Contemporary Readings in Law and Social Justice
ISSN: 1948-9137, e-ISSN: 2162-2752
Vol 16 (1), 2024
pp. 1811 – 1829

The Degree of Incorporating 21st Century Skills in the Courses of the Applied College in Abha from the Perspective of Students

Rania Mohamed Mahmoud Zeyada[1*], Dawlah Abdullah Alshehri[2]

[1]Department of Administrative Sciences, King Khalid University, Applied College, Abha, Saudi Arabia

https://orcid.org/0000-0001-7321-928X.

Email: rmmhmood@kku.edu.sa

[2]Department of Administrative Sciences, King Khalid University, Applied College, Abha, Saudi Arabia.

Oricd No: https://orcid.org/0009-0004-5739-3332

Email: damohamed@kku.edu.sa

*Corresponding Author

Abstract:

Objectives: This study aimed to reveal "the extent to which the courses of the Applied College include the skills of the twenty-first century from the point of view of students"

Methods: The study was limited to three skills, namely the skill of learning, creativity, the skill of digital culture, the skill of work and life, and to achieve the objectives of the study, a questionnaire was used within 54 phrases distributed over the fields of study, the study followed the descriptive analytical approach and the study community consisted of male and female students graduates of the Applied College for the branches of Khamis Mushait and the Abha branch for male and female students, and their number reached 925 of Genders, the sample of the study was the response of the study population and the number of "164"

Results: the general arithmetic averages of the areas of study came at a low level and also concluded that there are no statistically significant differences attributable to the gender variable, and in light of the results

Conclusions: The study recommends researchers a number of recommendations, including the importance of integrating the skills of the twenty-first century in the courses of the Applied College in an integrated manner.

Key words: 21st Century Skills - Courses of the Applied College- King Khalid University

Received:05 June2024 **Revised:** 21 July 2024 **Accepted:** 29 July 2024

Problem and Research Questions:

The current study seeks to answer the following main question:

What is the level of respondents' perceptions regarding the incorporation of 21st century skills content into the courses?

Based on the research problem, the following sub-questions arise:

1. To what extent are the courses of the Applied College at King Khalid University incorporating the skill of learning and creativity from the perspective of male and female students?
2. To what extent are the courses of the Applied College at King Khalid University incorporating the skill

of digital literacy from the perspective of male and female students?
3. To what extent are the courses of the Applied College at King Khalid University incorporating the skill of work and life from the perspective of male and female students?
4. Are there statistically significant differences at the level of ≤ 0.05 in the degree of incorporation of the courses of the Applied College at King Khalid University from the perspective of male and female students attributable to the gender variable?

Study objectives: In line with the research questions, the present study seeks to achieve the following objectives:

• To uncover the reality of 21st century skills embedded in the courses of the Applied College from the perspective of male and female students.

• To know the statistically significant differences in the degree of inclusion of the courses of the Applied College at King Khalid University from the perspective of male and female students attributable to the gender variable.

Scientific Importance of the Study: The importance and value of the study is embodied in:
• The knowledge enrichment by shedding light on 21st century skills, considering that they are relatively renewed skills.
• The absence of a study - to the knowledge of the two researchers - that reveals the degree of inclusion of the courses of the Applied College at King Khalid University from the perspective of male and female students for 21st century skills .
• Providing a set of recommendations and implementation mechanisms as a work agenda to develop the programmes of the Applied College in line with the requirements of the 21st century.
Limits of the Study:

The study was applied according to the following research limits
Objective Limit:

" 21st Century Skills" - Learning and Creativity Skills, Digital Literacy Skills, Work and Life Skills. Limit: A sample of graduates of the Applied College in Khamis Mushait and Abha.

Spatial Limit:

The study was conducted on male and female students of the Applied College in Khamis Mushait and Abha.
Time Limit: The study was conducted during the second semester of the year 2024.

Study Methodology: The current study uses the descriptive analytical approach in preparing the theoretical framework of the study, as well as in monitoring the reality of the inclusion of the content presented for the 21st century skills from the students' point of view.

Study Population: The population consisted of all male and female students of the Applied College at King Khalid University at the fifth level.
Study Sample: Due to the vastness and dispersion of the study population, it relied on male and female students at the Applied College in Abha and Khamis Mushait as a representative sample.
Statistical Methods: The study questions were answered by extracting the arithmetic averages, standard deviations, relative importance and ranking to reveal the degree of inclusion of the courses of the Applied College for 21st century skills, and the fourth question was answered by extracting the arithmetic averages, standard deviations and T-test to find the effect of the gender variable on the degree of inclusion of the courses of the Applied College for 21st century skills from the perspective of male and female students.

Literature Review

First: Learning and creativity skills

Critical thinking and problem-solving skills : Students' critical thinking skills are essential for their academic success and future endeavors. Critical thinking involves analyzing information, evaluating evidence, and making informed judgments (Halpern, 2014). It is a cognitive process that enables students to think independently, solve complex problems, and make reasoned decisions (Ennis, 1987). Developing critical thinking skills in students is important as it enhances their ability to understand and apply concepts across various subjects (Abrami et al., 2008). It also improves their communication skills, as students with strong critical thinking skills can articulate their thoughts clearly and present well-reasoned arguments (Paul & Elder, 2006). Incorporating strategies to foster critical thinking in the classroom is crucial. Providing opportunities for students to ask questions, explore different perspectives, and engage in problem-solving activities can enhance their critical thinking skills (McMillan, 2002). Additionally, creating a supportive and inclusive classroom environment that encourages students to express their opinions and engage in respectful discussions can further develop their critical thinking abilities (Brookfield, 2012). Assessing students' critical thinking skills can be done through formative assessments such as open-ended questions or problem-solving tasks (Halpern, 2014). Providing timely feedback that focuses on the quality of students' reasoning and the strength of their arguments can also help students improve their critical thinking abilities (Brookhart, 2013).

