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The Effect of a Critical Thinking Course on Students at the University of Petra during the Covid-19 Pandemic

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Abstract

The study aimed to identify the impact of a critical thinking course on the degree of critical thinking skills acquired by University of Petra students through distance learning during the Corona pandemic period. The researcher used the comparative descriptive approach to examine the responses of all students enrolled in the course for the first semester of the 2020/2021 academic year. To achieve objectives of the study, the researcher designed a questionnaire to collect study data which were analyzed using SPSS. Findings of the study showed a high level of critical thinking skills (assumption prediction, interpretation, argument evaluation, deduction, and inferential reasoning) that might be attributed to the critical thinking course. There were statistically significant differences, due to gender, in the degree to which students claimed to possess the skill of predicting assumptions, but none of that was in the basic critical thinking skills which also might be attributed to the college variable.

Keywords: Course; Critical Thinking; University Of Petra; Basic Skills

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Introduction

Critical thinking is what individuals require in order to cope with various situations they confront. Many countries have instituted programs and harnessed energies to develop critical thinking programs, incorporated especially in universities and other educational institutions so that students could prepare to face future problems. There are various definitions of the concept of thinking which differ in their components and aptitudes. Beyer (2001), for example, asserts that thinking is a mental process that leads learners to do something meaningful through the experiences they have gained, while Costa (1985) referred to critical thinking as a mental procedure that processes sensory input for problem solving and decision making.

Critical thinking and the development of its various skills among university students is vital, as this group is especially vulnerable to cultural, environmental, emotional, and social influences. Thus, it is necessary to improve the methods with which they understand and absorb these influences by training them in higher-order thinking skills and practice. Like any other skill, whether practical or physical, there are many forms of thinking. Jarwan (1999) classified the basic thinking skills as remembering, retrieval, observation, classification, and recognition, while categorising the higher-order thinking skills as critical and creative thinking, problem solving, and decision-making.

Some definitions of critical thinking have been linked to Bloom's pyramid, which indicate that critical thinking requires the use of higher levels of knowledge such as analysis, synthesis, and evaluation. Critical thinking is cognitive thinking, that is, the conscious and directed mental process which aims to evaluate opinions, correct reasoning, analyze, and perceive contradictions, all with a view to making correct decisions in the end.

Covid-19 which emerged in 2020, was classified as a global epidemic by the World Health Organization on March 18, 2020, and forced many countries to close the doors of their educational institutions (WHO, 2020). Thus, while education was postponed for a period of time as a repercussion of the pandemic, higher education institutions understood that the suspension would affect students negatively. Consequently, institutions began to activate distance instruction through e-learning platforms such as Microsoft Teams, Zoom and social networking sites to produce lessons and continue the educational process.

In her work as a teacher of the critical thinking course at the University of Petra in Jordan, the researcher encountered a problem in raising the students' level of critical thinking, especially through distance education, since this subject benefits from direct encounter. Hence the idea of this study, which reveals the effect of the critical thinking course on the degree to which students can acquire basic skills in critical thinking during the corona pandemic through distance learning.

Universities around the world were compelled to rely on distance education in order to maintain the quality of education during the emergent Corona pandemic (Covid-19). In the face of this new and alien situation, the biggest challenge for university professors was how to implement this strategy, on the one hand, and the extent to which students would accept and respond to it, on the other, in order to assimilate the material and achieve academic excellence.

Many students faced various challenges at the beginning of the transition to distance learning, primarily difficulty in dealing with unfamiliar technical learning media such as Microsoft Teams, for example, and having to take exams online through electronic applications. This was due, in large measure, to their familiarity with traditional paper-based methods and lack of efficient typing skills, all of which negatively affected their timely completion of exam questions, and adversely affecting the final results compared to the previous period of traditional face-to-face learning.

