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Examining the Influence of TASC Model Implementation in Instruction of Mathematics to Develop Cognitive Skills of Learners

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This study investigated the effectiveness of using the TASC model to enhance the cognitive skills of math Elementary school students, Saudi Arabia. To serve the assigned objective of project, study adopted a quasi-experimental approach. The sample was chosen deliberately from teachers who teach mathematics cooperatively. Thirty students who studied using TASC model were selected as the first group (the experimental), which was compared with another 30 students who studied in a traditional way (the second group). Findings that have been found in study tended to reflect the effectiveness to use TASC-model within course of mathematics in order to boost mental skills of imparting proper instruction. Using this model for math teaching at other stages of education is a recommendation of the study. It also asserts the importance of training teachers and the significance of developing mathematical courses for ease of use by learners.

Keywords: TASC model, mathematics, critical thinking, cognitive skills, instruction

INTRODUCTION

The instruction paradigm of 21st-century has tended to examine different reasoning abilities like innovative, basic, intelligent, and relational abilities (Cortes et al., 2019). Everybody should have these skills. At some point previously, Saudi Arabia was still in the old phase that practiced the traditional education pattern. Be that as it may, for presently, it has more evolved to new educational pattern, particularly in cutting edge nations, like Japan, China, Singapore, and others countries. Saudi Arabia additionally should partake in staying up to date with the times, both regarding instruction and with the innovation in academics. In accordance with these turns of events, the education in Saudi Arabia should be ready to work on old propensities towards present day headings, for example, innovation, economy, or with the instruction angles (Alzahrani, 2022). In the part of training, the educators in Saudi Arabia should be ready to contend with unfamiliar nations. Learners are supposed to have ability in present century training for qualifying the worldwide rivalry to make the most towards valuable open doors (Suryandari et al., 2018). In this way, instructors should have the option to make imaginative mastering and work on learners' abilities to contend towards following Elementary-school stage (Ersoy and Baser, 2014). The rest to inventive reasoning expertise is dissimilar and sagacious reasoning (Subali and Mariyam, 2016). Imaginative

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connotes the ability of making novel thoughts or creating existing thoughts into things that have the worth (Madore et al., 2015). An innovative individual cannot be isolated from the job of different reasoning. Disparate reasoning turns into a capacity that overwhelms the inventive mind (Yi et al., 2015). Learners with the capacity for contemplating disparate will towards instructional perspectives and ways of behaving ridiculous, for example, the recurrence of asking more. Plus, that is more adaptable and has an alternate way when settled with various issues. At the point when in class, learners like trial exercises or the cognitive based activities.

Background of Study

Relevantly, the mental states of learners in one of the Elementary schools of Saudi Arabia to learn mathematics would in general come up short on capacity to tackle issues. This is confirmed that most of the learners of class VIII whine about different issues when they are behind schedule for school. A portion of these objections are the trouble of getting perfect cognitive skills to solve various exercises of mathematics, therefore, they need to go adequately far or need to remain in accordance with many other learners to mark with international level. This makes learning and instruction of exercises presently not favourable. As reflected, when learners take social examinations, then they appear to be apathetic in clarifying some pressing mathematics exercises in order to respond to the inquiries from the instructor. Learners will more often than not look detached in partaking in learning of exercises in mathematics. Therefore, it is important to really try to make conditions purposefully so the learning targets can be accomplished. For this situation, learners as well the instructors are supposed to adopt different options to can tackle the course of mathematics more relevantly and useful for future. Over the course of the last years, researchers tried to process survey and attempted to carry out and foster a model that would address the necessities of talented learners in everyday class based activities. As a result, the previous contributors Alhusaini and Maker, Make and Pease, 2008; Make and Zimmerman, 2008; Wallace and Maker, 2007 stated functional and viable model to learners by any stretch of the creative levels of instruction, particularly when joined with their personal issues to learn activity based subject, like, Mathematics. PBL- (Problem Based learning) as specific technique combined with it. It also tends to find creative strengths as well the capacities while noticing differed Ethnic responses. According to Make and Zimmerman (2008), in practice of (DISCOVER) and (REAPS) models, the PBL gave considerable affluence and associations with certifiable issues, while model (DISCOVER) has given direction to educators in planning issues for learners to tackle and TASC has contributed an interaction for settling them. In the wake of having led complete surveys depended on model (DISCOVER) with other (PBL) models (Alhusaini and Maker, 2011); to present project tends for further examination to deep evaluation of TASC model as individual to put into real academic action.