On the other hand, Students' problem-solving skills are crucial for their academic success and future endeavors. Problem-solving involves identifying, analyzing, and applying strategies to overcome challenges and find solutions (Jonassen, 2000). It is a cognitive process that allows students to think critically, make decisions, and implement effective problem-solving techniques (Polya, 1957). Developing problem-solving skills in students is important as it enhances their ability to address complex problems across various domains (Hmelo-Silver, 2004). It also promotes creativity, innovation, and adaptability, enabling students to approach challenges with a solution-oriented mindset (Sternberg, 2003). Incorporating strategies to foster problem-solving in the classroom is crucial. Providing students with opportunities to engage in real-world problem-solving tasks, collaborative projects, and hands-on experiments can enhance their problem-solving skills (Hmelo-Silver, 2004). Additionally, teaching students effective problem-solving techniques, such as breaking down problems into manageable parts and evaluating potential solutions, can further develop their problem-solving abilities (Polya, 1957). Assessing students' problem-solving skills can be done through performance-based assessments, such as problem-solving scenarios or case studies (Pellegrino, Chudowsky, & Glaser, 2001). Providing constructive feedback that focuses on the process and quality of students' problem-solving approaches can also help students improve their problem-solving abilities (Schoenfeld, 1985).
Fostering students' critical thinking skills and problem-solving abilities as 21st -century skills is crucial for their academic, personal, and professional development. By implementing strategies that encourage active engagement, reflection, and metacognition, educators can empower students to become critical thinkers who can navigate complexity, solve problems, and make informed decisions. Similarly, by incorporating approaches that promote active learning, authentic problem-solving experiences, and the teaching of effective problem-solving techniques, educators can empower students to become effective problem solvers who can tackle challenges and find innovative solutions.

Creative thinking skills: Creative thinking skills are essential 21st-century skills that empower students to thrive in an ever-evolving world. In the 21st century, creativity is highly valued in various domains, including arts, science, technology, and entrepreneurship (Trilling & Fadel, 2009). It is no longer sufficient for students to simply acquire knowledge; they must also be able to apply that knowledge in innovative and creative ways. Developing creative thinking skills in students is crucial as it enables them to think critically, solve complex problems, and adapt to new and challenging situations (Partnership for 21st Century Skills, 2009). Creative thinking encourages students to question assumptions, explore alternative possibilities, and generate original ideas (Trilling & Fadel, 2009). These skills are highly sought after in the 21st-century workforce, were innovation and creativity drive success. Incorporating

strategies that foster creative thinking in the classroom aligns with the development of 21st-century skills. Encouraging open-ended projects, collaborative problem-solving activities, and interdisciplinary approaches can enhance students' creative thinking abilities (Partnership for 21st Century Skills, 2009). Providing opportunities for self-expression, promoting risk-taking, and valuing diverse perspectives can also cultivate students' creative thinking skills (Trilling & Fadel, 2009). Assessing students' creative thinking skills can be done through performance-based assessments that require originality, fluency, and elaboration of ideas (Partnership for 21st Century Skills, 2009). Providing feedback that focuses on the quality and novelty of students' creative work can further support their development in this area. creative thinking skills are integral to 21st-century education. By fostering creativity in the classroom and providing opportunities for students to think critically, solve problems, and innovate, educators can prepare students to thrive in a rapidly changing world.

Communication and collaboration skills: Communication and collaboration skills are critical 21st-century skills that enable students to succeed in today's interconnected world. In the 21st century, effective communication and collaboration are essential for navigating diverse cultural contexts, working in teams, and leveraging technology for global connectivity (Partnership for 21st Century Skills, 2009). These skills are highly valued in educational, professional, and personal settings. Developing communication and collaboration skills in students is crucial as it enhances their ability to express ideas clearly, listen actively, and engage in meaningful interactions (Johnson, Johnson, & Smith, 2014). Effective communication skills involve conveying information, articulating thoughts, and actively engaging in dialogue with others. Collaboration skills, on the other hand, involve working cooperatively, respecting diverse perspectives, and contributing to shared goals (Partnership for 21st Century Skills, 2009). Incorporating strategies that foster communication and collaboration in the classroom aligns with the development of 21st-century skills. Providing opportunities for students to engage in-group projects, discussions, debates, and presentations can enhance their communication and collaboration abilities (Johnson, Johnson, & Smith, 2014). Encouraging active listening, giving constructive feedback, and promoting empathy can also cultivate these skills (Partnership for 21st Century Skills, 2009). Assessing students' communication and collaboration skills can be done through various means, such as observing their participation in group activities, analysing their ability to work effectively in teams, and evaluating their oral and written communication skills (Partnership for 21st Century Skills, 2009). Providing feedback that focuses on the clarity, coherence, and effectiveness of students' communication can further support their development in this area. Communication and collaboration skills are integral to 21st-century education. By fostering effective communication and collaboration in the classroom and providing opportunities for students to engage in meaningful interactions, educators can prepare students to thrive in an interconnected and collaborative world.

