Review Application of Contextual Teaching and Learning Model's

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Abstract

This paper examine primary research and review articles published between 2004 until 2015 that focused on the issues for contextual teaching and learning approach on education. The literature was systematically reviewed, critically appraised and thematically analyzed. Data source from Online databases incudingProQuest, Procedia, International Journal of Arts & Sciences, European Psychologist, IEEE,Computer& Education, Indonesian Journal of Applied Linguistics, and ScienceDirect were used. The criteria used for selecting studies reviewed were : primary focus on CTL application and issues on education, from elementary to higher education. Result review analysis of the 13 reviewed studies revealed the following three themes : issues relating method to applied CTL, strategy to applied CTL and how the teacher prepared CTL models.The review highlighted that some method can used to applied CTL, like project based learning, used video, 3D CAD and dual system on vocational education. This method support CTL and increase student learning result. Strategy were used: REACT and RANGKA. Teacher should be prepared learning plan to applied CTL in the teaching.

Keywords : Contextual Teaching and Learning, REACT, RANGKA

Introduction

In the book Model-model Pembelajaran (Rusman,2014; 132) stated: the Strategist, according to Kemp (1995) is an activity of learning to do teachers and students so that learning goals can be accomplished effectively and efficiently. Dick and Carey (1985) also mentioned that learning strategies is a device its subject matter and the procedure of learning that are used together to cause the results of learning on learners or students. Efforts to implement a learning plan that has been drawn up in real activities so that the objectives have been achieved can be arranged optimally, then needed a method that is used to effect a predetermined strategy. Thus, it can happen one learning strategy using several methods. For example, to implement the strategy be used expository methods lectures as well as methods of questioning or even discussion by making use of the resources available include using the media of instruction. The strategist is a plan of operation achieving something; While the method is a way in achieving something. Furthermore, the Learning Model is usually compiled based on various principles or theory of knowledge. Joyce & Weil believes that learning is a model plan or pattern that can be used to form a curriculum (study plan long term), designing learning materials, and guide learning in the classroom or in the other (Joyce & Weil, 1980; 1)

Modern teaching methods in management education suggest that active learning is better. Contemporary education begins with knowledge as the foundation and the substantive part of learning occurs in the transfer of learning to applications and to new situations. The ideal learning outcome is for the students to learn the applications of their knowledge learning.

Contrast this with educational practices of a more traditional perspective of management education that view education in more passive ways. Teaching is telling; learning is acquiring facts; learning is teacher-centered and the classroom is hierarchical with the teacher at the top (Bilimoria, 1995). Students do not learn the applications of knowledge. Porter and McKibbon (1988) challenged management educators to focus on improving students' problem solving, decision making, management and leadership skills by promoting the use of complex, uncertain and ambiguous learning environments.

Contextual teaching and learning has been differently defined by many experts (Satriani et al 2012). Some experts define contextual teaching and learning as a concept that helps teachers and students relate the meaning and real world situations with the subject matter in the right way (Johnson, 2002; Sears, 2002). In other words, CTL motivates the learners to take charge of their own learning and to relate between knowledge and its application to the various contexts of their lives. Besides the previous definition, Nurhadi (2000) has argued that the constructivism philosophy is the reason why teachers choose CTL as an alternative teaching and learning approach. In this case, the students are expected to learn through "experiencing" not by "memorizing" the subject matter.

CTL approach has some teaching strategies, which include content as a critical component. Those strategies engage students in an active learning process. The strategies can be implemented individually or in group. There are some teaching strategies associated with CTL approach as proposed by Berns& Erickson (2001) as follows: Problem based learning, cooperative learning, service learning, work based learning, project based learning, and react strategies. In line with the implementation of CTL or contextual approach, there are some strategies that teachers use in the classroom. Some teachers in America had implemented the strategies. There are five strategies proposed by Crawford (2001) as follows (cited Satriani et al 2012):

1. Relating

   Relating is the most powerful element in contextual teaching strategy. It also suggests that students' learning in the context of one's life experiences or preexisting knowledge (Crawford, 2001). In relating, teachers link a new concept to something completely unknown to students. Caine & Caine (1993) called this reaction "felt meaning." That reaction can be momentous, as when a student finds the solution to a problem that he or she has spent significant time and effort in solving.

2. Experiencing

   In contextual approach, one strategy relates to another. The previous statement appears to indicate that relating connects new information to life experiences or prior knowledge that students bring to the classroom. Teachers are able to overcome this obstacle and help students construct new knowledge with hand-on experiences that occur inside the classroom. This strategy is called experiencing. In experiencing, students are learning by doing through exploration, discovery, and invention (Crawford, 2001).