Review of Literature

Research on the critical thinking on mathematics was initiated from, Polya's (1945) book 'How To Solve It'. Polya tried to give the framework of critical thinking structure that highlighted the sensitivities important to carry out mathematical functions, and a

depiction to tackle arithmetic based issues. Polya's thoughts regarding critical thinking impacted the field of instruction in mathematics for a really long time. The call of the National Committee of Teachers of Mathematics (NCTM) in 1980 for critical thinking to turn into "the focal point of school math" was generally reverberated in the field of mathematics training (NCTM, 1980, p.1). Afterwards, the individuals from the committee embraced this suggestion with the explanation that "critical thinking ought to underlie all parts of educating the mathematics to give learners' an insight of the force of mathematics in their general surroundings" (NCTM, 1989). One reason why the grouping of the individuals had emphasized critical thinking in its reports was that critical thinking "envelops abilities and capabilities that are a significant part of daily existence and moreover, it can assist individuals to adjust new changes in different parts of their lives" (NCTM, 2000, p.4). Notwithstanding, NCTM's accentuation on critical thinking, with various other different researchers have additionally featured the significance of critical thinking in field of mathematics. For instance, as indicated by Cockcroft (1982), critical ability to think lies "at the core of mathematics" (p.73) in light of the fact that it is the means by which mathematics can be applied to various new circumstances.

According to Veenman and Spaans (2005), the skills they identified assisted with developing students' cognition required for controlling and adapting a person's learning actions. Following a thorough review of the key literature in this domain, it can be said that a variety of research studies exist (for instance Corliss, 2005; Fowler, 2004; Gama, 2004; Kumar, 1998; Brooks and Schraw, 2011). Mentioned studies were instrumental in setting the key cognitive skills procedurally, namely organizing, to monitor and hand-in evaluation. Sáiz-Manzanares and Montero-García (2015) stated about significance of repeated use to follow skills in the whole process of problem-solving. Furthermore, according to evaluation, Lucangeli and Cornoldi (1997) and Lucangeli, Cornoldi, and Tellarini (1998), had a huge amount of data collected regarding the four skills that assist to enhance the key cognition required for controlling and regulating a person's learning practices: to orient, to organize, to monitor and hand into evaluation process. Orientation skills or potential prediction skills are defined as the influential factor that impacts the slow completion of new or more complicated tasks and the quick achievement of simple or familiar tasks. These skills assist the person to rethink and re-evaluate the learning objectives that drive him/her along with the associated features within specific time. Learners utilize prediction skills with the aim to evaluate and gauge that how difficult a task is: such evaluation is instrumental for a particular task. Garrett, Mazzocco and Baker (2006) highlighted the possibility for learners to make up their minds regarding how difficult or easy a task is along with the time, skill and efforts required. Such ability is present among students enjoying strong predictive skills and therefore they can perform such a task effectively. Learners can also comprehend the association between problems through using their prediction skills and meanwhile they enhance their intuitive knowledge in terms of the circumstances needed to accomplish a task (Desoete, 2009).

The plan is an intentional process adopted with the aim to accomplish a set of sub-goals, for guaranteeing the smooth accomplishment of any job (Winne, 1997). Desoete,

Roeyers and Buysse (2001) suggested that within the setting of classroom, to plan entails solving of problem by approaching any query with arrangement to be adopted for solving it, before executing such a solution. Students can think and give their own feedback from their experience to define why, how and when things are accomplished to attain their goal, via a series of events that assist them to successfully solve a problem. All this is mediated by their planning skills.