The critical thinking course was an area of study in which faculty members faced challenges in communicating its educational content to students, especially since this course provides students with many skills that depend on direct instruction and examples. Here it became necessary to activate teaching strategies to upgrade the skills of assumption prediction, interpretation, argument evaluation, deduction, and inferential reasoning. The study attempted to answer the main question which asked, "What is the impact of the critical thinking course for

University of Petra students on the degree to which they possess basic critical thinking skills through distance learning?" Sub-questions asked what the impact of the critical thinking course was on the degree to which students possessed the following skills: assumption prediction, interpreting, evaluating arguments, deducing, and inferential reasoning. The second question was "Are there statistically significant differences (at the significance level of 0.05) in the effect of the course due to the variables of gender and college?"

This study helps to form a clearer picture of student opinions regarding the success of the educational process during the pandemic period. It supports the positive aspects of distance learning from the students' point of view while addressing the negatives to improve the quality of distance learning.

The practical importance lies in identifying any strategies or skills that affect the degree to which undergraduate students possess the basic skills of critical thinking in addition to improving their skills in using educational applications that support them in reaching an acceptable critical thinking skills. Watson & Glaser (1980) defined these as the learner's ability to test propositions and beliefs in light of the facts associated with them, and the ability to perceive relationships between topics, interpret information, reach conclusions, and evaluate the validity of evidence, and arguments. The current study adopted this model which includes the skills of assumption prediction, interpretation, evaluating arguments, deduction, and inference. Procedurally, critical thinking skills are measured through the responses of the study participants to the various domains.

Theoretical literature classified assumption prediction as a skill related to reaching conclusions. In the study, it is measured through the total responses of the study sample members to the study tool items. Interpretation is the individual's ability to draw conclusions from certain suggested facts with a reasonable level of certainty, measured through the total scores of participants' responses to the scale items. Evaluating arguments is the respondent's ability to distinguish between strong arguments and weak arguments related to a particular topic, measured by answering the items of the scale. Deduction is the individual's ability to know the relationships between certain things and data, so that a judgment must be made in the light of knowledge. A completely independent result can be reached regardless of the validity of the data or the individual's position with regard to it. The skill is evaluated by student responses to the questionnaire. Inference is a skill intended to distinguish between the possibility of the level of correctness or error regarding certain data and its connection with the general reality of the circumstances or the issue surrounding a particular problem. It is measured through the responses of the study sample members to the questionnaire items.

The study aims to identify the impact of the critical thinking course on University of Petra students on the degree to which they possess the basic skills of critical thinking, in addition to the specific skills of assumption prediction, interpreting, evaluating arguments, deduction, and inferential reasoning. It also attempts to identify the significance of the differences in the impact of the critical thinking course due to the variables of gender and college.

Literature review

The researcher will list down here the foremost studies relevant to the current study. A study by Naji and Al-Rasheed (2019) aimed to identify the effectiveness of a training program in developing critical thinking skills for university students in Saudi Arabia. The critical thinking skills of inference, deduction, revealing postulates, evaluating arguments, and interpretation were included in a study of 40 Department of Psychology undergraduate students at King Saud University, divided into a control and an experimental group. A training program was created to develop critical thinking skills; the results indicated its effectiveness.

Shaban (2010) endeavoured to discover the impact of a peer teaching strategy on developing critical thinking skills in mathematics among 80 eleventh grade science and humanities students in Gaza divided into an experimental group and a control group. The study revealed the effectiveness in the experimental group of the peer teaching strategy in developing critical thinking skills.

Hamid ' s study (2017) examined the impact of a cooperative learning strategy on the acquisition of grammatical concepts and the development of critical thinking skills for 54 level five students of Arabic grammar. The results showed that the students of the experimental group excelled in acquiring grammatical concepts and outperformed the control group in the critical thinking test through the cooperative learning strategy.

Research by Al-Alwan and Al-Ghazou (2007) investigated the effectiveness, according to the variables of gender, academic level, and college, of developing critical thinking skills among 72 university students through a metacognitive training program that included three skills: planning, monitoring, and evaluation. The results indicated that there was a positive effect on developing critical thinking among the participants in the experimental group, but that there were no significant statistical differences related to gender, academic level, or college.

