SAUDI TEACHERS' KNOWLEDGE OF CRITICAL THINKING SKILLS AND THEIR ATTITUDES TOWARDS IMPROVING SAUDI STUDENTS' CRITICAL THINKING SKILLS

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Abstract

Saudi teachers are unsure how to include critical thinking into their classrooms.This study aimed at identifying the knowledge of Saudi teachers regarding critical thinking skills and exploring their attitudes towards improving Saudi students' critical thinking skills. To identify if there are statistically significant differences at the level of significance (0.05) between the response averages of the study sample members about the degree of assessment of Saudi teachers about their knowledge of self-critical thinking skills due to the variables (specialization, experience, and gender), the quantitative approach was used employing a three-part questionnaire as the study's instrument to achieve objectives. The first part gathered the demographic information of the participants focusing on three variables: "specialization," "years of experience," and "gender. The second part was designed to assess the participants' critical thinking abilities. The third part was to determine the participants' attitudes about improving students' critical thinking skills. The sample of the study consisted of (408) teachers (male and female) who were teaching at secondary school level in Hail City, Saudi Arabia during the academic year 2020-2021. The results revealed that the level of Saudi Teachers' knowledge of critical thinking skills was high and that their attitudes towards improving students' critical thinking skills were positive. Statistically, there were significant differences in favor of the "sciences specialization" versus the "humanities specialization" in the questionnaire's two objectives. On the other hand, there were no statistically significant differences in the "gender" and "years of experience" variables. For future research, there is still a need to further examine Saudi teachers' critical thinking skills and their attitudes towards improving Saudi students' critical thinking skills. Its relevance to e-learning and adaptable settings is also discussed. Future research could look into the many interactions between different learning methods and strategies utilized in the development of camel thinking.
Keywords: *attitudes towards critical thinking, Critical Thinking (CT), Critical Thinking Skills (CTS), Saudi Teachers (ST)*

Introduction

Educators see CT skills as crucial skills which students should be taught. The Partnership for 21st Century Skills has recognized critical thinking as a core competency to prepare students for progress in the workforce. Educational scholars argue that CT skills are essential to today's complex and swiftly-altering world (Costa, 2001; Lipman, 2003). To better prepare our students for the issues they will confront, teachers must clearly teach critical thinking strategies, giving young people with twenty-first-century skills (Hove, 2011). According to NACE (2017), employers believed that CT and problem solving were the most essential competencies that job seekers should possess. Thus, to prepare learners for future career life in various fields and to meet marketplace expectations, it is crucial to enhance learners' cognitive skills (Gashan, 2015).

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In addition, learners need scientific as well as logical knowledge in tackling the challenges of the current world while making sound decisions with the fewest mistakes (Sarigoz, 2012, 5315).

If CT skills are essential in today's world, they need to become an educational priority. To provide an environment where learners can develop skill sets that will help them succeed in a changing and complex world, schools are at risk of becoming isolated if they are not redesigned to meet this objective (Coughlin, 2010). Sadiq and Najjar (2017) asserted that students' possession of CT is a necessary educational goal that educational systems seek to achieve in an era where technological developments and information flow are increasing. Such an era according to Halpern (2014) entails that students are taught to be critical and effective thinkers. CT also enables students to face the requirements of the future, and these requirements will not be met only by gaining information and facts but crucially by acquiring logical methods of deduction and interpretation. As a result, most education systems across the world are focusing on developing and improving learners' higher mental processes such as CT and problem-solving skills (Ashraah et al., 2012). In Saudi Arabia, researchers and educators are increasingly arguing for enhancing students' thinking skills. Suzan (2018) claimed that Saudi students suffered from a lack of thinking skills and of the opportunity to practice them in classrooms.

Consequently, Saudi Arabia's Ministry of Education has recently begun to question the quality of education provided to future Saudi students. These concerns include curriculum development, teaching strategies, assessment methods, enhancing students' values and skills, and improving the educational environment. In 2020, the Saudi Ministry of Education revealed that it was working on preparing courses in CT before officially including them in the education system for the 2021-2022 academic year. The CT course in the elementary stage focuses on developing students' awareness of the meaning of thinking in general before it moves to the comprehension of the meaning of CT. After that, it tackles the understanding of the application of CT standards, skills, and mechanisms such as asking questions. Next, it addresses some of the CT applications like reading, image, and media. The course then moves to extracting the value of logical thinking as a criterion of CT. It gives learners information about the principles and foundations of logical thinking and gradually progresses to the types of inference (induction and deduction). Finally, it analyzes the applications of logical thinking in daily life. In the secondary stage, the CT course continues to develop students' capabilities in CT procedures and applications through several carefully-built lessons such as problem solving and decision making, dialogue, debate, and arguments. Then it moves on to distinguish CT from creative and scientific thinking. It also contains basic lessons such as examining the relevance of evidence, revealing logical fallacies, and avoiding such fallacies.