With respect to evaluation skills, these are related to reflections executed after the accomplishment of task (Brown, 1987). Therefore, techniques adopted; level of attainment and/or their final findings are reflected by the learners. According to Garofalo and Lester (1985) and Vermeer (2000), it is who deals with the problem, evaluate how suitable the plan is, how the procedure is followed and to what extent the solution fits the problematic effect. Assessment skills are among major skills required by the students since they play a key role to predict the solution and in spotting any errors that have been made. In the case of weak evaluation skills, weak monitoring skills come as an evitable result and accordingly, students will encounter some issues in terms of deciding on the suitability of both their plans and proposed solutions (Garrett, Mazzocco & Baker, 2006).

A fifth skill is suggested by Schraw and Gutierrez (2015); five skills are instrumental in such a field: to plan, to organize, to monitor, to debug and to properly evaluate. Researchers pointed out planning strategies involved as setting goals and preparing to engage in an effective learning experience. At the same time, organizing entails putting tactics to manage information into action. To monitor is referred to connect evaluation with process of learning; on other hand, to debug involves tactics to aim at removing errors committed while performing a task, along with other related strategy-performance errors or impractical hypotheses. Therefore, to evaluate include the reflective course to analyse both the presentation with effective utilization of strategies.

A controversy has been fermenting over the number of cognitive skills, which has resulted in a sense of disagreement whose sources need to be identified. Schraw (2009) suggests that cognitive skills can be evident in many different zones with learners of all ages to construct information in several domains although building primary knowledge, such as comprehending restraints related to memory, with skills of regulation. Therefore, Schraw's (2009) viewed about the cognitive skills for all learners.

On the other hand, Veenman (2013) suggested cognitive skills to produce the regulations that focus on work constraints, contrary to Schraw's point of view. Furthermore, Veenman (2013) has a solid belief in a specific suppleness and adaptableness for skills, to depend on outward factors. It was further maintained that one gauges competence to link with skills of cognition with interaction to environment for learning (2013). Veenman (2013), for following situation stated learners for quite constant skills in a set that is utilized at times to encounter situations to learn. Skills are activated by adjusting them, with other contextual factors, to specific task demands. The second zone to disagree is of meaning of mental skills. According to Desoete (2007) controversy over the association of these skills with age groups is based on the age at which they are acquired. Thirdly, the controversy to the number of skills of cognition

may results to premise as scholars may categorize the skills on one under another. Schraw (2009) for instance, sets the skill of prediction as a sub-skill beneath the ability to plan. As claimed that to 'plan entails choosing suitable strategies along to allocate materials to effect the act.

Thinking Actively in Social Context (TASC) Model

(TASC) model has been initially evolved by Belle Wallace. Leaning agenda is unique in relation to the model overall. Wallace et al. (2012) stated that the TASC model is a critical thinking system to give learners' design freely or in little gatherings. Moreover, the learners can take the subject with exploration of the entire project in-profundity and as wide as they pick and utilize all the data on the suitable site. The TASC program's accentuation on learning lies in the critical thinking process completed by learners; however, no matter what the construction or information abilities they have (Ball and Handerson, 2009).

The TASC model contains some learning sentence structure, in particular (1) figuring out what is definitely known with the instructor's direction; (2) recognizing what should be finished; (3) summing up the strategies that will be utilized by each gathering; (4) deciding the smartest thought to take care of the issue; (5) executing the thoughts that have been settled upon to address the issue; (6) conveying thoughts; (7) assessing the consequences of executed thoughts, both the item created and the critical thinking process; (8) concentrating on all the cycles and conversations that learners have been focusing about together (Wallace et al., 2012)

Adams and Wallace (1991) recorded some of the main objectives to utilize the TASC model as:

"(a) further develop perspectives to[ward] school and inspiration for learning; (b) work on researchers' self-ideas; (c) assist researchers for handling issues at home, at school or somewhere else that restrain their school participation, execution at school, or concentrate outside school; (d) work on academic accomplishment, opening entryways for additional training; (e) prepare learners for navigation and positions of authority in the local area and in circles of industry, business and public help; (f) prepare learners for their future jobs as residents in a general public which is going through and for quick and significant change; (g) help hindered youthful individuals to take on jobs in the public arena for which hardly any, good examples exist in more seasoned ages (at the easiest level this applies even to the job of school learners)." (p. 105)