A study by Al-Titi and Hamayel (2016) which aimed to identify the presence of e-learning in Palestinian universities in the light of knowledge management from the point of view of the faculty. The study consisted of 329 faculty members in Birzeit, Al-Quds, and An-Najah universities. A questionnaire collected data which showed that the availability of the e-learning environment was the most common response followed by an understanding of the concept of education but that there were no differences in the level and presence of e-learning in the light of knowledge management due to gender, years of experience, university level, or academic qualifications.

Dhawan (2020) endeavored through SWOC analysis to find strengths and weaknesses, challenges and possible solutions for effective methods of virtual education by examining countries which had resorted to this approach as a result of various disasters and crises. The study highlighted the difficulty of abandoning traditional lecture presentations which posed challenges to students who, lacking computers or Internet connections, were not always able to attend virtual classes. The research demonstrated the requirement for a strong IT infrastructure to provide uninterrupted virtual education services and a need to plan ahead in order to meet potential challenges.

Al-Jedaiah (2020) examined the impact of knowledge management on the effectiveness of virtual learning at private Jordanian universities (Jadara University, Irbid National University, Jerash National University, Ajloun National University). A random sample of faculty members was selected and a descriptive approach was adopted. The study concluded that private universities lack knowledge management strategies and plans with regard to virtual learning systems and achieving university goals. The study recommended the need to implement knowledge management strategies to increase the effectiveness of virtual learning and to motivate students to increase their focus on virtual learning as an alternative to traditional methods.

Research by Irfan (2020) investigated the challenges facing graduate students in learning mathematics during the Corona pandemic. A qualitative approach that collected data through an online questionnaire targeted Indonesian mathematics lecturers and identified weaknesses in applying online learning both in presenting technical material and using programs that require video editing skills or efficient implementation of course development applications.

Methodology

The current study is based on the use of the comparative descriptive method, due to its relevance to the purposes of the study and related to "the effect of the critical thinking course among University of Petra students on the degree of their possession of the basic skills of critical thinking."

Study sample

The participants consisted of all the students enrolled in the critical thinking course for the first semester of the academic year 2020/2021 at the University of Petra, comprising 198 male and female students from various disciplines. The pre-course questionnaire was administered to 190 male and female students, representing 96% of the total number, while the post-course questionnaire was administered to 183 male and female students, representing 92.4% of the total number. The following is the demographic distribution of participants according to gender, academic level, course section, and college (Table 1-4).

Table 1. Distribution of study sample members by session and gender

			Gender		Total
			Male	Female	
Session	Pre-course	number	63	127	190
		%	52.5%	50.2%	50.9%
	Post-course	number	57	126	183
		%	47.5%	49.8%	49.1%
Total		number	120	253	373
		%	100.0%	100.0%	100.0%

Table 2. Distribution of study sample members by session and academic level

			Academic level					Total
			1st year	2nd year	3rd year	4th year	5th year	
Session	Pre-course	number	31	70	63	21	5	190
		%	50.0%	50.7%	50.8%	53.8%	50.0%	50.9%
	Post-course	number	31	68	61	18	5	183
		%	50.0%	49.3%	49.2%	46.2%	50.0%	49.1%
Total		number	62	138	124	39	10	373
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0 %

Table 3. Distribution of study sample members by session and course section

			Sections			Total
			1	2	3	
Session	Pre-course	number	63	76	51	190
		%	48.5%	53.5%	51.0%	50.9%
	Post-course	number	67	66	50	183
		%	51.5%	46.5%	49.0%	49.1%
Total		number	130	142	100	373
		%	100.0%	100.0%	100.0%	100.0 %

Table 4. Distribution of study sample members by session and college

			College		Total
			Humanities	Sciences	
Session	Pre-course	number	71	119	190
		%	53.8%	49.4%	50.9%
	Post-course	number	61	122	183
		%	46.2%	50.6%	49.1%
Total		number	132	241	373
		%	100%	100.0%	100.0%

Study tool

The study tool was created with reference to theoretical literature and previous studies (Naji and Al-Rasheed, 2019; Alwan and Al-Ghazou, 2007) and consisted of two parts: demographic information, including gender, academic level, course section, college, and 23 questionnaire items, all of which relate to the impact of the critical thinking course on the degree to which students possess the basic skills of critical thinking. The following skills were addressed: assumption prediction (4 items); interpretation (5 items); evaluating arguments (4 items); deduction (5 items); inferential reasoning (5 items).