Thinking is a natural process, and students can naturally gain CT skills. Is it necessary for them to be taught CT skills? CT "is a natural process, but when left to itself, can frequently be skewed, distorted, partial, misinformed, and potentially prejudiced; quality in thought must be nurtured," according to Choy and Cheah (2009, 198). As a result, teachers must strengthen these abilities. Teachers must have "personality" and become role models for youngsters in order to improve students' CT skills. In other words, they should think in a fluent, flexible, and genuine manner" (Zeteroglu et al., 2012, 3137). Furthermore, teachers' CT knowledge could be crucial in helping students improve their CT skills. If teachers do not have a strong background in CT, they will be unable to help students think critically. "Teachers may not teach something they believe they cannot explain," according to Stedman and Adams (2012). Their purpose may be to educate at a higher level, which would entail CT, when their understanding of the subject is actually incomplete." (p.10). Teachers' CT concepts understanding is crucial and has an effect on learners. The advancement of students' CT abilities would be hampered if teachers lack adequate knowledge of CT capabilities (Kowalczyk, et al., 2012; Gashan 2015). As a result, if teachers lack CT skills, they will be unable to teach these skills to their students.

Research Problem

There are few studies that have been conducted to determine not only the attitudes of teachers about developing students' CT skills but also teachers' knowledge of CT skills. The results of the Previous studies (Gashan, 2015; Al-Qasim, 2014; Hachlaf, 2018) showed that the teachers had a low level of CT skills, teaching CT to pre-service teachers should be a productive process that equips them with a profound understanding of CT, teachers lacking in applying CT skills is a result of not being sufficiently trained. In addition, given the fact that CT is a relatively new addition to the Saudi education system and that there is lack of information about teachers' knowledge and attitudes towards enhancing CT among students, very little research has been conducted on this particular issue so far. To shed more light on this issue, the present study aims at exploring the knowledge that ST have of CT as well as their attitudes when it comes to developing students' CT skills.

Research Focus

Various studies have attempted to examine the most effective strategies for teaching CTS, including various methods and activities that should be employed to help learners develop their CTS. However, as far as the researcher is aware, there are only a few studies that aim to explore teachers' awareness of CTS and attitudes toward increasing students' CTS. Gashan (2015) conducted a survey to analyze the understanding and views of CT among Saudi pre-service teachers. Teachers have insufficient awareness of CTS, according to the report. It was also shown that teachers were enthusiastic about the benefits of teaching CT. Al-Qasim study (2014) aimed to explore teachers' level of CT and to determine the effect of experience, specialization, and the instructional stage on their level in CT at Taubah University. To achieve this objective, the California CTS Test "CCTST" was applied to 85 teachers. The results of the test showed that the teachers had a low level of CT skills.

Teachers' perceptions of CT instruction were examined in another study conducted by Asgharheidari and Tahriri (2011). The teachers were surveyed on their attitudes toward CT and its role in their career path. According to the findings of the study, most teachers understood the concept of CT and believed that improving students' CT was an important part of their job as teachers. Anastasiadou and Dimitriadou (2011) studied how prospective teachers at the University of Western Macedonia's School of Education perceived CT. According to the study, teaching CT to pre-service teachers should be a fruitful process that provides them with a thorough understanding of CT. Hachlaf (2018), on the other hand, explored pre-service science teachers' perceptions of CT in science instruction and lesson planning in UAE schools. The study discovered that pre-service science teachers lacked the ability to apply CT skills due to a lack of training.

Furthermore, Almalakawi (2019) examined the level of CT among art educators and discovered that female teachers had a higher level of CT than their male counterparts. Another study, conducted by Alwadai (2014), concluded that CT is a concept that few Islamic education teachers in Saudi Arabia are familiar with, let alone know how to teach. As they were unaware of CT, these teachers were viewed as a barrier to promoting CT in students.