3. Applying

   Applying strategy can be defined as learning by putting the concepts to use (Crawford, 2001). Clearly, students can implement the concepts when they are engaged in hands on problem solving activities. Teachers can also motivate a need for understanding the concepts by assigning realistic and relevant exercises. Relating and experiencing are strategies for developing insight, felt meaning, and understanding. Applying is a contextual teaching and learning strategy that develops a deeper sense of meaning.

4. Cooperating

Students are not able to make significant progress in a class when they work individually. On the other hand, students working in small groups can handle that complex problem with little outside help (Pintrich&Schunk, 1996). Teachers using student-led groups to complete exercises or hands-on activities are using the strategy of cooperating. This strategy refers to learning in the context of sharing, responding, and communicating with other learners (Crawford, 2001). Most students feel less self-conscious and can ask questions without feeling embarrassed, when they work with peers in a small group discussion. Another fact of cooperative learning is that it can be counterproductive. For example, some students may not participate in the group processes at all, while others may dominate and the group members may refuse to accept or share responsibility for the group's work. Johnson and Johnson (1990), who are the leading researchers in cooperative learning, have established guidelines to help teachers avoid those negative conditions and create environments where students may be expected to learn concepts at a deeper level of understanding. The guidelines are divided into five points: structuring positive interdependence within students learning groups; having students interact while completing assignments and ensuring that the interactions are on-task; holding all students individually accountable for completing assignments and not letting them rely overly on the work of others; having students learn to use interpersonal and small group skills; and ensuring that learning groups discuss how well the group functions.

5. Transferring

In traditional classroom, students' roles are to memorize the facts and practice the procedures by working skill drill exercises and word problems. In contrast, in a contextual or constructivist classroom, the teachers' role is expanded to include creating a variety of learning experiences with a focus on understanding rather than memorization (Crawford, 2001). Transferring is a teaching strategy that we define as using knowledge in a new context or novel situation—one that has not been covered in class. It suggests that students who learn with understanding can also learn to transfer knowledge (Bransford, Brown, &Cocking, 1999).

Aims

The aims of this literature rewiew were to identify research related to applicaton CTL models, whether about methods, strategy, and how to plan instructional design.

Methods

A systematic search of primary research literature was performed using a selection of electronic search tools over broad all about CTL application. On line databases including ProQuest, Procedia, International Journal of Arts & Sciences, European Psychologist, IEEE,Computer& Education, Indonesian Journal of Applied Linguistics, and ScienceDirect were used. The following keywords incorporating "Contextual" as part of the search were used : Teaching, Learning, Models, Strategy and Methods. Studies in languages other than English were not included in this review.

Results

Initial search identified 35 studies for possible review. The title and abstract then were read to determine relevance; 25 studies were discarded as not being directly relevant to the review, leaving 10 for more detailed examination. See fig 1.

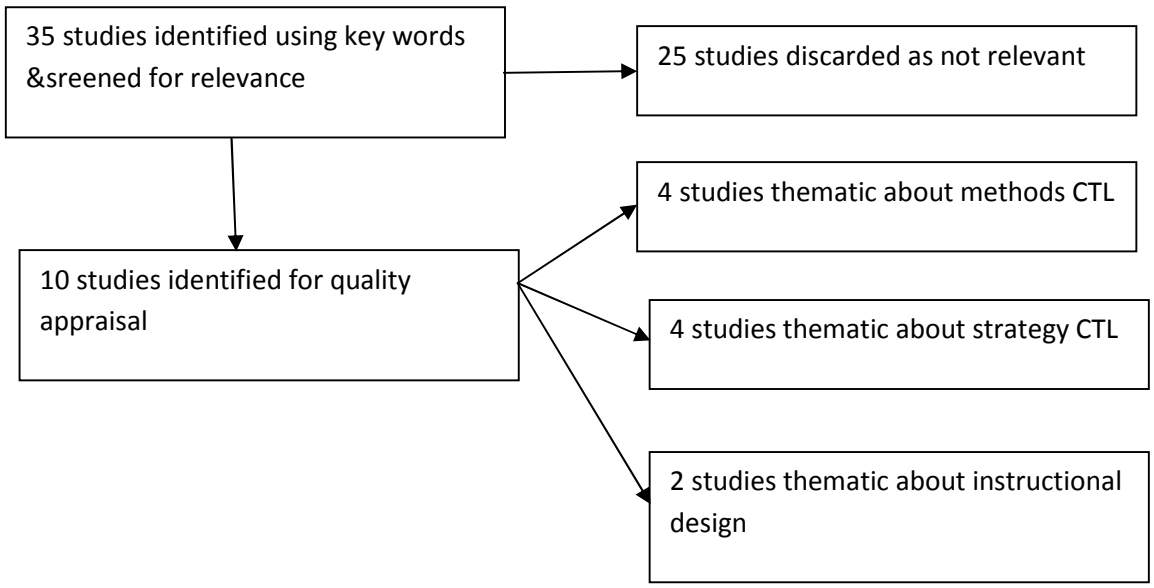

Fig. 1. Summary of search and appraisal process

Study Locations

The studies produced were located United Stated, Malaysia, Indonesia, India, Namibia,Singapore, Germany, and Turkey.