Validity of the study tool

The validity of the study tool was verified by presenting it to a group of four University of Petra faculty arbitrators, to ensure its objectivity, consistency, relevance, clarity, and correct language, with space left for any additional modifications. Based on the opinions of the arbitrators, some items were modified to increase clarity while others were deleted as not being suitable for the purposes of the study. As a result, the study tool consisted of 23 items distributed over five main skills.

Stability of the study tool

To determine the stability of the study tool, Cronbach's alpha was applied to the skills in both the pre- and post-course sessions. Table 5 shows the values of the stability coefficients.

Table 5. Values of stability coefficients for the specific skills using Cronbach's alpha

Variables	**Pre-course**	**Post-course**
Assumption forecasting	0.781	0.841
Interpretation	0.874	0.845
Argument evaluation	0.687	0.674
Deduction	0.845	0.832
Inferential reasoning	0.800	0.742
Tool as a whole	0.901	0.884

It is evident from Table 5 that the values of stability coefficients using Cronbach's alpha for the sub-dimensions are acceptable and suitable for the purposes of the study.

Evaluation of the marks

A five-point Likert scale was used to assess the impact of the critical thinking course on the participants. Arithmetic averages were calculated according to the following equation: maximum value minus minimum value of the response alternatives divided by the number of levels, i.e. (5-1) = 4 = 1.33, the value equal to the length of the category. Consequently, low is 1.00+1.33=2.33, average is 2.34+1.33 = 3.67, high is 3.68-5.00

Study variables

Independent variable: Critical Thinking Course for Petra University students

Intermediate variables: gender, academic level, course section, college

Dependent variable: basic skills in critical thinking

Statistical processors

Applying the Statistical Package for Social Sciences (SPSS) program, the following statistical methods were adopted:

Frequencies and percentages to describe the responses of the study participants, Cronbach's alpha test to ensure the stability of the instrument. Arithmetic averages was used to determine the importance of the items in the questionnaire Standard deviations to indicate the degree of dispersion of the answers from their arithmetic mean. t-test was used to identify the significance of the difference between the pre-course and post-course results

Results

Results related to the first question: "What is the impact of the critical thinking course among University of Petra students on the degree to which they possess the basic skills of critical thinking?" To answer the question, the arithmetic means and standard deviations were calculated, and the t-test was used for two independent samples to identify the responses of the participants as seen in Table 6.

Table 6 shows an increase in the possession of basic critical thinking skills due to the critical thinking course. The results indicated that there were statistically significant differences (at the level

0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter. The pre- and post-course results with respect to individual skills are presented in the following tables.

Table 6. Arithmetic averages, standard deviations, and t-values to indicate the differences in the impact of the critical thinking course on the degree to which they possess the basic skills of critical thinking.

Skill	Session	Number	Mean	Standard deviation	t-value	Statistical Significance
Assumption prediction	pre-course	190	3.81	0.55	-5.857	*0.000
	post-course	183	4.15	0.57		
Interpretation	pre-course	190	3.88	0.52	-3.958	*0.000
	post-course	183	4.11	0.57		
Argument evaluation	pre-course	190	3.98	0.63	-2.781	*0.006
	post-course	183	4.16	0.64		
Deduction	pre-course	190	3.73	0.61	-2.871	*0.004
	post-course	183	3.92	0.64		
Inferential reasoning	pre-course	190	3.81	0.65	-3.821	*0.000
	post-course	183	4.07	0.64		
Total	pre-course	190	3.84	0.39	-5.433	*0.000
	post-course	183	4.08	0.45		

*at a level of 0.05 or less. Tabular value t±1.96.