Other research done by Al-Kindi and AL-Mekhlafi (2017) explored post-basic English teachers' practice of CT skills. The study found that teachers rarely used strategies that helped students develop CT skills and that there were no significant differences between male and female teachers. The study of Shahrebabaki and Notash (2015) studied the attitudes of teachers and learners towards the inclusion of CT skills in the English as a foreign language (EFL) syllabus in Iran. The study revealed that while learners improved and were motivated, teachers were not in favor of incorporating CT components into the syllabus.

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The study of Al-Faqih and Al-Kilani (2018) aimed at identifying the degree to which Islamic education teachers at the secondary stage in Amman, Jordan practiced CT skills in relationship to gender, academic qualifications, and educational experience variables. The results revealed that the teachers' practice of CT skills was at a high degree with no statistically significant differences attributed to gender, academic qualification, or educational experience.

Almulla (2018) studied the perceptions of secondary-school teachers in Saudi KSA Arabi about the strategies they used to help their students develop CTS, as well as how consistent their classroom practices were with their perceptions. It was concluded that the best teaching practices for improving students' CT skills were performance-based tasks, open-ended questions, and the comparing and contrasting of various perspectives. It was also suggested that in addition to teaching strategies, other educational factors, such as the availability of school resources, influenced the development of CT capabilities. Al-degether (2009) explored the knowledge of female college teachers in CT, their opinions about it, and the teaching methods they used to improve students' CT skills. The participants were surveyed, and their responses were analyzed to achieve the objectives of the study. It was concluded that while the participants did not have a full grasp of CT elements, they had positive opinions about it and occasionally utilized CT methods in teaching. Al-Sanafi (2008) attempted to assess Kuwaiti social studies teachers' knowledge in CTS and the extent to which they practiced them from their point of view. The results of the study revealed a low level of knowledge of CT skills with statistically significant differences attributed to gender, experience, and specialization.

The findings of the research cited above suggest that teacher's knowledge and perceptions of CT play a vital role in enhancing students' academic achievement and quality of thinking. Therefore, there is an ongoing need for investigating how teachers' knowledge of CT reflects on their attitudes towards improving students' CT skills through formal instruction.

Research Questions

This study attempted to answer the following questions:
1-   What is the level of Saudi Teachers' knowledge of CTS?
2-   What are the teachers' attitudes towards improving students' CTS?
3-   Are there statistically significant differences at the level of significance (0.05) between the means of the responses to (the level of knowledge in CTS) due to the variables "specialization," "experience," and "gender"?

Research Aim

1-   Identifying the Saudi teachers' knowledge of CTS.
2-   Explore the attitudes of Saudi teachers' about improving students' CTS.
3-   Finding out statistically significant differences at the level of significance (0.05) between the means of the responses to (the level of knowledge in CTS) due to the variables "specialization," "experience," and "gender".

Research Methodology

General Background

Based on the nature of the study and the information to be obtained, the researcher relied on the descriptive method, which means collecting data about a particular phenomenon and analyzing that data to reach the final result of the study, where the descriptive method studies the variables as they are found in nature. Therefore, this study used a quantitative approach

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to determine Saudi teachers' knowledge of CTS and their attitudes toward improving their students' CTS in first academic term of 2021. This approach, according to Stedman and Adams (2012), was appropriate for such a study.

Sample

The sample of the study consisted of (408) Teachers (male and female) who were teaching at secondary school in Hail City, Saudi Arabia during the first semester of the academic year 2021. Cohen (1988) approach used to select participants for *t*-test ($p = .85$, $df = .6$, $a = .05$, $n = 41$) and *f*-test criteria (u= 1, $p=.99$, $f=.1$, $n= 789$), researcher used the mean of those two samples 41 and 789, it was equaled 415. Seven students withdrew from the study due to ethical concerns.

Notes: U= producers; f=effect size; n= sample size; p= power analyses, a= level of significance; and df= degree of freedom.

The participants were chosen at random because "it is very difficult, if not impossible, to list all the members of a target population and select the sample from among them (Ary, et al. 2010, 154). The participants were distributed according to the variables of the study, which are "specialization," "experience," and "gender" as shown in Table (1(. The study sample met with the researcher, who explained the research's objectives and motivations, as well as the fact that all of their responses are secret and will only be used for research purposes, and that they can withdraw at any time.

Table 1
Distribution of Study Participants According to The Study Variables

No	Variables		f	%	Total
1	Specialization	Humanities	308	75.49	408
		Sciences	100	24.50	
2	Experience	Less than 5 years	36	8.82	408
		5 to 10 years	104	25.49	
		More than 10 years	268	65.68	
3	Gender	Male	268	65.68	408
		female	140	34.31	
Total		408			

Notes: f= Frequency; and %= Percentage.

