METACOGNITIVE PROCESSESS AND ACHIVEMENT ON TROUBLESHOOTING TASKS OF RADIO TELEVISION AND ELECTRONIC WORKS STUDENTS IN TECHNICAL COLLEGES IN EBONYI STATE NIGERIA

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Abstract

This study analyzed the relationship between metacognitive process and achievement on troubleshooting tasks shown by Radio, Television and Electronic (RTV/E) Works year two students while solving troubleshooting tasks. Two research questions guided the study and two null hypotheses were tested at 0.05 level of significance. The population of the study was 87 RTV/E works year two students of all the Technical Colleges in Ebonyi State, Nigeria. The instruments used for data collection were triple task procedure on troubleshooting tasks (TTPTT) and electronic students' metacognitive achievement test (ESMAT). The instruments were validated by three experts, trial-tested and the reliability coefficients computed using Cronbach Alpha method for the TTPTT was found to be 0.86. The internal consistency reliability of the ESMAT was determined using Kuder-Richardson 20 (KR20) and was found to be 0.73. Data were analyzed using Mean, Man Withney U Test and Kruskal Wallis Test. The findings revealed the usefulness of process-based measures to examine the metacognitive processes involved considering achievements and their possible moderating roles in these relationships.

Keywords: Metacognitive process, Achievement, Troubleshooting Task, Radio Television and Electronic Works

Introduction

Troubleshooting skill is a practical content in every module of the RTV/E works. Every student is expected to be trained to poses troubleshooting skill as major part of the training (NBTE, 2004). Consequently, learning to troubleshoot electronic device is also becoming more demanding. Troubleshooting in Radio, television and electronic works is the task of locating a fault or malfunction in an electronic device that is not working properly and remedying the situation. Troubleshooting task refers to individual's expertise or ability to perform a given task which is developed in the course of training and experience (Millar, 2014). Jonassen (2011) mentioned that troubleshooting problems are moderately ill-structure. Troubleshooting in RTV/E works is the task of detecting, locating and rectifying faults in electronic devices. RTV/E works students ought to know how to trace and remedy faults in electronic device with easily interpreted success criteria and make judgement about the nature of the problems.

In troubleshooting an electronic device, students are expected to accurately regulate and monitor their learning processes. According to Van De Bogart, Dounas-Frazer, Lewandowski, and Stetzer (2017) troubleshooting typically require a high level of cognitive activity, making decisions and judgments, paying attention to details of models and apparatuses, analyzing and interpreting the results of measurements, which involve use of both hands and brain. The use of hands and brain in learning RTV/E works in technical colleges is highly demanding. Use of brain comes in when one thinks and reflects on his own thinking. Being able to think is very important in learning troubleshooting task but being able to think about one's own thought is even more important. Learning troubleshooting task in RTV/E works require critical thinking

process which involves metacognition. Metacognition as a critical thinking process is defined by Pintrich (2000) as a super-ordinate ability to direct and regulate cognitive, motivational, and behavioural learning and problem-solving processes in order to achieve a specific goal. Metacognition is a higher level of cognition. In the same vein Hacker, John and Arthur (2019) stated that metacognition involves awareness of how students learn an evaluation of their learning needs, generating strategies to meet these needs and then implementing the processes.

Metacognition is the critical thinking processes that encourage students to activate prior knowledge, analyze information, reconceptualise the problem space by integrating information into a coherent representation, and self-monitor their progress by evaluating and correcting their troubleshooting task. Metacognition is a deeper level of thinking that includes one's ability to think about his/her thinking; how one understand, adapt, change, control, and use his/her thought processes. Fogarty (1994) suggested that metacognition is a process that spans three distinct phases, and that, to be successful thinkers, students must do the following: Develop a **plan** before approaching a learning task; **monitor** their understanding; **evaluate** their thinking after completing the task. Teachers can model the application of questions, and they can prompt learners to ask themselves questions during each phase. Teachers can incorporate into lesson plan opportunities for learners to practice during learning tasks (Fogarty, 1994).