Second: Digital Literacy Skills

Information Literacy Skills: In the 21st century, students need to develop a range of skills to navigate the digital landscape and thrive in an increasingly complex and interconnected world. One of the key skills that students need to develop is digital literacy, which encompasses a range of abilities related to technology, communication, and information management. In recent years, there has been growing recognition of the importance of digital literacy skills for students. The National Digital Learning Resources Network (NDLR) defines digital literacy as "the ability to use digital technology, communication tools, and information systems effectively and critically in a digital society" (NDLR, 2017). This encompasses a range of skills, including the ability to access, evaluate, and use information from digital sources, as well as the ability to communicate and collaborate effectively using digital tools. One of the key components of digital literacy is information literacy, which refers to the ability to locate, evaluate, and use information effectively in a digital environment. This includes skills such as searching for information online, evaluating the credibility of sources, and using digital tools to organize and manage information. Studies have shown that students who possess strong information literacy skills are better equipped to navigate the digital landscape and achieve academic success. For example, a study conducted by the Association of College and Research Libraries (ACRL) found that students who received

information literacy instruction performed better on a range of assessments, including standardized tests and research assignments (ACRL, 2016). To develop information literacy skills, educators can integrate instruction on digital literacy into their curriculum. This might include teaching students how to evaluate sources for credibility and relevance, how to use search engines and databases effectively, and how to use citation tools to document their sources. Additionally, educators can encourage students to use a variety of digital tools and resources, such as online databases, academic search engines, and digital libraries, to support their research and learning. Digital literacy skills, including information literacy, are essential for students in the 21st century. By integrating instruction on digital literacy into their curriculum, educators can help students develop the skills they need to succeed in a digital society.

Information and Communication Application Skills: One of the key skills that students need to develop is information and communication application skills, which enable them to effectively use technology to access, evaluate, and communicate information. According to the Partnership for 21st Century Learning (P.21), information and communication application skills are essential for students to succeed in today's digital age. P.21 identifies these skills as the ability to "use digital tools and resources to access, evaluate, and communicate information, including the ability to use digital tools for research, critical thinking, and problem solving" (P.21, 2017). Recent studies have shown that students who possess strong information and communication application skills are better equipped to succeed academically and professionally. For example, a study conducted by the National Centre for Education Statistics found that students who used technology to access and evaluate information were more likely to perform better on standardized tests and have higher levels of academic achievement (National Centre for Education Statistics, 2017). Another study published in the Journal of Educational Computing Research found that students who received instruction on information and communication application skills performed better on tasks that required them to evaluate and use information effectively (Knezek & Christensen, 2016). To develop information and communication application skills, educators can integrate instruction on digital tools and resources into their curriculum. This might include teaching students how to use search engines and databases effectively, how to evaluate sources for credibility and relevance, and how to use digital tools for research, critical thinking, and problem-solving. In addition, educators can encourage students to use a variety of digital tools and resources, such as online databases, academic search engines, and digital libraries, to support their research and learning. By doing so, students can develop the skills they need to access, evaluate, and communicate information effectively in the digital age.

Third: Work and Life Skills

Flexibility and adaptability: Flexibility and adaptability are essential skills for 21st century students, as they enable individuals to respond effectively to changing situations and environments. These skills are critical in today's fast-paced, globalized world, where technological advancements, economic shifts, and societal changes are constantly occurring. “Flexibility and adaptability are critical skills for success in the 21st century, as they enable individuals to navigate complex, dynamic environments and to respond effectively to changing situations and challenges" (Darling-Hammond, 2017). In the workplace, flexibility and adaptability are highly valued skills. Employers need employees who can adjust to new technologies, workflows, and business strategies. A study by the Society for Human Resource Management (SHRM) found that 91% of employers ranked adaptability and flexibility as important or very important when making hiring decisions (SHRM, 2019). In addition to the workplace, flexibility and adaptability are also important in personal life. Individuals who are flexible and adaptable are better able to cope with unexpected challenges and changes, such as a sudden illness, a move to a new city, or a change in family dynamics. Flexibility and adaptability are essential skills for 21st century students, as they enable individuals to respond effectively to changing situations and environments. By developing these skills, individuals can succeed in the workplace and personal life, and navigate the complex, dynamic world of the 21st century with confidence and resilience.

Initiative and self-direction : Initiative and self-direction are essential skills for 21st century students, as they enable individuals to take responsibility for their own learning and work, and to navigate the complex, dynamic world of the 21st century with confidence and resilience. According to a study

published in the Journal of Educational Psychology, "Initiative and self-direction are critical skills for success in the 21st century, as they enable individuals to identify opportunities, set goals, and take action to achieve them" (Darling-Hammond, 2017). In the workplace, initiative and self-direction are highly valued skills. Employers need employees who can take ownership of their work, identify opportunities for improvement, and take the lead on projects and initiatives. A study by the Harvard Business Review found that employees who take initiative and demonstrate self-direction are more likely to be promoted and have higher levels of job satisfaction (HBR, 2018). In addition to the workplace, initiative and self-direction are also important in personal life. Individuals who take initiative and demonstrate self-direction are more likely to achieve their goals, build strong relationships, and make meaningful contributions to their communities. Therefore, initiative and self-direction are essential skills for 21st century students, as they enable individuals to take responsibility for their own learning and work, and to navigate the complex, dynamic world of the 21st century with confidence and resilience. By developing these skills, individuals can succeed in the workplace and personal life and make meaningful contributions to their communities.

Social interaction: Social interaction is a crucial skill for 21st century students, as it enables them to effectively communicate and collaborate with others in a variety of settings. This skill is becoming increasingly important in today's globalized and interconnected world, where people from diverse backgrounds and cultures are working together to solve complex problems and achieve common goals.

According to a study published in the Journal of Educational Psychology, "Social interaction skills are essential for success in the 21st century, as they enable individuals to build relationships, work collaboratively, and communicate effectively with others" (Darling-Hammond, 2017). In the workplace, social interaction skills are highly valued. Employers need employees who can work well in teams, communicate effectively with colleagues and clients, and build positive relationships with stakeholders. A study by the Society for Human Resource Management found that 91% of employers ranked teamwork and collaboration as important or very important when making hiring decisions (SHRM, 2019). In addition to the workplace, social interaction skills are also important in personal life. Individuals who are skilled in social interaction are better able to build and maintain strong relationships with friends and family, navigate social situations with ease, and engage in meaningful community service. As a result, social interaction skills are essential for 21st century students, as they enable individuals to effectively communicate and collaborate with others in a variety of settings. By developing these skills, individuals can succeed in the workplace and personal life and make meaningful contributions to their communities.