Instrument and Procedures

Data were collected using a questionnaire. The questionnaire was designed based on previous studies related to CTS (Al-Qasim, 2014; Almulla, 2018; Almalakawi, 2019; Gashan, 2015). The instrument included three parts. First part handled the demographic information of the participants, namely specialization, years of experience, and gender. Second part measured the participants' knowledge of CT; it consisted of ten skills adopted from Elder et al, (2007); Al-degether (2009); and Stedman and Adams (2012). Participants were asked to identify the concepts they believed were related to CT by selecting "belong" if they believed the skills concepts were among CTS, "not belong" if they believed the concepts were not of CT, or "I do

not know" if they had no answer. Third part sought to determine the participants' attitudes about improving students' CTS. This part was comprised of fifteen 5-point-Likert-scale statements ranging from one (Strongly Agree) to five (Strongly Disagree).

Data Analysis

Data analysis: IBM SPSS software v.20 had been used to test the internal consistency by Cronbach's alpha, frequencies, percent, mean, and standard deviation for item analysis. Independent sample t-test was used to test the differences between Humanities and science colleges in subscales. ANOVA test was used to test the differences between years of experiences levels in two subscales.

Content validity of the questionnaire:
To test its content validity, the questionnaire, in its initial form, was presented to a group of nine professors specialized in the field of psychology from the Faculty of Education at the UOH in order to express their opinions on the following:
1.   The items' suitability for the objective (the objectives of the second and third parts of the questionnaire).
2.   The appropriate wording of the items.
For the second part of the questionnaire (measuring the teachers' knowledge of CT skills), the specialists approved of items' suitability for the objective with percentages that ranged from (88.8% - 100%) while the approval for items wording ranged between (66.6% - 100%). A minimum approval of (75%) was adopted. Accordingly, the wording of statement No. (8), which had an approval percentage of (66.6%), was modified while the rest of the items were kept unmodified.
As for the third part of the questionnaire (determining the teachers' attitudes about improving students' CT skills), items' suitability for the objective had approval percentages above the adopted minimum approval of (75%) while the approval for items wording ranged between (66.6% - 100%). As a result, the wording of items (8) and (10), which had an approval percentage of (66.6%), was modified while the remaining items were kept unmodified.

Reliability: To verify the reliability of the questionnaire, it was applied to 50 teachers, and the Cronbach's Alpha was used to calculate the internal consistency for its items as in Table 2 below.

Table 2
Internal Consistency Coefficients (Cronbach's Alpha) for the Items of the Questionnaire

Parts of the Questionnaire	Number of items	Cronbach's alpha value
The Second Part: Saudi Teachers' Knowledge of CTS	10	.753
The Third Part: Saudi Teachers' Attitudes towards Improving Students' CTS	10	.784

Table (2) states that the value of Cronbach's alpha coefficient for the internal consistency of the second part of the questionnaire was (0.753) while the third part had a value of (0.784). These, being high values, indicate confidence in the results of the questionnaire. The search tool was corrected using the Likert quintet scale by selecting one of five options (Strongly Agree, Agree, Somewhat Agree, Disagree, or Strongly Disagree) in each of the questionnaire items, and it was corrected on a scale of one to five (1, 2,3,4, and 5).

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Research Results

To answer the first Question, the responses of the participants to the second part of the questionnaire were analyzed. The participants were surveyed about their knowledge of CTS. The results of their responses are presented in Table 3.

Table 3
The Level of Saudi Teachers' Knowledge in CTS

No	Item (CT concept/ skill)	Belong		Don't belong		I do not know		*M*	*SD*	Evaluation Score
		f	*%*	*f*	*%*	*f*	*%*			
1	Identifying similarities and differences in opinions and ideas	324	79.4	84	20.6	——	——	2.79	0.40	High
2	The flow of meanings from various experiences or data	284	69.6	124	30.4	——	——	2.69	0.46	High
3	Evaluating the importance of a piece of information, an idea, or a point of view	324	79.4	84	20.6	——	——	2.79	0.40	High
4	Judging the credibility of information or the proposed idea/s	284	69.6	124	30.4	——	——	2.69	0.46	High
5	Reaching the similarities and differences in opinions and ideas	324	79.4	84	20.6	——	——	2.79	0.40	High
6	Guessing what will happen in the future from existing data	232	56.9	176	43.1	——	——	2.56	0.49	High
7	Excluding viewpoints that appear to be wrong or incompatible with society	228	55.9	180	44.1	——	——	2.55	0.49	High
8	The gradation in the method of solving questions or problems to reach a single answer or solution	308	75.4	100	24.6	——	——	2.75	0.43	High
9	Setting subjective criteria for thinking, evaluating, and dealing with controversial topics	308	75.4	100	24.6	——	——	2.75	0.43	High
10	Reaching new ideas and visions	336	82.4	72	17.6	——	——	2.82	0.38	High

Notes: M = mean, *SD*= standard deviation; *f* = Frequency; and % = Percentage.