Assumption prediction

Table 7 shows an increase in the level of the assumption prediction skill due to the critical thinking course. The results indicate the existence of statistically significant differences (at the level 0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter.

Table 7. Arithmetic averages, standard deviations, and t-values for the significance of differences to identify the impact of the critical thinking course on the degree to which participants possess the skill of assumption prediction.

Skill		Number	Mean	Standard deviation	t-value	Statistical significance
Propose assumptions according to the presented situations	pre-course	190	3.84	0.90	-4.597	*0.000
	post-course	183	4.25	0.81		
Balance suggested assumptions	pre-course	190	3.81	0.93	-3.112	*0.002
	post-course	183	4.09	0.82		
Exclude assumptions that are not accepted in light of the content of a particular situation	pre-course	190	3.76	1.09	-2.953	*0.003
	post-course	183	4.07	0.95		
Evaluate the most logically acceptable proposition in light of the specific situation	pre-course	190	3.86	1.02	-3.682	*0.000
	post-course	183	4.21	0.83		
Assumption prediction	pre-course	190	3.81	0.55	-5.857	*0.000
	post-course	183	4.15	0.57		

*at a level of 0.05 or less. Tabular value t±1.96

Interpretation

According to Table 8, there is a noticeable increase in most areas of the skill of interpretation due to the critical thinking course. The results showed that there are statistically significant differences (at the level 0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter. On the other hand, it was found that there were no statistically significant differences in the interpretation skill related to supporting answers with logical evidence.

Table 8. Arithmetic averages, standard deviations, and t-values for the significance of differences to identify the impact of the critical thinking course on the degree to which participants possess the skill of interpretation.

Skill	Session	Number	Mean	Standard deviation	t-value	Statistical significance
Evaluate the proposed conclusions if they are logically based on the provided information	pre-course	190	3.59	1.10	-2.606	*0.010
	post-course	183	3.87	0.92		
Exclude proposed interpretations that do not result from the presented data	pre-course	190	3.48	1.09	-4.044	*0.000
	post-course	183	3.91	0.95		
Balance different explanations to find the weakest cause	pre-course	190	3.91	1.07	-2.227	*0.027
	post-course	183	4.14	0.93		
State the reasons that are for or against the result	pre-course	190	4.06	1.01	-2.045	*0.042
	post-course	183	4.26	0.85		
Support answers with logical evidence	pre-course	190	4.36	0.91	0.088	0.930
	post-course	183	4.35	0.88		
Interpretation	pre-course	190	3.88	0.52	-3.958	*0.000
	post-course	183	4.11	0.57		

*at a level of 0.05 or less. Tabular value t±1.96

Evaluating arguments

Table 9 displays an increase in most areas of the skill of evaluating arguments due to the critical thinking course. The results showed that there were statistically significant differences (at the level 0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter. However, there were no statistically significant differences related to making a plan that helps with work or anticipating obstacles that can hinder work and how to deal with them.

Table 9. Arithmetic averages, standard deviations, and t-values for the significance of differences to identify the extent of the impact of the critical thinking course on the degree of the participants' possession of the skill of evaluating arguments.

Skill	Session	Number	Mean	Standard deviation	t-value	Statistical significance

Make a plan to help my work	pre-course	190	4.12	1.08	-0.288	0.774
	post-course	183	4.15	1.05		
Anticipate obstacles that can hinder my work and how to deal with them	pre-course	190	3.87	1.01	-1.475	0.141
	post-course	183	4.02	0.93		
Identify methods that will help implement my plan to the fullest	pre-course	190	4.01	1.01	-2.381	*0.018
	post-course	183	4.23	0.85		
Distinguish between strong and weak arguments based on their importance	pre-course	190	3.93	1.03	-3.349	*0.001
	post-course	183	4.25	0.79		
Argument evaluation	pre-course	190	3.98	0.63	-2.781	*0.006
	post-course	183	4.16	0.64		

*at a level of 0.05 or less. Tabular value t±1.96

Deduction

Table 10 indicates an increase in some areas of deduction due to the critical thinking course. The results showed that there were statistically significant differences (at the level 0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter. However, no statistically significant differences were observed in deduction skills related to deriving generalizations, rules and general provisions, linking theory and practice, or moving from the part to the whole.