According to Sari et al. (2018) there have been many research projects on models of learning that focused on creative skills, motivation and critical ways. However, there are still many research projects that do not merely focused on CPS and TASC models. Puccio et al. (2018) stated that the earlier researches have been limited towards the fields of social sciences and mathematics. The examination of material is thematic integrated. One of the research studies have been conducted on the high school learners (Santoso and Yuanita, 2017; Kim and Choi, 2017). The study selected subjects for the fifth standard learners. The study was interesting and relevant to select models of learning. It is because both demonstrated same levels of improvement for elementary

learners. The plan of the wheel is the rationale of TASC model that has been adopted by the present project to implement to practice and learn mathematics in Elementary school stage. The current research is aims to investigate the effectiveness of using the TASC model to enhance the cognitive skills of math Elementary school students in Saudi Arabia.

METHOD

Research Design

For achieving stated objective in this project, the scholar adopted a quasi-experimental approach. A comparison was made between the experimental group that was instructed using TASC and the control group that was instructed in the traditional way. As per Burns et al. (2006), in quantitative technique of research projects, the numerical based information is utilized and demonstrates a statistical analysis. It is utilized to acquire data about the world, offering the chance to depict and look at potential connections among factors. A correlational relationship shows affiliation between factors in a synchronized way that does not suggest causal relationship. Non-trial studies are exceptionally normal in the field of academic training, in light of the fact that numerous human qualities cannot be controlled tentatively due to normal and moral reasons. Concentrates on that join clear and correlational attributes are utilized to look at factors and to portray connections among them (Burns et al., 2006; Polit and Beck, 2004; Trochim, 2001).

Sampling

The research sample was limited to students in the cognitive skills of first year of Alandalus Elementary School; Taif, Saudi Arabia was taken as sample. It consisted of two groups, one of which is the experimental group of (30) students (Age 12), and the other group is the control one with (30) students. Both are male and age 12. The selection of the two groups was purposeful, as the collaborative learning method in mathematics is the one being practiced, and it is a requirement for the current research.

Research instrument

Present project tends to utilize adapted scale of Schraw and Dennison (1994). Instrument comprises of 52 total items and scaled on five point Likert scale. Instrument measures of total five cognitive skills. The skills to measure from students are to plan, to organize, to monitor, to debug and to evaluate. Researcher tried to explain the items for each cognitive skill. The items for “to plan” include construction of defined goals with experience to learn in effective manner. The other cognitive skill is “to organize” it applies different stratagems to manage information, to monitor utilization for interne based assessment and learning process, the third cognitive skill to measure was, “debug”, it focuses to reduce and eliminate actions in errors. In final, it tries to measure “evaluative part”. It is reflective course of analyses in both actions to overall effective utilization of statics by the learners to learn.

Data Collection

Researcher followed proper ethics to collect data from one of the elementary schools in Saudi Arabia. The permission letter was granted after discussion of topic with the head of elementary school. The students were taught with assistance to TASC model for two months (March- April-2022). After that, the researcher tried to find the development of their cognitive skills.

Research Hypotheses

The research was concerned with testing the following three hypotheses:

1. There are statistically significant differences between the means of scores of the experimental group in the pre and post administration of cognitive consciousness scale in favor of the post administration.
2. There are statistically significant differences between the means of scores of the experimental group and the control group in the post administration of cognitive consciousness in favor of the experimental group.
3. There is a statistically significant correlation between the scores of the research sample in the cognitive factor and the skill factor of the cognitive consciousness scale.