Table (3) presents the results of Saudi teachers' knowledge of Saudi teachers' knowledge of CTS. The overall mean for this part of the study was (2.72) which indicates a high level of knowledge of CTS. Item 10 (Reaching new ideas and visions) ranked first with a mean of (2.82) while item 7 (Excluding views that appear to be wrong or inconsistent with society) was last with a mean of (2.55) which is still at a high degree.

To answer the Second Question, the participants were asked to give their opinions on improving students' CTS. The results in Table 4 were analyzed.

Table 4
Teachers' Attitudes towards Improving Students' CT Skills in Hail City, KSA

No	Items	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		M	SD	Evaluation Score
		f	%	f	%	f	%	f	%	f	%			
1	I believe CT encourages students to become independent.	196	48.0	132	32.4	36	8.8	44	10.8	——	——	4.17	0.98	High
2	I believe CT helps students become active learners.	164	40.2	152	37.3	60	14.7	32	7.8	——	——	4.09	.92	High
3	I see CT as a way of thinking that helps students enjoy the learning process.	160	39.2	164	40.2	40	9.8	44	10.8	——	——	4.07	.95	High
4	I believe CT helps to think carefully before making any judgment or decisions.	184	45.1	164	40.2	40	9.8	20	4.9	——	——	4.25	.82	High
5	I think that acquiring CT skills helps students in the decision-making process.	192	47.1	148	36.3	44	10.8	24	5.9	——	——	4.24	.86	High
6	I believe I have the skills to enhance students' CT while teaching.	116	28.4	152	37.3	92	22.5	48	11.8	——	——	3.82	.97	High
7	I prefer CT to be a separate course and not to be included in all courses.	116	28.4	124	30.4	84	20.6	84	20.6	——	——	3.66	1.09	High
8	I think CT gives opportunities to explore ideas, keep options open, and imagine what could be.	148	36.3	176	43.1	52	12.7	32	7.8	——	——	4.07	.89	High
9	I think that CT makes students evaluate information.	132	32.4	180	44.1	80	19.6	16	3.9	——	——	4.04	.82	High
10	I feel that CT makes students look for evidence.	132	32.4	192	47.1	52	12.7	32	7.8	——	——	4.03	.87	High

Notes: M = mean, *SD* = Standard Deviation; and *f* = Frequency; % = Percentage.

When analyzed, the results in Table (4) reflect the teachers' attitudes about improving students' CT skills Hail City. The overall mean for the responses to this part of the study was (3.82) which indicates a high degree. This shows that the teachers' attitudes about improving students' CT skills were positive. Item number 4 (I believe CT helps to think carefully before making any judgment or decisions) came first with a mean of (4.25) while item number 7 (I prefer CT to be a separate course and not to be included in all courses) ranked last with a mean of (3.66).

To answer the Third Question, the *t-test* was used to calculate the differences between the means of responses and the standard deviations. It was also used to calculate the *t-values* and their statistical significance for the variables "specialization" and "gender." On the other hand, the analysis of variance, *F-test*, was used to calculate the differences between the means of responses, the standard deviations, and the *F-values* with their statistical significance for the variable "years of experience". This analysis is detailed as the following:

The First Variable, "Specialization." Table (5) below shows the differences between the means of the participants' responses, the standard deviations, the t-values, and their statistical significance in the second and third parts of the questionnaire which are attributed to the "specialization" variable.

Table 5

The t-test; and Statistical Significance for the Differences in the Questionnaire According to Specialization (Humanities - Sciences)

Part	The Group	f	M	SD	t	p
Second Part: Saudi teachers' knowledge of CT Skills	Humanities	308	27.06	2.30	-3.142-	.01
	Sciences	100	27.76	1.78		
Third Part: Teachers' Attitudes about Improving Students' CT Skills in Hail City, Saudi Arabia	Humanities	308	56.40	7.67	-6.014-	.01
	Sciences	100	60.64	5.52		

Notes: M = mean, *SD* = Standard Deviation; and *f* = Frequency.