Table 10. Arithmetic averages, standard deviations, and t-values for the significance of differences to identify the extent of the impact of the critical thinking course on the degree to which participants possess the skill of deduction.

Skill	**Session**	**Number**	**Mean**	**Standard deviation**	**t-value**	**Statistical significance**
Arrive at a conclusion based on two premises	pre-course	190	3.68	0.96	-2.360	*0.019
	post-course	183	3.91	0.86		
Identify the inferences that follow the statements and decide if they are valid	pre-course	190	3.79	0.96	-1.975	*0.049
	post-course	183	3.99	0.94		
Derive generalizations, rules, and general provisions	pre-course	190	3.72	1.00	-1.882	0.061
	post-course	183	3.90	0.85		
Connect theory and practice	pre-course	190	3.81	1.06	-1.485	0.138
	post-course	183	3.97	0.98		
Move from the part to the whole	pre-course	190	3.66	1.13	-1.523	0.129
	post-course	183	3.83	1.06		
	pre-course	190	3.73	0.61	-2.871	*0.004

Deduction	post-course	183	3.92	0.64		

*at a level of 0.05 or less. Tabular value t±1.96

Inferential reasoning

Table 11 indicates an increase in most areas of the skill of deduction due to the critical thinking course. The results showed that there are significant differences (at the level of 0.05 or less) between the average values obtained before the course and those obtained after the course in favour of the latter. However, there were no statistically significant differences in the skill of inference related to drawing conclusions based on previous experiences.

Table 11. Arithmetic averages, standard deviations, and t-values for the significance of differences to identify the impact of the critical thinking course on the degree of the participants' possession of the skill of inferential reasoning.

Skill	Session	Number	Mean	Standard deviation	t-value	Statistical significance
Compare past experiences with new situations and experiences	pre-course	190	4.06	1.01	2.873 -	*0.004
	post-course	183	4.33	0.79		
Look at the various interrelationships of the issues at hand	pre-course	190	3.72	1.03	-3.114	*0.002
	post-course	183	4.03	0.93		
Decide about the possibility of generalizing past experiences to real situations	pre-course	190	3.73	1.06	- 2.108	*0.036
	post-course	183	3.95	0.94		
Draw conclusions based on past experiences	pre-course	190	3.92	1.07	-1.618	0.107
	post-course	183	4.09	0.97		
Use criteria that must be applied to infer new information	pre-course	190	3.64	1.05	- 2.841	*0.005
	post-course	183	3.94	0.97		
Inferential reasoning	pre-course	190	3.81	0.65	- 3.821	*0.000
	post-course	183	4.07	0.64		

*at a level of 0.05 or less. Tabular value t±1.96

Results related to the second question: "Are there statistically significant differences (at the level of 0.05) based on gender and college in the degree of the participants' possession of basic critical thinking skills due to the impact of the critical thinking course?" To answer the second question, an Independent Sample t-test was used to identify the significance of the differences in the degree of students' possession of basic critical thinking skills due to the variables of gender and college.

Gender

The results in Table 12 indicate that while there were statistically significant differences (at the significance level 0.05) showing that females are better at predicting assumptions, there were no other statistically significant gender-related differences.

Table 12. Independent Sample T-test to identify the differences due to gender in the degree to which students possess basic critical thinking skills.