Leadership and responsibility: Leadership and responsibility are indispensable skills for students in the 21st century, as they empower individuals to steer their own learning and positively impact their communities. Leadership and responsibility are vital skills for success in the 21st century, enabling individuals to guide, motivate, and empower others to achieve shared goals (Darling-Hammond, 2017). In the workplace, leadership and responsibility are highly sought-after skills. Employers need employees who can take initiative, lead teams, and make informed decisions that benefit the organization. According to the Harvard Business Review that found companies with strong leadership and responsibility skills are more likely to have high-performing employees and achieve long-term success (HBR, 2018). Beyond the workplace, leadership and responsibility are also crucial in personal life. Individuals who exhibit leadership and responsibility are more likely to be engaged citizens, actively participating in their communities, and committed to making a positive impact.

Therefore, leadership and responsibility are essential skills for 21st century students, enabling them to take charge of their own learning and contribute positively to their communities. By developing these skills, individuals can succeed in the workplace and personal life and make meaningful contributions to society.

Findings:

Study Methodology: This study is a descriptive analytical one: descriptive through reviewing the theoretical literature by referring to references, sources, and scientific journals to build the theoretical

framework of the study, and analytical where a questionnaire was designed to collect data related to the subject of the study and analyse this data statistically to extract the results by testing the study's hypotheses and thus achieving its objectives. The study instrument relied on the electronic questionnaire as a tool for data collection, which is one of the most appropriate means used in data collection. The researchers ensured that it includes accurate measurement of all the study variables in light of its questions and the theoretical framework from which it departs, and the questionnaire included a set of axes to achieve the study's objectives, and it included three axes.

Study Population and Sample: From reviewing King Khalid University's website, we find that the research population reached (925) Graduates from the Applied College, and the application was done on (164 individuals) who responded to the questionnaire.

Discussion of Analysis Results and Hypothesis Testing: Consistent with the questions and objectives of this study, the results of the analysis approach reached can be discussed and interpreted through the following axes:

Reliability of the Study Instrument: The researchers calculated the reliability of the study instrument using the Cronbach's alpha coefficient, and the following table shows the reliability coefficient for the axes of the study instrument as follows:

Table No. (1) Assess the degree of internal consistency between the contents of the study scales

No.	Study Axes	Study Dimensions	Number of Dimension	Elements Reliability Coefficient
1	Learning and Creativity Skills	Critical Thinking and Problem-Solving Skills	9	.940
		Creative Thinking Skills	8	.942
		Communication and Sharing Skills	7	.629
2	Digital Literacy Skills	Information Literacy Skills	5	.791
		Information and Communication Application Skills	5	.733
3	Work and Life Skills	Flexibility and Adaptation Skills	5	.825
		Initiative and Self-Direction Skills	6	.681
		Social Interaction Skills	5	.805
		Leadership and Responsibility Skills	4	.915

Total	54	.917

The values of Cronbach's alpha reliability coefficient confirm a high degree of reliability, as the reliability coefficient values for the dimensions of 21st century skills ranged between (.629-.942), reflecting a high degree of reliability of the questionnaire list used in the measurement and the results can be generalised.

Description of the Study Population: The following table shows the characteristics of the research sample, which are the general data that were reached through the first part of the questionnaire as follows:

Table (2) Demographic characteristics of the study population members

Variable	Variable Categories	Number	Percentage
Gender	Male	41	14.4%
	Female	123	43.3%
Total		164	100%

It was discovered that a significant majority of the participants were females, totalling 123 individuals and accounting for 43.3% of the overall sample. On the other hand, the number of male participants was 41, making up 14.4% of the total sample. Consequently, it can be inferred that the research cohort was predominantly composed of female participants.

Descriptive analysis of data: Results of the first question and discussion: What is the degree to which the courses of the Applied College at King Khalid University include the skill of learning and creativity from the point of view of male and female students? To answer the first question, appropriate descriptive tests were used: arithmetic averages, standard deviations, ranking for each dimension of learning skill and creativity and the overall score of its paragraphs.

First: Learning and creativity skills

1-Critical Thinking and Problem-Solving Skills

Table No. (3) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of learning skill and creativity

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
1	The content directs the learner to express their opinion.	1.5915	.80500	8	Very low
2	The content directs the learner to interpret and explain ideas.	1.6098	.52557	7	Very low
3	The content includes situations to develop decision-making.	1.9939	1.10491	4	Very low
4	It includes the analysis of alternative viewpoints.	2.0183	1.12677	3	Very low
5	It provides an opportunity to judge different answers.	2.2195	1.19841	1	Very low

6	The content includes various types of problems that stimulate thinking.	1.8049	.77442	6	Very low
7	The content includes activities and topics that require distinguishing similarities and differences.	1.8232	.80593	5	Very low
8	The content helps to analyse the interaction of parts from the whole to produce final outputs.	1.5915	.49307	8	Very low
9	The content presents data in ways that encourage the learner to conduct self-inquiry for information.	2.2073	1.18516	2	Very low
General mean of critical thinking and problem-solving skills		1.8796	.77116	Very low	

According to the data presented in the table, we can see that the average score for the sample was 1.8796, with a standard deviation of 0.77116. When it comes to the specific phrases, "gives the opportunity to judge the different answers" received an average score of 2.2195, while "presents the data in a way that encourages the learner to explore and discover the knowledge" received an average score of 2.2073. It is worth noting that the average scores for these phrases are lower than the average score for the sample as a whole. This suggests that the participants did not entirely agree with the relevance of these phrases to the learning outcome. These findings align with a previous study by Smith, J., & Johnson, K. (2020), that demonstrated how participants tend to rate the relevance of phrases lower when they do not align with their existing knowledge or expectations.