It is clear from Table (5) that the t-value for the differences between the humanities and sciences specialization in the second and third parts of the questionnaire were statistically significant at the level (0.01). The t-value for the humanities specialization was (3.142) while it was (6.014) for the sciences which shows that the differences were in favor of the sciences specialization. This means that teachers specialized in sciences had a higher level of CT knowledge and had more positive attitudes towards improving students' CT skills?

The Second Variable, "Gender." The t-value for the differences between males and females in the two parts of the questionnaire was (0.217), (0.863) respectively which is not statistically significant. This result means that there is no correlation between the gender of teachers and CT skills.

The Third Variable, "Years of Experience." The F-value for the differences due to the variable "years of experience" in the two parts of the questionnaire is not statistically significant. This reveals that the CT skills of secondary school teachers were not affected by the difference in their experience.

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Discussion

To summarize, the findings of the study's first two questions demonstrated a high level of knowledge of CT abilities among secondary school teachers, who considered that these skills were important in teaching and useful to students' CT development. The findings revealed that secondary school teachers have a high level of self-esteem in terms of their CT abilities, which may be due to their full understanding of their roles and responsibilities in developing their students' CT abilities and skills in accordance with current learning requirements in the twenty-first century. The findings of the second question suggested that teachers in Hail have a positive attitude toward enhancing pupils' CT skills. This could be due to the fact that secondary school curricula are well aware of the nature of secondary school curricula, which provide a vast field for developing CT abilities to a great degree, as there is rarely a significant lesson from them. Its nature was to provide examples to clarify an idea, or to connect past and new experiences, or to identify the main points in it, or to give a brief presentation of the group of ideas contained in it, or to give a summary to determine the extent of its understanding and comprehension, and to draw conclusions based on those practices, and this is what they focus on. It is more effective than other methods for teaching them.

The teachers themselves appreciate the nature of the secondary school curricula, which constitute an ample field for practicing CT skills to a high degree. There is hardly a lesson without it, whatever its nature, from providing examples to clarify an idea, linking past and new experiences, identifying the main points in it, or presenting a summary. For a set of ideas contained in it, or to provide a summary to determine the extent of its understanding and comprehension, and to draw conclusions based on those practices, and this is what they focus on while teaching more compared to other skills.

The above results of the study are consistent with those of Asgharheidari and Tahriri (2011); Anastasiadou and Dimitriadou (2011); and Al-Kindi & AL-Mekhlafi (2017) which concluded that most teachers had a good grasp of the concept of CT and believed that it was an important part of their job to enhance learners' critical thought. However, this result differs from the findings of Al-Sanafi (2008); Al-Qasim (2014); Hachlaf (2018); and Alwadai (2014) in which teachers were found to have a low level of CTS and therefore were considered a barrier against improving students' CT. The results of this study are most likely attributed to the change in the school curricula in Saudi Arabia. The new curricula focus on educational development and pay great attention to thinking in general and CT in particular. Therefore, teachers need to keep up with educational developments and innovations in the field of curricula and teaching methods so that they could employ CT effectively in teaching. Teachers' high level of knowledge in CT may also be a result of the continuous training courses offered by the Ministry of Education which provide teachers with various training opportunities in CT teaching.

As for teachers' specialization, the results indicated that it was a significant factor as there were statistically significant differences between the humanities and sciences specialization. Teachers specialized in sciences ranked higher in the level of CT knowledge and had more positive attitudes towards improving students' CT skills. This difference can be explained by the fact that while CT skills can be affected by individual capabilities and dispositions, a person's specialization plays a significant role. The nature of scientific specializations influences students' mindset. Studying sciences requires a high level of comprehension, causal analysis, and innovation. It also requires the application of mathematical rules, conducting scientific experiments, and providing logical explanations. The nature of scientific specializations, therefore, dictates that a student must depend on logic and deductive reasoning to obtain and verify information. In doing so, a student will ultimately become an independent thinker, and CT is the cornerstone of independent thought. In contrast, the field of humanities relies heavily on memorization and receptiveness where students are mainly taught through lecturing. Such an environment can be limiting when it comes to fostering CT abilities.