Source of contrast	Gender	Number	Mean	Standard deviation	t-value	Degree of freedom	Statistical significance
Assumption prediction	male	57	3.96	0.64	-3.083	181	*0.002
	female	126	4.24	0.52			
Interpretation	male	57	4.09	0.55	0.290	181	0.772
	female	126	4.11	0.58			
Argument evaluation	male	57	4.13	0.75	-0.442	181	0.659
	female	126	4.18	0.58			

Deduction	male	57	3.88	0.67	-0.499	181	0.619
	female	126	3.93	0.62			
Inferential reasoning	male	57	4.00	0.75	-0.910	181	0.364
	female	126	4.10	0.59			
Total	male	57	4.01	0.51	-1.295	181	0.197
	female	126	4.10	0.42			

*at a level of 0.05 or less. Tabular value t±1.96

College

The post-course responses to the questionnaire reveal an absence of statistically significant differences based on college, whether sciences or humanities (Table 13).

Table 13. Independent Sample T-test to identify the differences due to college in the degree to which students possess post-course basic critical thinking skills.

Source of contrast	College	Number	Mean	Standard deviation	t-value	Degree of freedom	Statistical significance
Assumption forecasting	Humanities	61	4.17	0.55	0.228	181	0.820
	Sciences	122	4.15	0.59			
Interpretation	Humanities	61	4.12	0.56	0.255	181	0.799
	Sciences	122	4.10	0.58			
Argument evaluation	Humanities	61	4.19	0.67	0.390	181	0.697
	Sciences	122	4.15	0.62			
Deduction	Humanities	61	3.88	0.65	-0.558	181	0.577
	Sciences	122	3.94	0.63			
Inferential reasoning	Humanities	61	4.08	0.62	0.211	181	0.833
	Sciences	122	4.06	0.66			
Total	Humanities	61	4.08	0.42	0.111	181	0.912
	Sciences	122	4.07	0.47			

*at a level of 0.05 or less. Tabular value t±1.96

Discussion

This study aimed to identify the impact of the critical thinking course among University of Petra students on the degree to which they possessed the basic critical thinking skills. The results showed a significant increase in the level of possession by the participants of such skills. This result may be attributed to the researcher's use of various methods such as discussion and dialogue, providing examples, encouraging communication, brainstorming, and cooperative and participatory learning during the Corona pandemic. Due to the university closure imposed by the pandemic, these methods were aimed at raising the efficiency of students in critical thinking skills.

The researcher was seeking to achieve a number of goals related to raising the level of students' possession of the skill of predicting assumptions. Suggestions and assumptions were activated according to situations presented to the students. Participants evaluated proposed conclusions based on information provided to the students. Their responses reflected their possession of the skill of interpretation. As for the skill of evaluating arguments, improvement was promoted by developing plans that help with work, anticipating obstacles that could hinder work, and managing any problems. Regarding deduction, progress was achieved through the practice of reaching a conclusion based on the presence of two logical premises, and analyzing the inferences that follow statements to decide if they are valid. As for inferential reasoning, it was advanced by comparing previous experiences with new situations and experiences, and looking at the overlapping and diverse relationships of the issues raised. The results of the study agreed with research by Naji and Al-Rasheed, (2019), Shaaban (2010), Hamid (2017), Alwan and Al Ghazou,

(2007), and Al-Jedaiah (2020).

With regard to the evidence that females are more skilful at predicting conclusions, this may be because they are less impulsive than males, and because they live in an environment that prevents them from acting directly without consulting their superiors or without parental supervision.

That there were no statistically significant differences attributed to the college variable may be attributed to the fact that students of all specializations have benefited from the programs and strategies presented by the researcher, whose goal was to benefit all college students and not to favor some students over others, thus sustaining equality and impartiality.

Conclusion

The researcher found out that there were no statistically significant differences attributed to the college variable but may be attributed to the fact that students of all specializations have benefited from the programs and strategies presented by the researcher, whose goal was to benefit all college students and not to favor some students over others, thus sustaining equality and impartiality. Thus, the students will be able to face diverse circumstances and solve problems.

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