Equivalence

Equivalence of the cognitive factor between the experimental and the control groups in the pre application of the cognitive consciousness scale:

Table 1
T Value cognitive factor

Factors	Att.	N	Mean	St. dv.	T-Value	Sig.
Identification dimension	Experimental	30	21.97	4.13	0.14	Non-Sig.
	Control	30	22.1	3.27		
Procedural dimension	Experimental	30	13.67	3.14	0.24	Non-Sig.
	Control	30	13.83	2.07		
Conditional dimension	Experimental	30	14.43	2.9	0.95	Non-Sig.
	Control	30	15.1	2.55		
Total sum of cognitive factor	Experimental	30	50.07	8.58	0.50	Non-Sig.
	Control	30	51.03	6.38		

The table 1 shows T-Value and its statistically significant difference of the cognitive factor and its sub-dimensions between the means of scores of the experimental and the control groups in the pre application of the cognitive consciousness scale. From the previous table, it is clear that the calculated T-Value is less than the tabulated T-Value in each dimension and the total sum. This indicates that there is no statistically significant difference between the means of scores of the experimental and the control groups in the pre application of the cognitive consciousness scale of each dimension in the cognitive factor and the total sum of the factor, which shows the equality of the two groups in the pre application.

Equivalence of the skill factor between the experimental and the control groups in the pre application of the cognitive consciousness scale:

Table 2
Skills factor

Factors	Group	N	Mean	St. dv.	T-Value	Sig.
Planning dimension	Experimental	30	17.17	4.56	0.33	Non-Sig.
	Control	30	17.53	4.11		
Strategy organizing dimension	Experimental	30	21.37	4.54	0.81	Non-Sig.
	Control	30	20.60	2.50		
Monitoring dimension	Experimental	30	18.37	5.13	0.73	Non-Sig.
	Control	30	17.40	5.19		
Debugging dimension	Experimental	30	14.43	3.32	0.13	Non-Sig.
	Control	30	14.53	2.67		
Evaluating dimension	Experimental	30	19.17	7.37	1.95	Non-Sig.
	Control	30	16.27	3.52		
Total sum of skill factor	Experimental	30	90.50	18.07	1.02	Non-Sig.
	Control	30	86.33	13.12		
Overall scale	Experimental	30	140.57	24.41	0.59	Non-Sig.
	Control	30	137.37	17.07		

Table 2 shows the T-Value and its statistically significant difference of the skill factor and its sub-dimensions between the means of scores of the experimental and the control groups in the pre application of the cognitive consciousness scale. From the previous table, it is clear that the calculated T-Value is less than the tabulated T-Value in each dimension and the total sum. This indicates that there is no statistically significant difference between the means of scores of the experimental and the control groups in the pre application of the cognitive consciousness scale regarding each dimension in the skill factor, the total sum of the skill factor and the overall scale, which shows the equality of the two groups in the pre application.

FINDINGS

This section presents the research results, tests and interprets research hypotheses, and provides recommendations and suggestions.

Testing the first hypothesis of the research

The first hypothesis stated, “There are statistically significant differences between the means of scores of the experimental group in the pre and post administration of cognitive consciousness scale in favor of the post administration.”. To test this hypothesis, the researcher calculated the T-value to compare between the means of scores of the experimental group in the pre and post administration of the cognitive consciousness scale. The table below illustrates this:

Table 3
T-Value and its statistically significant

Att.	N	Mean	St. dv.	df	Tabulated T-Value		Calculated T-Value	Sig.	Effect size (η2)
					0.05	0.01			
Pre	30	140.57	24.41	29	2.05	2.76	5.39	0.01	0.50
Post	30	173.97	23.77						

Table 3 shows the T-Value and its statistically significant difference between the means of scores of the experimental group in the pre and post administration of cognitive consciousness scale as a whole. It shows that the calculated T-value is (5.39). The tabulated T-value is (2.05) at the level 0.05 confidence, and is (2.76) at the level of 0.01 confidence with the degree of freedom (29). As well as, the effect size* is greater than (0.14), which equals (0.50).

From the table 3, it is clear that the calculated T-value is greater than tabulated T-value, indicating a statistically significant difference in favor of the post administration. Therefore, the first hypothesis was validated and accepted. The following figure (1) illustrates this: The T-value was calculated to compare the means of scores of the experimental group in the pre and post-test of the cognitive consciousness scale in each dimension as follows:

(1) For the cognitive factor:

Table (4) illustrates the T-Value and its statistically significant difference of the cognitive factor and its sub-dimensions between the means of scores of the experimental group in the pre and post administration of the cognitive consciousness scale.