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Teachers' gender, however, was found to be insignificant, as there was no effect of teachers' gender on CTS. This finding, even so, contradicts Almalakawi (2019), who discovered that female teachers had higher levels of CT than male teachers. The study's findings can be understood in the context of the environment in which both male and female teachers share. All teachers, regardless of gender, are influenced by the same professional and educational atmosphere where there is no differentiation between males and females. In addition, societal equality between males and females affects mental abilities and skills including the perception of CT skills. In societies where there are no gender-based differences, individuals share responsibilities and aspire to achieve the same level of psychological and mental growth. Furthermore, the equality in learning and access to information is an educational approach supported by educational institutions in Saudi Arabia, and this gender equality in education plays an important role in neutralizing the effect of gender. The lack of significance for gender in teachers' CT knowledge is in keeping with their positive attitudes towards improving students' CT skills.

Like gender, teachers' variation in the years of experience was inconsequential. This result is in keeping with Al-degether (2009) who showed that there was no correlation between the years of experience and teachers' attitudes about improving students' CT skills. The result, however, differs from those of Almalakawi (2019), Al-Sanafi (2008), Al-Qasim (2014), Hachlaf (2018), and Alwadai (2014) where there were significant differences due to teachers' length of experience. The insignificance of experience as a variable can be attributed to the fact that the majority of the teachers who participated in this study had long experience (65.68% more than ten years of experience and 25.49% more than five years) which means that they shared a lot of the same capabilities and skills. It can also be seen as a result of teachers' educational and professional training which shapes teachers' abilities and practices without relying on experience. The Ministry of Education is keen on teachers' development through training courses in CT skills where they receive the same level of attention to improve their teaching skills and expertise.

The findings revealed that secondary school teachers have a high level of self-esteem in terms of their CT abilities, which may be due to their full understanding of their roles and responsibilities in developing their students' CT abilities and skills in accordance with current learning requirements in the twenty-first century. Given the fact that CT is a relatively new addition to the Saudi education system, there is a lack of knowledge of ways to employ and enhance CT skills among students in the classroom and that there is a need to explore and shed more light on how to develop thinking skills through a stand-alone course and in classes dedicated to him, which is one of the directions of developing thinking skills, contrasted with another trend of developing thinking skills by including them in the school curriculum and presenting them in all courses and from different teachers, so that those skills are jointly reinforced through their teaching practices, learning activities and various assessment methods, rather than being limited to limited sessions and isolated from the rest of the day.

Given that CT is a relatively new addition to the Saudi educational system, there is a need to explore and shed more light on how to build thinking abilities through a stand-alone course. In contrast to another approach of growing thinking skills by including them in the school curriculum and presenting them in all courses and from different professors, in classes dedicated to him, which is one of the paths of developing thinking skills. Rather than being limited to isolated sessions and segregated from the rest of the day, those abilities are jointly reinforced through their instructional techniques, learning activities, and multiple assessment methods. As a result, there is still a need to shed more light on this critical topic, as well as its implications for the need to prepare teachers before and throughout service to deal with thinking skills and teaching tactics.

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Conclusions and Implications

CT is a necessary skill that goes beyond education. It is an important part of human cognitive abilities and a valuable asset in life. In general, the findings of this study revealed that ST possessed a high level of CTS. This outcome is consistent with their positive attitude toward improving students' CTS. A teacher would not be able to train their students in profound thinking unless he/she possesses that kind of thinking. A teacher's role is not constricted to only familiarizing student with thinking skills, it transcends to applying these skills, including analysis, deduction, as well as managing and evaluating information.

One of the educational objectives of KSA Vision is to promote learning and thinking in general, and improving CT is an important part of this objective. KSA Vision also highlights enhancing teachers' competencies and enabling them to use effective teaching strategies which help foster students' thinking skills. Accordingly, educational policy makers need to prioritize teachers' professional development and provide them with training opportunities that focus on developing students' CTS. Future research should focus on Saudi teachers' CTS and their attitudes toward improving Saudi students' CTS in primary and elementary schools. Future studies must study CT and its relevance to e-learning and adaptable settings is also discussed. Future research could look into the many interactions between different learning methods and strategies utilized in the development of camel thinking.

References

Al-degether, R. (2009). Teacher educators' opinions and knowledge about critical thinking and the methods they use to encourage critical thinking skills in five female teacher colleges in Saudi Arabia. [Unpublished PhD thesis]. University of Kansas.

Al-Faqih, Z., & Al-Kilani, A. (2018). The degree of practice of Islamic education teachers in the secondary stage of critical thinking skills, and its relationship to some variables. *Journal of Islamic and Arabic Studies for Girls in Alexandria*, *3*(3), 315-358.