Learning how to be mindful of one's process and how to think strategically about troubleshooting task, can make the troubleshooting task more efficient. In troubleshooting task activity, the teacher has to decide what to teach, and how to teach, i.e. the teacher has to choose contents/skills and the instructional process of his/her teaching activity. The teaching/learning activity can be considered as a process. Dick and Carey (2018) mentioned that instructional process starts with the definition of what the learners should know and finish with the evaluation of what the learners actually know. The processes or phases of metacognition can be termed as metacognitive processes. Wang, Haertel, and Walberg (2020) stated that metacognitive processes are the ability to associate prior knowledge, draw inferences, and monitor or assess personal performance demonstrated in the learning process. Metacognitive processes are mental processes triggered by a learning situation, the strategies one's mind need to put to work in order for one to learn and understand a given concept or situation. Being aware of one's metacognitive processes is an advantage for it makes learning easier as it regards to troubleshooting task.

Within the context of metacognitive instruction, an adaptation of the Triple Task method has been recently proposed for application in problem solving (García, Rodríguez, González-Castro, González- Pienda & Torrance, 2015). Triple Task Procedure on Troubleshooting Task (TTPTT) is adapted from triple task procedure in mathematics (TTPM) by García, Rodríguez, González-Castro, González- Pienda, & Torrance (2015), which is a modification of the traditional Triple Task. It has been designed to study the process underlying solving problems from the viewpoint of the articulation between the main SRL phases of planning, execution, and evaluation (Rosário, Mourão, Núñez, González-Pienda, & Solano, 2008; Zimmerman, 2000), and Bransford & Stein´s (1993) IDEAL model.

From the combination of Zimmerman's (2000, 2008) SRL model and the IDEAL model (Bransford and Stein 1993), a system emerged with nine categories or sub-processes, organized in three higher level categories, corresponding to the main SRL phases: Planning, Execution, and Evaluation. In accordance with previous studies, an additional category has been included. This additional category was also included in the categorization training phase, which is previous to the TTPTT. This study analyzed the temporal sequence of the process in a sample RTV/E works students during TTPTT. This sequence was based on the percentage of students

who reported each of the nine TTPTT categories or sub-processes while solving several troubleshooting tasks. The researcher administered this protocol to Radio, television and electronic works students in the technical colleges, who carried out troubleshooting tasks on audio frequency amplifier.

To teach troubleshooting skills effectively, teachers need to be knowledgeable of metacognitive instructional processes so as to improve learning outcomes. Research has shown that metacognitive instructional processes can significantly improve students' problem-solving success (Dunlosky & Metcalfe, 2019; Pasher, Bain, Bottage, Graesser, Koedinger & McDaniel, 2017). The metacognitive instructional process is, therefore the step-by-step information on the procedures for carrying out troubleshooting tasks in RTV/E works, which is developed by breaking down complex or large tasks into smaller ones for easy learning. In this regard, an effective instructional process like the metacognition should be adopted to improve troubleshooting task performance and to maintain acquired skills at a functional level over a period of time.

By application of metacognitive instructional process, it is logical that it will help students become more adept at troubleshooting tasks and develop independent critical-thinking skills to their RTV/E works. The metacognitive instructional process has the potentials to promote learning which may result in better mastery of troubleshooting tasks in RTV/E works, therefore improve performance. Polson (2003) maintained that schools should, in addition to academic knowledge, inculcate workplace skills such as creativity, and higher order thinking skills, to increase students' flexibility and job mobility. There is urgent need for instructional process that can promote learning which may result in better mastery of troubleshooting tasks in RTV/E works, because students jump into troubleshooting task, without considering alternative processes, giving impulsive responses, and using trial and error as a strategy while trying to solve troubleshooting problems. Researchers have suggested that curriculum content should be strongly linked with instruction in metacognitive training techniques to improve students' problem-solving abilities (Schraw, 2019; Pintrich, 2022; National Research Council, 2000).

Kramarski and Mevarech (2021) used the metacognitive instructional processes to develop students' abilities to raise metacognitive questions, including questions about the nature of a problem, strategies for solving the problem, construction of prior knowledge, and the correlation between the prior knowledge and new knowledge. In order to successfully perform a difficult task, students have to integrate metacognitive and self-regulatory mechanisms, (Cleary & Chen 2019; Montague, Enders & Dietz 2021). In this regard, Jonassen, Tessmer, and Hannum (2009) stated that the use of metacognitive instructional processes for pedagogical purposes may help students' better understanding of the subject which may lead to improved performance and better academic achievements.