Table 4
T-value

Factors	Att.	N	Mean	St. dv.	T-Value	Sig.	Effect size (η2)
Identification dimension	Pre	30	21.97	4.13	4.61	0.01	0.42
	Post	30	27.30	3.73			
Procedural dimension	Pre	30	13.67	3.14	5.05	0.01	0.47
	Post	30	17.70	3.15			
Conditional dimension	Pre	30	14.43	2.90	4.20	0.01	0.38
	Post	30	17.77	2.70			
Total sum of cognitive factor	Pre	30	50.07	8.58	5.30	0.01	0.49
	Post	30	62.77	8.13			

Table (4) indicates that the calculated T-value is greater than the tabulated T-value, and the effect size is significant since it is greater than (0.14) in each dimension and the total sum. The results indicate that there is a statistically significant difference between the means of scores of the experimental group in the pre and post administration of the cognitive consciousness scale regarding each dimension in the cognitive factor and its total sum in favor of the post administration. Figure (4) illustrates this.

(2) For the skill factor:

* * The effect size of the Eta squared equation (η2) in the light of Cohen test (0.01 small effect, 0.06 mild effect, 0.14 significant effect), calculated by $\eta^2 = \frac{t^2}{t^2 + df}$ where T = calculated value, df = degree of freedom (Julie Pallant; 2006, p. 233).

Table 5
Illustrates the T-Value and its statistically significant difference of the skill factor and its sub-dimensions between the means of scores of the experimental group in the pre and post administration of the cognitive consciousness scale

Factors	Group	N	Mean	St. dv.	T-Value	Sig.	Effect size (η2)
Planning dimension	Pre	30	17.17	4.56	3.76	0.01	0.33
	Post	30	22.07	5.28			
Strategy organizing dimension	Pre	30	21.37	4.54	5.30	0.01	0.49
	Post	30	27.40	4.06			
Monitoring dimension	Pre	30	18.37	5.13	1.86	Non-Sig.	0.11
	Post	30	20.73	4.64			
Debugging dimension	Pre	30	14.43	3.32	4.44	0.01	0.40
	Post	30	18.23	3.04			
Evaluating dimension	Pre	30	19.17	7.37	2.49	0.05	0.18
	Post	30	22.77	4.55			
Total sum of skill factor	Pre	30	90.50	18.07	4.77	0.01	0.44
	Post	30	111.20	16.86			

Results from the previous table state that the calculated T-value is greater than the tabulated T-value except for the monitoring dimension. The effect size is significant since it is greater than (0.14) in each dimension and the total sum except for the monitoring dimension as its effect size is average. The results indicate that there is a statistically significant difference between the means of scores of the experimental group in the pre and post administration of the cognitive consciousness scale regarding each dimension in the cognitive factor and its total sum in favor of the post administration except for the monitoring dimension as it is not statistically significant. The above table (5) illustrates this.

Testing the second hypothesis

The second hypothesis stated, "There are statistically significant differences between the means of scores of the experimental group and the control group in the post administration of cognitive consciousness in favour of the experimental group". To test this hypothesis, the researcher calculated the T-value to compare between the means of scores of the experimental group and the control group in the post administration of cognitive consciousness scale, which is illustrated in the following table:

Table 6
Shows the T-Value and its statistically significant difference of the skill factor and its sub-dimensions between the means of scores of the experimental group in the post administration of the cognitive consciousness scale as a whole

Att.	N	Mean	St. dv.	df	Tabulated T-Value		Calculated T-Value	Sig.	Effect size (η2)
					0.05	0.01			
Experimental	30	173.97	23.77	58	2.00	2.66	6.27	0.01	0.40
Control	30	142.33	14.07						

Table (6) shows that the calculated T-value is (6.27). The tabulated T-value is (2.00) at the level of 0.05 confidence and is (2.66) at the level of 0.01 confidence. The degree of freedom is (58). The effect size is significant since it is greater than (0.14). The calculated T-value is greater than the tabulated T-value, indicating a statistically

significant difference in favor of the experimental group. Thus, the second hypothesis was validated. The above table illustrates this.