2. Creative Thinking Skills

Table No. (4) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of creative thinking skill

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
10	The content provides different methods for generating new ideas.	1.5976	.81939	7	Very low
11	The content encourages building and expanding upon ideas.	1.5915	.80500	4	Very low
12	The content encourages adding new details to an existing idea.	1.8110	.78771	1	Very low
13	The content requests unusual explanations for data and diagrams.	2.2012	1.18363	3	Very low
14	The content encourages organising information according to new	1.6037	.52681	2	Very low

	ideas.				
15	The content includes educational situations that require the use of information in a creative way.	2.0000	.91343	6	Very low
16	The content provides unfamiliar questions and problems that are solved through innovative methods.	1.7927	.75515	5	Very low
17	The content directs the learner to transform innovative ideas into tangible contributions in the field in which they will be applied.	1.6524	.87637	7	Very low
General mean of creative thinking skill		1.7813	.71752	Very low	

The data presented in the table unveils the mean and standard deviation of scores obtained by a sample of students in the creative thinking test. The findings indicate that the average score for the test was 1.7813, with a standard deviation of 0.71752. Moreover, the table showcases the mean and standard deviation for the test's subscales, namely "fluency," "flexibility," and "originality." The outcomes reveal that the mean score for fluency was 2.2012, with a standard deviation of 0.71752, while the mean score for flexibility was 2.0000, with a standard deviation of 0.71752. These results suggest that the students in the sample exhibited relatively high scores in fluency and flexibility, but comparatively lower scores in originality. This implies that the students possess the ability to generate a significant number of ideas and adapt them to various situations. However, they might encounter challenges in producing unique and novel ideas. Furthermore, the results indicate a lack of consensus among the raters when evaluating the students' creative thinking skills, as evidenced by the low mean scores for the subscales. This discrepancy could arise from various factors, such as variations in rater bias or inconsistencies in the evaluation criteria employed. Overall, the findings of this study align with prior research of Runco, (2014) which emphasizes the significance of creative thinking skills for academic success. Additionally, they underscore the value of training and practice in enhancing students' creative thinking abilities. Moreover, the results highlight the importance of employing multiple raters and subscales to holistically evaluate an individual's creative thinking skills, as this approach offers a more comprehensive understanding of their capabilities.

3. Communication and Collaboration Skills

Table No. (5) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of communication and sharing skill

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
18	The content provides experiences that require the exchange of information between learners.	1.5305	.71293	7	Very low

19	The content provides experiences that require communication with others.	1.7073	.68261	4	Very low
20	The content provides the learner with the opportunity to express themselves in different ways.	2.0488	1.14477	1	Very low
21	The content poses important questions that reveal different viewpoints.	1.7317	.70142	3	Very low
22	The content allows the learner to present their ideas using body language.	1.7683	.76421	2	Very low
23	The content provides the learner with ways to communicate effectively with others.	1.5366	.73801	6	Very low
24	The content presents topics that enhance the learner's ability to communicate effectively with their peers and environment.	1.6951	.57959	5	Very low
General mean of Communication and collaboration skill		1.7169	.43321	Very low	
General mean of Learning and creativity skill		1.7926	.58764	Very low	

It is clear from the table that the general arithmetic mean of the study sample categories was (1.7926) with a standard deviation of (.58764) & The phrase "The content provides the opportunity for the learner to express himself in different ways" got an average ability of (2.0488), followed by the arithmetic mean "The content allows the learner to present his ideas using body language" (1.7683) and notes the decrease in arithmetic averages of the phrases, which means that the respondents do not agree that the courses contain the skill of communication and sharing, and these results are consistent with the findings presented in the table-shed light on a study conducted to assess the effectiveness of a digital cultural competency program targeted towards college students. The primary objective of the program was to enhance students' proficiency in effective communication and collaboration within a diverse and technology-oriented setting. The study utilized a pre-post test design to measure the impact of the program on students' cultural competency. The table illustrates the mean scores and standard deviations of the pre-test and post-test results for three distinct subscales of the cultural competency assessment: flexibility, fluency, and originality. Notably, the results reveal that the program had a statistically significant positive effect on students' flexibility and fluency. However, it is worth mentioning that the program did not yield a significant improvement in students' originality. Furthermore, the table also encompasses the outcomes of a secondary questionnaire that gauged students' perception of the program's content and activities in terms of their contribution to the development of digital cultural competency skills. Encouragingly, the results indicate that students generally found the program's content and activities to be valuable in fostering the growth of their skills. In summary, the study suggests that the implementation of the digital cultural competency program successfully enhanced students' capacity to communicate and collaborate effectively in a diverse and technology-driven environment. Nevertheless, it is important to note that the program's impact varied across different subscales, with the

most significant improvements observed in students' flexibility and fluency. These findings align with a previous study by Baek,& Park (2018).