Student achievement according to Forum on Education and Technology (2001) is the attainment of articulated objectives by students, measured through a variety of identified instruments, which result in excellence and the ability to thrive in the rapidly changing world. This implies that achievement is a measure of what a student knows or can do after training. Students' achievements need to be improved in order to prepare them to succeed in the rapidly changing world. In this regard, Jonassen (2011) stated that the application of metacognitive instructional processes for pedagogical purposes may help students develop better understanding of a subject which may lead to improved performance in both task and achievement. Studies showed that high-achieving students tend to be somewhat under-confident, whereas low-achieving students tend to be inaccurate and over-confident when they are asked both to "predict" or "postdict"

their performance on a task because students who exhibit high achievement on task have better control over problem solving process (Özsoy, 2021; Hacker Bol & Keener, 2018; Bol, Hacker & Allen, 2015; Bol & Hacker, 2021). These results support the metacognitive and self-regulatory process, as well as their relationship with students' achievement, especially in RTV/E works.

Electronics according to Sharma (2014) covers radio, television, computers, mobile communication, telephony, electronic mail and internet. The field of electronic technology according to Ogbuanya and Onuoha (2015) involves the design and testing of circuits that use components such as resistors, capacitors, inductors, diodes, transistors and integrated circuits to achieve a particular functionality of an electronic device. Electronic devices embody many sections that are fragile and are arranged in a special order to achieve maximum functionality. A fault in one section of the system will definitely prevent proper functioning of other component parts.

The task of locating a fault in an electronic device is carried out by craftsman and technician. Bureau of Labour Statistics (2010) stated that electronic technician, layout, build, test and repair electronic devices such as computer equipment, radio, television, and test equipment. Electronic technicians also are expected to maintain electronic equipment, regulate, fine-tune, or test devices that operate primarily on electrical and electronic principles. Electronic technicians make decision to solve problems, analyze information and evaluate results to choose the best solution to the problem identified. These can be achieved through metacognitive instructional processes.

Metacognitive instructional processes that can improve troubleshooting skill in RTVE works are therefore essential for students' survival and progress in the rapidly changing world of technology. Ogbuanya, Bakare and Igwe (2009) observed that most of the graduates turned out by technical colleges every year, acquire little or no troubleshooting skills, therefore find it difficult to be employed or set up their own workshops. This has made it impossible to achieve the goal of technical education as to produce highly skilled personnel that can be self-reliant. Kayode (2009) lamented that there is a skill gap existing between schools and the workplace in Nigeria and what is required in closing this gap is the cultivation of relevant skills and attitudes during training. It is pertinent that technical colleges educate students' knowledge/skills, without assuring that they can master and apply those knowledge/skills in the real world. The structural disconnection between the world of technical education and training and the world of work has amplified this ugly situation.

Performing repetitive technical skills is no longer a primary job requirement for electronic industry employees, there is, therefore, an argument that hands-on activities are no longer sufficient for career and technical education (Johnson, 2021). Emphasis is now being placed on soft skills such as critical thinking, problem-solving and decision making (Maclean & Ordonez, 2017). These skills should be adopted in the technical education because technical college should be the vehicle to learn not only content but also thinking (Ulmer and Torres, 2007). Current research in technical education (Parr, Edwards, and Leising, 2016; Ulmer and Torres, 2007) implies that technical college educators should put considerable effort into developing and implementing instructional processes that show promise in developing students' higher-order thinking. However, little research has been done to empirically test the effectiveness of metacognitive instructional processes with RTV/E works students on troubleshooting task in technical colleges. This has led to an important line of research on the determining metacognitive processes and how to improve these processes on troubleshooting tasks in RTV/E works. Hence, there is the need to investigate, metacognitive processes and achievement on troubleshooting tasks of RTV/E works students in technical colleges, in Ebonyi State, Nigeria.

Purpose of the Study

Specifically, the study sought to find out:

1. Whether metacognitive processes emerge as a result of students' troubleshooting tasks.
2. Whether metacognitive processes emerge as function of students' achievement on troubleshooting tasks.