The T-value was calculated to compare the means of scores of the experimental group and the control group in the post-test of the cognitive consciousness scale in each dimension as follows:

(1) For the cognitive factor:

Table 7
T-Value and its statistically significant

Factors	Att.	N	Mean	St. dv.	T-Value	Sig.	Effect size (η2)
Identification dimension	Experimental	30	27.30	3.73	6.52	0.01	0.42
	Control	30	21.93	2.53			
Procedural dimension	Experimental	30	17.70	3.15	5.88	0.01	0.37
	Control	30	13.23	2.71			
Conditional dimension	Experimental	30	17.77	2.70	4.70	0.01	0.28
	Control	30	14.90	1.97			
Total sum of cognitive factor	Experimental	30	62.77	8.13	7.01	0.01	0.46
	Control	30	50.07	5.70			

Table (7) shows the T-Value and its statistically significant difference of the cognitive factor and its sub-dimensions between the means of scores of the experimental group and the control group in the post administration of the cognitive consciousness scale

It is clear from the previous table that the calculated T-value is greater than the tabulated T-value, and the effect size is significant since it is greater than (0.14) in each dimension and the total sum. The results indicate that there is a statistically significant difference between the means of scores of the experimental group and the control group in the post administration of the cognitive consciousness scale regarding each dimension in the cognitive factor and its total sum in favor of the experimental group.

(2) For the skill factor:

Table (8): shows the T-Value and its statistically significant difference of the skill factor and its sub-dimensions between the means of scores of the experimental group and the control group in the post administration of the cognitive consciousness scale

Table 8
T-Value and its statistically significant

Factors	Group	N	Mean	St. dv.	T-Value	Sig.	Effect size (η2)
Planning dimension	Experimental	30	22.07	5.28	3.55	0.01	0.18
	Control	30	18.03	3.29			
Strategy organizing dimension	Experimental	30	27.40	4.06	4.73	0.01	0.28
	Control	30	22.83	3.39			
Monitoring dimension	Experimental	30	20.73	4.64	3.41	0.01	0.17
	Control	30	17.27	3.08			
Debugging dimension	Experimental	30	18.23	3.04	3.65	0.01	0.19
	Control	30	15.63	2.44			
Evaluating dimension	Experimental	30	22.77	4.55	4.31	0.01	0.24
	Control	30	18.50	2.94			
Total sum of skill factor	Experimental	30	111.20	16.86	5.23	0.01	0.32
	Control	30	92.27	10.41			

T-value went greater to assigned T-value (tabulated) and the effect size is significant since it is greater than (0.14) in each dimension to total sum. The results indicate that there is a statistically significant difference between the means of scores of the experimental group and the control group in the post administration of the cognitive consciousness scale regarding each dimension in the skill factor and its total sum in favor of the experimental group. The above table (8) illustrates this.

Testing of hypothesis (3)

Hypothesis (3) stated, "There is a statistically significant correlation between the scores of the research sample in the cognitive factor and the skill factor of cognitive consciousness scale." In order to verify the validity of the hypothesis, the researcher calculated the correlation coefficient between the scores of the research sample in the cognitive factor and the skill factor of the cognitive consciousness scale. The value of the Pearson correlation coefficient between them is (0.78), which shows that there is a correlation between the scores of the research sample in the cognitive factor and the skill factor of the cognitive consciousness scale at the level of 0.01. Results from table (8) confirm that the improvement in the cognitive factor leads to the development in the skill factor of cognitive consciousness and vice versa.

DISCUSSION

In light of the project results, the TASC model has been found to put serious influences on the cognitive skills of the learners when they are seen from the adversity remainder. This agrees with the Murwaningsih and Fauziah (2022) study. There are a few focuses created on demonstrating the viability of the mastering model on dissimilar cognitive abilities. In the first place, the TASC learning model was better in each of the Elementary class of mathematics in school. The TASC model to learn states a sentence structure that went further significant. Besides, exercises with a direct practice that the learners were expected and needed to do. Useful exercises would give unmistakable imprints for learners. It is further dynamic to take part to learn. This act went to have an agreement with the TASC model to learn qualities for learners of Elementary school mathematics class to become dynamic masterminds. Lakey (2009) tracked down that the application of model; TASC gave improved outcomes to learners' basic cognitive abilities. He further cleared up those learners had more open doors for team up, analyze, and for better. Exploration went pertinent to investigate in direction by Mutaqy et al. (2019). Exploration findings showed model to learn additionally impacted issue the settling of cognitive skills of learners to learn mathematics at Elementary school stage. Critical thinking is, obviously, still connected with the capacity to think since the critical thinking interaction will go through a unique and merged thinking process.

