies that showed a deficiency in the level of teaching performance among faculty members [51,52,53,54,55,73].

**Third: Discussing the results of the fourth question**

Through the answer to the fourth question, it is concluded that there are no statistically significant differences at the level of significance (0.05) in the level of teaching performance of faculty members in graduate programs at the College of Education at King Khalid University in the light of the learning and innovation skills according to program variables, specialization, gender, and years of experience and academic level.

This means that there is an equivalence in the level of teaching performance of faculty members at the College of Education at King Khalid University in the light of the learning and innovation skills from the students' perspectives concerning different majors (General curricula and teaching methods, curricula and methods of teaching science, special education, educational technologies, educational psychology, educational management and planning), at the different academic levels (first, third, and fourth), postgraduate programs (Masters and PhD), and with their various

experiences (less than five years, five to ten years, and more than ten years).

The studyers see that the absence of differences in teaching performance might due to the type of program (Masters or PhD), is a logical result, as most of the faculty members who teach in master's programs are those who teach in doctoral programs, and therefore the teaching performance in the light of learning and innovation skills is similar and equivalent in the master's and doctoral programs.

This result is in harmony with Al-Kasi's study [73], whose results showed that there were no statistically significant differences at the significance level (0.05) in the practices of standards-based assessment among faculty members according to the program variable (Masters vs. PhD).

As for the absence of differences in students' responses due to specialization (general curricula and teaching methods, curricula and methods of teaching science, special education, educational technologies, educational psychology, educational management and planning), the studyers believed that this might be due to the great similarity in the nature of study requirements in master's programs and doctoral programs in different disciplines. Studying in all these disciplines required students to apply creativity and innovation skills, critical thinking and problem-solving skills, and communication and sharing skills. Hence, this was reflected in the presence of parity in the teaching performance of faculty members in the light of the learning and innovation skills as a whole in all disciplines. This result was in consistent with previous studies which indicated that there were no significant differences in the teaching performance of faculty members due to the variable of academic major [56,57,68].

As for the absence of differences in students' responses due to gender, educational level, or the number of years of experience, the researchers believed that this might be due to the fact that many faculty members teach the same courses for both male and female students in the postgraduate programs at King Khalid University, in addition to the qualitative selection of faculty members who teach in postgraduate programs in general and doctoral programs in particular in the male and female sections. That could also be due to the nature of the students (the study sample) themselves, who have high mental abilities, high culture and experiences as well. Such students study in the highest level of educational programs, and were selected to join these programs according to the requirements and specifications of qualitative admission. These students of both sexes (males and females), with different academic levels (first, second and third), and with different years of experience, were given the chance to evaluate the teaching performance of their professors in the light of the learning and innovation skills to the same degree, where there were no statistically significant differences in these evaluations.

This result was in consistent with Al-Hadabi and Khan's study [68] which showed that there were no statistically significant differences at the significance level (0.05) between the mean scores of the performance level of faculty members from the students' point of view due to the variable of gender of students. This result also goes with the results of Ammar's study [57] which found that there were no differences in evaluating the teaching performance of faculty members at the Faculty of Specific Education from the point of view of their students according to the variable of gender and academic level.

On the other hand, these results were in contrast with Al-Qudah study [51] which showed that there were statistically significant differences at the level (0.05) in the level of competencies of faculty members at the Teachers College at King Khalid University from the students' point of view according to the academic level variable in favor of fourth-year students in favor of third Year students. It also differs with the results of Jaradat's study [70] which showed that there were differences in students' evaluation of the teaching performance of faculty members in the Mathematics Department at the College of Arts and Sciences in Wadi Al-Dawasir Governorate, according to the students' academic level variable. This result also was not in line with Al-Kasi's study [73] whose results showed that there were statistically significant differences in the level of standards-based assessment practices for faculty members from the point of view of their students according to the gender variable (males versus females), and the differences were in favor of males.

## Recommendations and Suggestions for Further Study

### First: Study recommendations

In the light of the findings of the current study, the researchers recommended the following:

1- Holding training courses for faculty members on teaching performance skills in the light of the learning and innovation skills in general, critical thinking and problem-solving skills, and creativity and innovation skills in particular.

2- Adopting the checklist of teaching performance for faculty members in the light of the learning and innovation

skills that are prepared in the current study, and circulating it to faculty members in different universities, and using it to self-evaluate their performance.

3- Adopting the measurement tool used in the current study, and rotating it to university faculty members to benefit from it in evaluating their teaching performance in the light of the learning and innovation skills from their students' perspectives in the different programs.

4- The evaluation of teaching performance in the light of the learning and innovation skills should be an essential part of evaluating the performance of faculty members in universities, and that this evaluation should be annually, and run by specialized centers and bodies in colleges or universities such as: assessment and evaluation centers, or quality centers.

5- Generalizing the participation of students, in general and postgraduate students in particular, in evaluating the teaching performance of faculty members in general, and taking that into consideration in evaluating the quality of faculty members' performance.

6- Establishing clear and specific mechanisms for evaluating the teaching performance of faculty members in universities, provided that students' evaluation of faculty members' performance is a part of them, informing faculty members and students of them, and benefiting from the evaluation results carried out in accordance with these mechanisms in providing immediate feedback to both the faculty members and students.

**Second: The proposed studies**

In light of the study findings, the researchers suggested implementing the following studies:

1- Re-applying the current study using the same measurement tool and the same study method, but on all students in all programs and colleges in various Saudi universities.

2- Re-applying the current study, but using other methods to measure the level of teaching performance of faculty members in the light of the learning and innovation skills of postgraduate students, such as: peer evaluation method, self-evaluation method, or observation method.

3- Evaluating the learning and innovation skills of students of faculties of education and their relationship to the teaching performance of their teachers.

4- A proposed training program to develop teaching performance in the light of the learning and innovation skills of faculty members in faculties of education according to their training needs.

5- Standardizing a graded performance rating scale (Rubrics) to measure teaching performance in the light of the learning and innovation skills of university faculty members.

6- Standardizing a graded performance rating scale (Rubrics) to measure teaching performance in the light of teachers' learning and innovation skills before in-service.

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## Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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