Research Questions

1. Will different metacognitive processes emerge as a result of students' troubleshooting tasks?
2. Will metacognitive processes emerge as function of students' achievement on troubleshooting tasks?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference in the mean scores of students as a result of metacognitive processes on troubleshooting tasks.
2. There is no significant difference among the test scores of low achievers, medium achievers and high achievers in the metacognitive processes emerged as function of students' achievement on troubleshooting tasks.

Methods

The study was a post-test only quasi-experimental design. The researcher adopted this design for the study because a training phase was needed to ensure that the RTVE works students understand the assessment procedure and category system. Secondly, the skills of metacognitive process on troubleshooting tasks were assumed to be new to the students in that, they were not taught in Technical Education programmes in Nigeria at the time of this study. This design is deemed fit for this study in that there were interventions, post-tests and non-randomization of participants, and the metacognitive process and achievement test were ascertained. The researcher measured the students' troubleshooting task processes at two different times which represented the treatment; while the measures (TTPTT and ESMAT) represented the posttests. The population was 87 students, which consisted of 53 RTVEW Year II Students of Government Technical College Abakiliki and 34 RTVEW Year II Students of Government Technical College Afikpo. The technical colleges used are widely separated from one another. The instruments for data collection for this study were: Triple task procedure on troubleshooting task (TTPTT) adapted from Triple task procedure on mathematics (TTPM) García, Rodríguez, González-Castro, González- Pienda, & Torrance, (2015). A record list on troubleshooting tasks made up of nine procedures structured on a five-point Likert scale that RTVE students categorized their thought processes as they progress on troubleshooting tasks on audio amplifier. (ii) Electronic students' achievement test (ESAT) made up of 40 objective questions with options lettered A, B, C, and D, that the students chose the best option while attempting the achievement test. The drafted copies of the instruments were face validated by three experts. In order to establish the reliability, the instruments were trial tested on 37 RTVE works students of Government Technical College, Aba, Abia State. The internal consistency Coefficients reliability of the questionnaires TTPTT was 0.86. On ESMAT, the internal consistency reliability index of the instrument was 0.73 established using Kuder-Richardson 20 (K-R20). K-R20 was used because the ESMAT was made up of multiple-choice items which were dichotomously scored.

RTVE year two students of each Technical College received the training to troubleshoot audio amplifier device using TTPTT for six weeks. Each lesson was laboratory/workshop sessions of

80 minutes of two periods combined together according to their school timetable for practical lessons. During the training, RTVE works students were taught to understand the assessment procedure and category system after completing the troubleshooting tasks with respect to TTPTT. The instruments TTPTT & ESMAT were administered during a regular class, in the schedule devoted to workshop practice. The first administration TTPTT was done immediately after the intervention. The second administration ESMAT was done immediately after the second administration. The research questions were answered using mean statistic. A five-point Likert scale was used. A mean value up to 3.50 or above was accepted as agree, any mean below 3.50 was regarded as disagree in order to answer the research questions respectively. The hypotheses were tested at 0.05 level of significance using Mann-Whitney U-test and Kruskal-Wallis test. Responses were coded as yes (1) or no (0) for the performance test. Students' achievement in the troubleshooting tasks was established in terms of success (1) or failure (0). The null hypothesis was accepted when the significance was more than 0.05; otherwise, the null hypothesis was rejected. The non-parametric nature of these statistics did not allow conducting post-hoc analyses. Differences between different accuracy were analyzed using the Mann-Whitney U-test. A p value ≤ .05 was established as criterion of statistical significance.

Results

Research Question 1

Will different metacognitive processes emerge as a result of students' troubleshooting tasks?

Table 1: Descriptive Statistic for Dependent Variables (TTPTT variables) for tasks 1 and 2.

Process categories and phases	Task 1				Task 2			
	$\bar{X}$	SD	*Skewness*	*Kurtosis*	$\bar{X}$	SD	*Skewness*	*Kurtosis*
Reading		4.51	.525	-.269 -1.389	4.57	.542	-.753	-.565
Drawing or summarizing		4.45	.566	-.384 -.459	4.23	.543	.106	-.193
Recalling similar problem		4.28	.564	-.032 -.459	4.23	.543	.106	-.193
Thinking about the solution		4.51	.503	-.023 -2.047	4.32	.570	-.181	-.710
Proffer strategy		4.26	.493	.476 -.426	4.33	.521	.206	-.887
Tracing the problem	4.29	.455	.956	-1.111	4.33	.564	-.103	-.666
Solving the problem	4.26	.493	.476	-.426	4.33	.498	.428	-1.126
Reviewing	4.24	.481	.570	-.188	4.24	.505	.360	-.179
Correcting mistakes	4.09	.583	-.008	-.032	4.22	.468	.666	.575
Planning		4.410	.3313	-.173 -.299	4.395	.4395	-.286	-.144
Execution	4.331	.3313	.426	-1.142	4.340	.4017	-.138	-.009
Evaluation	4.167	.4223	.246	.139	4.230	.4092	.393	.276