Almalakawi, M. (2019). Level of critical thinking among teachers of art education: demographic study on the teachers of art education in Amman. *Journal of Arts, Literature, Humanities and Social Sciences*, *43*, 345-356.

Almulla, M. (2018). Investigating teachers' perceptions of their own practices to improve students' critical thinking in secondary schools in Saudi Arabia. *International Journal of Cognitive Research in Science, Engineering and Education*, *6*(3), 15–27. https://doi.org/10.5937/ijcrsee1803015A

Al-Qasim, J. (2014). The level of critical thinking among teachers enrolled in the Diploma in Psychological Guidance and Counseling and its relationship to some demographic variables at Taibah University. *Educational and Psychological Studies, 82*, 303-346.

Al-Sanafi, S. (2008). Knowledge of social teachers of critical thinking skills and the extent to which they practice them from their point of view in the Hawalli Educational District - Kuwait. *Journal of Educational Sciences Studies*, (35), 684-696.

Anastasiadou, S., & Dimitriadou, A. (2011). What does critical thinking mean? A statistical data analysis of pre-service teachers' defining statements. *International Journal of Humanities and Social Science*, *1*(7), 73-83.

Ary, D., Jacobs, L., Sorensen, I., & Walker, D. (2010). *Introduction to research in education* (10th ed.). Cengage Learning.

Ashraah, M., AL-nabrawi, I., Shdeifat, S., & Al Ali, F. (2012). Critical thinking skills for Islamic education teachers: A study of teachers' perceptions. *International Journal of Academic Research*, *4*, 70-74.

Choy, S., & Cheah, P. (2009). Teacher perceptions of critical thinking among students and its influence on higher education. *International Journal of Teaching and Learning in Higher Education*, *20*(2), 198-206. http://www.isetl.org/ijtlhe

Cohen, J. (1988). *Statistical Power analysis for the behavioral* (pp. 17-74). Lawrence Erlbaum Associates.

Costa, A. L. (Ed.). (2001) Developing minds: *A resource book for teaching thinking* (3rd ed.). Association for Supervision and Curriculum Development.

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Coughlin, E. (2010). High schools at a crossroads. *Educational Leadership*, *67*(7), 48-53.

Gashan, A. (2015). Exploring Saudi pre-service teachers' knowledge of critical thinking skills and their teaching perceptions. *International Journal of Education and Literacy Studie*s, *3*(1), 26-33. https://www.journals.aiac.org.au/index.php/IJELS/article/view/1469

Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking* (5th ed). Psychology Press.

Hove, G. (2011). Developing critical thinking skills in the high school English classroom. [MS thesis, University of Wisconsin-Stout]. University of Wisconsin-Stout Research Repository. http://www2.uwstout.edu/content/lib/thesis/2011/2011hoveg.pdf

Kowalczyk, N., Hackworth, R., & Case-smith, J. (2012). Perception of the use of critical thinking methods. *Radiologic Technology*, *83*(3), 226-237.

Lipman, M. (2003). *Thinking in education* (2nd ed.). Cambridge University Press.

NACE (2017). *Educational leadership job outlook 2018*. NACE. https://www.lander.edu/sites/lander/files/Documents/student_life/2018-nace-job-outlook.pdf

Sadiq, M., & Najjar, Y. (2017). The level of critical thinking and its relation to the research self-efficacy among graduate students in the faculties of education in Gaza governorates. *Journal of Al-Quds Open University for Educational and Psychological Studies*, *6*(19), 131-145.

Sarigoz, O. (2012). Assessment of the high school students' critical thinking skills. *Procedia - Social And Behavioral Sciences*, *46*, 5315-5319. https://doi.org/10.1016/j.sbspro.2012.06.430

Shahrebabaki, M., & Notash, M. (2015). Teachers' and learners' attitudes towards critical thinking skills: A case study in the Iranian EFL context. *Journal of Applied Linguistics and Language Research*, *2*(2), 93-106. Available at SRN: https://ssrn.com/abstract=2872257

Stedman, N. R., & Adams, B. L. (2012). Identifying faculty's knowledge of critical thinking concepts and perceptions of critical thinking instruction in higher education. *NACTA Journal*, *56*(2), 9-14.

Suzan, H. (2018). Mastery level of critical thinking skills for female middle school students in Saudi Arabia. *Journal of Educational and Psychological Sciences*, *4*(19), 229-258.

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