The author of this paper wanted to explore the utilization of the TASC model in Elementary stage grade levels in school to instruct the course of mathematics with various capacity levels and different social foundations amongst the learners at Saudi Arab context. Be that as it may, the author even found that a large number of the earlier projects would be characterized and utilized numerous times under this plan, so the author chose to confine the following paper to blend to the academic domains.

Notwithstanding, the paper will feature some other previous contributions, while looking at the purposes of the TASC model in various educational domains, the researcher found two distributions that zeroed in on friendly projects, as Wallace (2003), who analysed general training of learners in Stage 2 in the UK, and Reinoso (2011), who concentrated on gifted 6th grade learners in the Navajo country to learn mathematics through TASC. The two of the authors observed that the model was compelling to teach learners the subject of history the also, liquor addiction through Model-TASC. Be that as it may, the two distributions were expounded on examples of grade school learners, so future writers ought to direct their research projects on populaces from the upper school level. All contributions accentuated that the TASC model is a viable and helpful apparatus to utilize the mental abilities of the learners. At the point when the researcher took the study of mathematics at the purposes of the TASC model application, he tracked down just a single report (i.e., Faulkner, 2008), in which learners were exceptionally gifted and towards the finish of their grade school levels. Faulkner saw that as the TASC model was a successful strategy for showing gifted learners a confidence to solve various activities in mathematics. Faulkner (2008) led a contextual investigation to inspect how learners were acquainted with the TASC model and how the model was adjusted to address their issues. Members were 35 learners, and they addressed "the top capacity sets for their specific year groupings: one from Year 6 (11year olds involving 10 young men and 3 young ladies), and the other two from Year 7 (12 years olds containing 6 young men and 6 young ladies in bunch A, and 6 young men and 4 young ladies in bunch B). The school has distinguished them as lying in the main 10% of the capacity range as contrasted and the country overall and are, hence, perceived as gifted mathematicians" (p. 289, 299). Faulkner utilized two primary techniques to gather the information: a survey what's more, bunch interviews. The contributor utilized the crude information to compute the frequencies of the learners' reactions to each question. Faulkner tracked down that the learners who perceived the models as "having a place" to them had a close to class connection to the work and that they had appreciated "playing" in field of mathematics. The researcher did not utilize a right measurable project examination, albeit the example size was sufficiently huge to do as such. The frequency was observed most fragile in terms of examination since it does not consider factual induction and has been misdirecting. For the course of interviews, the author did not utilized strategies for triangulation properly. However, further exploration was still required to study role of TASC to learn mathematics in various other different regions.

CONCLUSION

In the following research based project, the TASC model is utilized to measure mental abilities of students to learn mathematics at Elementary stage. It was tried to be assessed practically that can be utilized to give an exhaustive educational plan to learn mathematics at the Elementary school stage in context of Saudi Arabia. In view of the experience and the findings from the project experiment, one can direct to accept the utilization of TASC in any setting, with any age groups of the learners, and with any educational program structure. Since, it has as its premise of the improvement in its capacity to tackle genuine issues in an imaginative manner. Teachers and the strategy builders try to settle on the significance of critical thinking abilities for school and

genuine achievement and they advocate for finding it at the focal point of instruction. We accept, as Otten (2010) brought up, this accentuation on critical thinking will not be independent just to the specific centre of math trainings yet additionally will move into society in certain ways by advancing an educated populace and by making pathways of progression for learners. However, unfortunately, the researcher cannot help thinking that the greater part of the writers who expound on the model of TASC do not mark the scholars as their selected participants that influences thoroughness in given project. The greater sections in writers who expound model of TASC are educators, even the practitioners that have foundational decisions within projects or on semi trial plans carried out within academic settings.

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