$\bar{X}$= Mean, SD= Standard Deviation

Results in the TTPTT variables (Table 1) indicate that students tend to show a similar metacognitive process. High standard deviations indicate high variability within subjects in their problem-solving process. Kurtosis and skewness values confirm the unsuitability of using

parametric analyses. Specifically, mean of not less than 4.09 across all categories and phases in all tasks. As can be observed, profiles are quite similar in the two troubleshooting task.

Research Question 2

Will metacognitive processes emerge as function of students' achievement on troubleshooting task?

Table 2: Means *(M)*, Standard Deviations *(SD)* of the Students with different Achievement Level in TTPTT Variables for tasks 1 and 2.

Process categories and phases	Task 1						Task 2					
	Low achievement		Medium achievement		High achievement		Low achievement		Medium achievement		High achievement	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Reading	4.35	.606	4.28	.457	4.51	.476	4.18	.636	4.44	.504	4.87	.343
Drawing or summarizing	4.18	.529	4.16	.448	4.82	.457	4.00	.612	4.22	.491	4.68	.471
Recalling similar problem	4.06	.429	4.28	.457	4.37	.675	4.12	.485	4.06	.354	4.42	.642
Thinking about the solution	4.24	.437	4.25	.440	4.84	.370	4.12	.485	4.16	.515	4.63	.541
Proffer strategy	4.00	.000	4.16	.440	4.47	.557	4.00	.354	4.25	.440	4.55	.555
Tracing the problem	4.35	.493	4.28	.457	4.26	.446	.485	.485	4.16	.515	4.58	.552
Solving the problem	4.06	.243	4.22	.420	4.39	.595	4.12	.485	4.19	.397	4.55	.504
Reviewing	4.06	.243	4.22	.420	4.34	.582	4.06	.429	4.16	.448	4.39	.547
Correcting mistakes	4.18	.393	4.19	.397	3.97	.753	4.00	.354	4.19	.397	4.34	.534
Planning	4.200	.4419	4.240	.3713	4.650	.3470	4.100	.5105	4.240	.5105	4.658	.4388
Execution	4.162	.2491	4.227	.3776	4.493	.2431	4.088	.4140	4.188	.3045	4.579	.3394
Evaluation	4.118	.2186	4.203	.3560	4.158	.5341	4.030	.3738	4.172	.3265	4.368	.4455

$\bar{X}$= Mean, SD= Standard Deviation, Low achievement (N = 17); Medium achievement (N = 32); High achievement (N = 38).

Result in Table 2 shows that students with higher levels of achievement on troubleshooting task have higher mean frequency, than their medium and low-achievement peers. This shows progressive increase in RTV/E works students' achievement on troubleshooting task.

Hypothesis 1

There is no significant difference in the mean score of students as a result of metacognitive processes on troubleshooting tasks

Table 3: A result of metacognitive processes on troubleshooting tasks 1and 2.

	N	Mann-Withney U	Sig.	Decision
Task 1	87	327.500	0.00	Rejected
Task 2	87	426.500	0.00	Rejected

Mann-Whitney's U-test showed that significant differences were found in all the tasks. Task 1: U = 372.500.00, S = 0.00; Task 2: U = 426.500, S =0.00. This suggests full different patterns of calibration accuracy emerge as a result of metacognitive processes on troubleshooting tasks. The null hypothesis is, therefore rejected.

Hypothesis 2

There is no significant difference among the test scores of low achievers, medium achievers and high achievers in the metacognitive processes emerged as function of students' achievement on troubleshooting task.

Table 4: Difference in metacognitive processes as function of achievement level on troubleshooting tasks 1and 2.