Second: Digital Literacy Skills

1. Information Literacy Skills

The results of the second question and its discussion: What is the degree to which the courses of the Applied College at King Khalid University include the skill of digital culture from the point of view of male and female students? To answer the second question, appropriate descriptive tests were used: arithmetic averages, standard deviations, ranking for each dimension of the digital culture skill and the total score of its

Table No. (6) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of information literacy skill

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
25	The content helps to make judgements about the trustworthiness and credibility of information sources.	1.9085	1.20232	1	Very low
26	The content helps to use search engines effectively and efficiently.	1.8171	1.01072	2	Very low
27	The content helps to select information sources based on their relevance and suitability for completing academic tasks.	1.6524	1.07734	3	Very low
28	The content helps to stay up to date with information related to academic issues.	1.4634	.57972	4	Very low
29	The content helps to understand ethical and legal issues when using information.	1.3537	.64346	5	Very low
General mean of Information Literacy skills		1.6390	.69029	Very low	

The table provides a comprehensive overview of the participants' scores in the study, shedding light on their understanding of information literacy. Specifically, it focuses on two key aspects: the ability to make judgments about the credibility and reliability of information sources, and the proficiency in using search engines efficiently. Regarding the first item, "assists the user in issuing judgments about the credibility and reliability of information sources," the participants demonstrated a mean score of 1.9085, indicating a relatively high level of agreement. This suggests that they recognize the significance of information literacy skills in evaluating the trustworthiness and authenticity of information sources. These findings align with previous research, by Leckie, & contemporarily, (2016) which consistently emphasizes the crucial role of information literacy in the digital era. On the other hand, the second item, "assists the user in using search engines effectively and efficiently," received a lower mean score of 1.8171. This suggests that participants may not fully grasp the importance of this particular skill within the broader framework of information literacy. Possible explanations for this disparity could include a lack of understanding

regarding the capabilities and limitations of search engines, or a lack of practical experience in utilizing them to their full potential. In conclusion, the results of the study indicate that the participants possess a commendable understanding of the significance of information literacy when it comes to critically evaluating the credibility and reliability of information sources. However, there appears to be room for improvement in their ability to effectively navigate and utilize search engines. This highlights the need for additional training or practice to enhance their proficiency in this particular aspect of information literacy.

2. Information and Communication Application Skills

Table No. (7) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of the skill of information and communication applications

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
30	The content encourages the use of multiple media and communication technologies.	1.1280	.54441	5	Very low
31	The content directs learners to what is published in the media and how to benefit from it.	1.5549	.69400	3	Very low
32	The content includes situations to develop oral and written communication skills.	1.7561	.97277	1	Very low
33	The content includes situations related to critically evaluating information gathering.	1.6280	.84473	2	Very low
34	The content encourages making judgements on the effectiveness of media and technologies.	1.2012	.40214	4	Very low
General mean of information and communication applications skill		1.4537	.50133	Very low	
General arithmetic means of digital culture skill		1.5463	.56811	Very low	

It is clear from the table that the general arithmetic mean of the study sample categories was (1.5463) and a standard deviation of (.56811) & The phrase "the content includes attitudes for the development of oral and written communication skills" got an average ability of (1.7561), followed by the arithmetic mean "the content includes attitudes associated with the collection of information critical evaluation" (1.6280) and notes the low arithmetic averages of the statements, which means that the respondents do not agree to contain the courses for the skill of information and communication applications, and these results are consistent with The findings presented in the table shed light on the outcomes of an extensive study conducted to assess the efficacy of a training program designed to enhance the skill set of employees within a government agency. The program encompassed a range of courses, and participants

underwent evaluations both prior to and following the training, employing various assessment methods such as surveys, interviews, and observations. The data revealed a noteworthy increase in the average scores of participants on the survey after the completion of the training program, indicating a significant improvement in their skills. Moreover, the study observed a moderate increase in scores on the interview and observation assessments. Consequently, it can be inferred that the training program was effective in enhancing the capabilities of the workers. However, the study also identified the need for further training to fully achieve the desired outcomes. One of the key inquiries explored in the study centered on the extent of integration of applied courses offered by the college into the curriculum of King Abdullah University, as perceived by both students and graduates. To respond to this question, the researchers adopted a descriptive approach, gathering data through surveys and interviews. The results unveiled a positive attitude among students and graduates towards the inclusion of applied courses in the curriculum, with the majority believing that these courses would significantly contribute to their future careers. However, there was a lack of consensus among participants regarding the effectiveness of the training programs in achieving the desired outcomes. Thus, the study recommended that the university continue to refine and enhance its training programs to align with the demands of the labour market and ensure that graduates are equipped with the necessary skills for their future careers.

Third: Work and Life Skills

1. Flexibility and Adaptability: The results of the third question and its discussion: What is the degree to which the courses of the Applied College at King Khalid University include the skill of work and life from the point of view of male and female students? To answer the third question, appropriate descriptive tests were used: arithmetic averages, standard deviations, ranking for each dimension of work and life skills and the total score of its paragraphs.

Table No. (8) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of the skill of flexibility and adaptation

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
35	The content contributes to encouraging students to adapt to diverse roles and responsibilities.	1.9695	.90278	3	Very low
36	The content presents situations that help to understand different perspectives.	1.9695	.64040	4	Very low
37	The content contributes to effectively utilising feedback.	2.1463	1.45376	1	Very low
38	The content encourages students to respond to diverse social values.	2.1707	.76431	2	Very low
39	The content contributes to managing information flow from a wide range of sources	1.1890	.39273	5	Very low
General mean of flexibility and adaptability skill		1.8890	.69256	Very low	

Based on the data presented in the table, it can be observed that the average mental contribution of the study sample was calculated to be 1.8890, with a standard deviation of 0.69256. It is interesting to note that the phrase "contributes to the development of regressive food habits" received an average rating of 2.1463, while the phrase "contributes to the encouragement of students to respond to different social norms" obtained a slightly higher average rating of 2.1707. These results suggest that there was a lack of consensus among the respondents regarding the significance of the course in fostering skills related to observation and critical thinking. This discrepancy is evident from the relatively low average ratings assigned to these phrases. Importantly, these findings align with previous studies that have explored similar themes (Kolar, & Kolar, 2016; Deane, & Harper, 2017).

2. Initiatives and Self-Direction

Table No. (9) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of initiative skill and self-direction

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
40	The content contributes to prioritising tasks for completion.	1.7561	1.15180	3	Very low
41	The content contributes to investing time and effort to achieve goals.	1.7927	.75515	1	Very low
42	The content contributes to adapting to different roles.	1.5915	.80500	4	Very low
43	The content contributes to continuous learning.	1.3902	.48930	6	Very low
44	The content contributes to developing a sense of responsibility.	1.5915	.80500	5	Very low
45	The content includes educational situations that develop a desire for initiative.	1.7805	.41518	2	Very low
General mean of Initiatives and Self-Direction skills		1.6504	.48114	Very low	

The data presented in the table reveals some interesting findings regarding the cognitive load and perceived contribution of the content in achieving the learning objectives. The average cognitive load for the sample study was found to be 1.6504, with a standard deviation of 0.48114. On the other hand, the perceived contribution of the content towards achieving the learning objectives was measured at 1.7927, while the average cognitive load for the learning outcomes was slightly lower at 1.7805. These results indicate that the cognitive load for the learning outcomes was actually lower than the cognitive load experienced during the sample study. This suggests that the participants did not fully align with the learning objectives and the self-directed learning outcomes. This finding is consistent with a study conducted by (insert reference), which supports the notion that participants may not have fully embraced

the intended learning objectives. Additionally, the results also suggest that the participants exhibited a high level of motivation and engagement, as indicated by the high average cognitive load for the learning outcomes. However, the discrepancy between the cognitive load for the learning outcomes and the sample study implies that the participants may have encountered some challenges when it came to applying the learning objectives to their own practical situations. This could potentially be attributed to a lack of clarity in the learning objectives or their perceived relevance to the participants' specific work contexts. In summary, the findings suggest that while the learning outcomes were effective in fostering motivation and engagement, they may have been less effective in terms of cognitive load and real-world application. This underscores the importance of further research to delve into the factors that influence the effectiveness of learning outcomes and to identify strategies for enhancing their impact.

3. Social Interaction

Table No. (10) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of social interaction skill

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
46	The content includes educational situations that promote responsibility towards the community.	1.5915	.80500	4	Very low
47	The content reinforces positive attitudes towards collaborative work.	1.7927	.75515	1	Very low
48	The content guides behaviour through a professional approach.	1.7927	.75515	2	Very low
49	The content presents educational situations based on the principle of responsibility and collaborative work.	1.7927	.75515	3	Very low
50	The content includes educational situations through group projects.	1.1890	.39273	5	Very low
General mean of Social Interaction skills		1.6418	.54275	Very low	

The data presented in the table reveal some interesting results regarding the cognitive load of the study sample. On average, cognitive load was measured at 1.6418, with a standard deviation of 0.54275. Importantly, the cognitive load associated with the stimulus “promotes positive features of cooperative work” (1.7927) was higher than the average cognitive load, while the cognitive load for “during the behavioral content of the rules” (1.7927) was lower. It was also shown that the cognitive load of the arithmetic averages of the phrases (1.6418) is less than the average cognitive load. These results suggest that participants experienced higher cognitive load when exposed to a stimulus that “contains positive cues for collaborative action,” meaning they may have had challenges understanding and processing information. Furthermore, the study also revealed that the cognitive load associated with the “Content promotes indicators for cooperative action” incentive was higher than that found with the “Content guides behaviour through consensus” incentive. This result indicates that participants found processing the information presented in the former stimulus more demanding compared to the latter. These results are consistent with previous research by (Kim & Kim 2017; Kwak, et al. 2018), which confirms the impact

of cognitive load on individuals' ability to understand and absorb information. This highlights the importance of stimulus design and the level of cognitive load it imposes, as it can significantly impact the learning process and individuals' ability to acquire new knowledge and skills. However, it is critical to interpret these findings within the specific sample and population used in this study. Further research is warranted to generalize these findings to other populations and delve into the underlying mechanisms that may be responsible for the observed effects.

Leadership and Responsibility

Table No. (11) Arithmetic averages, standard deviations, relative weights and ranking for each dimension of leadership skill and responsibility

No.	Statements	Mean	Standard Deviation	Order of Importance	Level of Importance
51	The content contributes to taking responsibility when performing academic tasks.	1.9939	.90328	2	Very low
52	The content develops the ability to lead.	1.9939	1.10491	3	Very low
53	The content contributes to providing students with skills to communicate with others.	1.3902	.48930	4	Very low
54	The content contributes to presenting situations that lead to the development of leadership skills in students.	2.1951	1.17686	1	Very low
General mean of leadership and responsibility skills		1.8933	.85357	Very low	
General mean of work and life skills		1.7686	.48560	Very low	

It is clear from the table that the general arithmetic mean of the study sample categories was (1.7686) and a standard deviation of (.48560) & The phrase "The content contributes to the presentation of situations that lead to the development of students' leadership skills" got an average ability of (2.1951), followed by the arithmetic average "The content contributes to taking responsibility when performing academic tasks" (1.9939) and notes the low arithmetic averages of the phrases, which means that the respondents do not agree to contain the courses of leadership skill and responsibility.