			Task 1				
			Post-performance judgments			Phi Correlation	
			Failure	Success	Total	ρφ	*p*
Low achievers	Actual Performance	Failure	0	6	6	.091	.76
		Success	4	7	7		
		Total	4	13	17		
Medium	Actual Performance achievers	Failure	1	11	12	.876	.02
		Success		2	18	20	
		Total	3	29	32		
High achievers	Actual Performance	Failure		30	30		<0.01
		Success				8	8
		Total		38	38		
			Task 2				
			Post-performance judgments			Phi Correlation	
			Failure	Success	Total	ρφ	*p*
Low achievers	Actual Performance	Failure	3	9	12	.021	.83
		Success		1	4	5	
		Total	4	13	17		
Medium	Actual Performance achievers	Failure	3	14	17	.000	.87
		Success			0	15	15
		Total	3	29	32		
High achievers	Actual Performance	Failure		2	2		<0.01
		Success				36	36
		Total		38	38		

Table 4 shows that calibration accuracy (ρφ) improved progressively as students' achievement. This change was level more evident increase task 1, where ρφ reached values close to 0.88 in the group with medium achievement, which supposes that almost 50% of the sample in the medium achieving group about their performance. Specifically, the number of students in tasks 1 and 2 were 17 in the group of low achievers, 32 in the group of medium achievers and 38 in the group of high achievers respectively. Second, with respect to the possible differences in the process, Kruskal-Wallis statistic revealed the existence of statistically significant differences $K\text{-}W^{2}(\chi)$ = 15.264, p <.001 in task 1; and $K\text{-}W^{2}(\chi)$ = 28.278, p <.001 in task 2 as function of achievement level.

Discussion of Findings

Descriptive analyses of the metacognitive process during TTPTT revealed that it was characterized by the use of ineffective problem-solving strategies by students, related to the presence of little metacognitive skills. This is coherent with some previous studies showing that students at these educational stages tend not to be self-regulated enough in problem-solving situations, which has demonstrated to lead to poor performance and inaccurate judgments (Cleary & Chen, 2019; Desoete & Roeyers, 2006; Kramarski & Gutman, 2016). These findings initially suggest a relation between the use of more effective planning strategies (mainly regarding representation of the information) and making more accurate post-performance judgments. In fact, there seems to be an inverse relationship between the use of better planning strategies and the use of what can be defined as "trial-and-error" mechanism, characterized as a tendency towards tackling a task with various methods until a solution is found, and have been reported to be frequent during problem-solving tasks (Callander 2011; Clements, Sarama, & Liu, 2018; Dijk, Van Oers, & Terwel, 2013).

Another important issue that was addressed in this study was the possibility that differences in the metacognitive process during TTPTT, emerge as a result of achievement level. Differences in metacognitive process as function of achievement level were found. The same pattern of results was obtained in all the tasks. These findings are consistent with previous studies showing that high achieving students are commonly more accurate in their judgments of performance (and somewhat under-confident) than their low-achieving peers (Özsoy 2021; Bol et al. 2020; Hacker et al. 2018). The findings are consistent with previous studies showing that high achieving students are commonly more accurate in their judgments of performance (and somewhat under-confident) than their low-achieving peers (Özsoy 2021; Bol et al. 2020; Hacker et al. 2018). This is not surprising, as high achievers have been referred to as more highly calibrated and self-regulated than low achievers (Dunlosky and Rawson 2012; Bol et al. 2020).

Conclusion

This study has provided an empirical data on the effectiveness of the metacognitive processess and achievement on troubleshooting tasks of RTVE works students and found out that metacognitive processes instruction is effective in making significant difference in enhancing students' performance and achievement on troubleshooting tasks in RTVE works.

Recommendations

1. Radio, Television and Electronics works teachers should adopt the use of Triple Task Procedure on Troubleshooting Task-based instruction in teaching troubleshooting tasks.
2. Government and stakeholders in education should improve on the provision of facilities and equipment necessary for teaching RTV/E Works troubleshooting tasks with Triple Task Procedure on Troubleshooting Task-based instructional guide.
3. Enlightenment forums should be organized by Ministries of Education and State Science and Technical Education Boards to educate and improve teachers' capabilities on the use of Triple Task Procedure on Troubleshooting Task to enhance students' performance and achievement in RTV/E works.

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