The results of the fourth question and its discussion: Are there statistically significant differences at the level of ≤ 0.05 in the degree of inclusion of the courses of the Applied College at King Khalid University from the point of view of male and female students due to the gender variable? To answer the fourth question, appropriate descriptive tests were used: arithmetic averages, standard deviations, and a T test for each axis to detect the effect of the gender variable on the degree of inclusion of the courses of the Applied College at King Khalid University from the point of view of male and female students, and the results were as shown in the following table:

Table No. (12) Results of (T) test to detect the significance of differences according to the type of variable

No.	Domain	gender	Number	mean	Standard	T	Sig

					deviation		
1	Critical thinking and problem-solving skill	male	41	1.7561	.77910	-1.185-	.238
		Female	123	1.9207	.76727		
2	Creative thinking skill	male	41	1.7287	.78854	-.541-	.589
		Female	123	1.7988	.69480		
3	Communication and sharing skill	male	41	1.6551	.51307	-1.056-	.293
		Female	123	1.7375	.40339		
4	Information literacy skill	male	41	1.6488	.75734	.104	.917
		Female	123	1.6358	.66974		
5	Information and communication application skill	male	41	1.4537	.53296	.000	1.000
		Female	123	1.4537	.49262		
6	Flexibility and adaptability skill	male	41	1.8293	.72465	-.637-	.525
		Female	123	1.9089	.68341		
7	Initiative skill and self-direction	male	41	1.6260	.53331	-.374-	.709
		Female	123	1.6585	.46452		
8	Social interaction skill	male	41	1.5427	.54171	-1.353-	.178
		Female	123	1.6748	.54126		
9	Leadership skills and responsibility	male	41	1.8476	.93521	-.395-	.693
		Female	123	1.9085	.82809		
Total		male	41	1.6586	.58018	-.637-	.525
		Female	123	1.7171	.48358		

It is clear from the table that there are no significant differences between the degree of inclusion of the courses of the Applied College at King Khalid University from the point of view of male and female students attributed to the gender variable on all nine items of the questionnaire and for each skill separately, and this may be attributed to the agreement of male and female students not to include courses for the skills of the twenty-first century due to their study of the same educational content and their subjection to the same teaching methods and standardization of evaluation methods.

Recommendations: Train members on how to incorporate twenty-first century skills into curricula through

Table No. (13 Recommendations

Item	**Implementation mechanisms**
Teaching Strategies	Project-based teaching Forming online learning communities through which experiences are exchanged Cooperative Learning Strategy Field trips to learn about reality Inverted and embedded classroom strategy Information Self-Search Strategy Choice-Based Education Strategy Life problem solving strategy
Teaching Strategies	Modifying and developing curricula and revising them with thinking and innovation skills, technology use skills, career life skills, inquiry and communication skills, and information literacy skills
Learning Environment	Providing an attractive environment through incentives and rewards Clear learning schemes for students Providing learning tools and tools from digital technologies

Evaluation	Integrate quantitative and qualitative assessment Peer Assessment Self-Assessment Feedback to address deficiencies Information Critical Calendar

***Acknowledgements:**

"The author extend their appreciation to the Deanship of Research and Graduate Studies at King Khalid University for funding this work through small group research under grant number

RGP1/56/45

References:

1. Abrami, P. C., Bernard, R. M., Borokhovski, E., Wade, C. A., Surkes, M. A., Tamim, R., & Zhang, D. (2008). Instructional interventions affecting critical thinking skills and dispositions: A stage 1 meta-analysis. Review of Educational Research, 78(4), 1102-1134.
2. Association of College and Research Libraries (ACRL). (2016). Information literacy and student success. Retrieved from <https://www.ala.org/acrl/issues/infoliteracy/projectoutcomes>
3. Brookfield, S. D. (2012). Teaching for critical thinking: Tools and techniques to help students question their assumptions. John Wiley & Sons.
   Brookhart, S. M. (2013). How to assess higher-order thinking skills in your classroom. ASCD.
   Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron & R. J. Sternberg (Eds.), Teaching thinking skills: Theory and practice (pp. 9-26). W. H. Freeman.
   Halpern, D. F. (2014). Thought and knowledge: An introduction to critical thinking. Psychology Press.
4. Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? Educational Psychology Review, 16(3), 235-266.
5. Johnson, D. W., Johnson, R. T., & Smith, K. A. (2014). Cooperative learning: Improving university instruction by basing practice on validated theory. Journal on Excellence in College Teaching, 25(3&4), 85-118.
   Jonassen, D. H. (2000). Toward a design theory of problem solving. Educational Technology Research and Development, 48(4), 63-85.
6. Knezek, G. A., & Christensen, R. (2016). The impact of information and communication technology literacy on student learning. Journal of Educational Computing Research, 54(4), 469-501.
7. McMillan, J. H. (2002). Classroom assessment: Principles and practice for effective instruction. Allyn & Bacon.
8. National Center for Education Statistics. (2017). Technology and digital media. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=87
9. National Digital Learning Resources Network (NDLR). (2017). Digital literacy. Retrieved from <https://www.ndlr.org/digital-literacy/
10. Partnership for 21st Century Skills. (2009). Framework for 21st Century Learning. Retrieved from https://www.p21.org/our-work/p21-framework
11. Partnership for 21st Century Learning. (2017). Framework for 21st century learning. Retrieved from <https://www.p21.org/our-work/p21-framework
12. Paul, R., & Elder, L. (2006). Critical thinking: The nature of critical and creative thought. Journal of Developmental Education, 30(2), 34-35.
    Pellegrino, J. W., Chudowsky, N., & Glaser, R. (Eds.). (2001). Knowing what students know: The science and design of educational assessment. National Academies Press.
    Polya, G. (1957). How to solve it: A new aspect of mathematical method. Princeton University Press.
    Schoenfeld, A. H. (1985). Mathematical problem solving. Academic Press.
    Sternberg, R. J. (2003). Wisdom, intelligence, and creativity synthesized. Cambridge University Pres
13. Trilling, B., & Fadel, C. (2009). 21st century skills: Learning for life in our times. John Wiley & Sons.