Journal Analysis

In the table 1 we can comparison the results of research.

1. Themes 1 : Strategy to applied CTL

Doris Lewalter and Andreas Krapp(2004) concerned with the role of contextual conditions on motivational orientations and emotional experiences within the German Dual System of vocational education (VE). In the research approach differentiate between three exemplary levels and meanings of context: educational setting, learning arrangement, and learning situation. Prior research in Germany has focused primarily on the analyses of differential motivational conditions and effects in two main educational settings: vocational school and training in companies. In a study in the educational setting of a company tried to analyze the relation among contextual aspects at the level of learning arrangements and learning situations, intrinsic and extrinsic motivational orientations, and a selected set of emotional experiences. The research found significant differences only for interest orientation (not for achievement orientation) and for exemplary indicators of a positive emotional experiences (feelings of being interested andfeelings of being committed). Contrary to our theoretical expectations, the measures indicating the quality of emotional experiences with respect to the

postulated system of basic needs (competence, autonomy, relatedness) did not vary systematically with the contextual conditions under consideration.

Table 1. Summary of journals

No.	Author(s)/year/Tittle	Location	sampel	Instruments	Findings	Limitations
1	Miller, Patricia Murdock (2015)/Contextual Learning May be a Better Teaching Model : A Case for Higher Order Learning and Transfer	United State	2 group of undergraduate students. Group 1: contextual collaborative experiment with Learning, building leadership and behavior in the laboratory. Lecturers facilitate collaborative learning, cultivate the behavior in the lab and train students in the leadership and team building. Contextual teaching is seldom done. Group 2: students also carry out learning in the traditional team and class discussion. Lecturer gave a boost but do not facilitate collaborative learning and behavior in the lab.	1. Test 2. Project Work 3. Article in a journal	Collaborative learning contextual causes: 1. Transfer of science to the level of the application more quickly 2. high student learning Outcomes 3. An understanding of the deeper material 4. Students being independent 5. more Students initiative 6. The student is responsible 7. Leadership	In this collaborative learning has not researched the existence of relations and social action-based learning laboratory.

2.	ZulkarnainMd Amin, NafisahKamariahMdKamaruddin, Wan Mohd Rashid bin Wan Ahmad and Maizam Alias (2011)/ImpaContextual Video in Learning Engineering Statistics in The University Tun Hussein Onn Malaysia (UTHM)	UHTM Malaysia	There were 66 electrical engineering degree students watched the contextual video and 62 the mechanical engineering degree students watched the non-contextual video. A sample of15 students from each group was selected: 5 weak students, 5 moderate students and 5 good students.	interview with semi-structured questions and analyzed using NVivo Version 9.	1. That students using the contextual video understand statistics better than the non contextual video group as they are able to learn more than what they learn in class. 2. Students using the non-contextual video prefer the lesson taught in class rather than watching the video as one student would prefer talking on other topic rather than watching the non contextual video.	A question that is too little and is open
3.	MohdFahmi Adnan MohdFadzilDaud Muhammad Sukri Saud (2014)/Contextual Knowledge in Three Dimensional Computer Aided Design (3D CAD) Modeling: A Literature Reviewand Conceptual Framework	Malaysia	The use of 3D CAD in the fields of: engineering, computer science, management and education	Review literature from 1988-2010	1. A set of construction which consists of contextual knowledge in modeling 3D CAD-related disciplines of mechanical engineering 2. identification and incorporation of contextualized like characteristics on the application of 3D	research is needed to determine the potential gains from an understanding of knowledge and also to clarify and test the interactions of knowledge with other types of knowledge (declarative, procedural, and

					modeling CAD system in the process of product development. 3. This framework demonstrates the complementary approach of the academic and the provider community in knowledge representation modeling tasks.	strategic), in the construction of virtual 3D CAD models.
4.	EviSuryawati, Kamisah Osman, T.SubahanMohdMeerah (2010)/The effectiveness of RANGKA contextual teaching and learning on students' problem solving skills and scientific attitude	Riau Indonesia	There were 110 students who participated in the contextual learning study and 105 for conventional learning	Experimental study: test Interview for attitude observations And analyzed using Anova and Manova,	Contextual learning new strategies: This strategy, called RANGKA, is the acronym for Rumuskan (Conclude), Amati(Observe), Nyatakan(state), Gabungkan(Combine), Komunikasi(Communicate) and Amalkan (Implement), to improving students ' ability in problem solving skills	The RANGKA does not provide a significant impact on the scientific attitude of students
5.	Harmeet Singh , Dr. P.K. Tulsi , Dr. Sunil Dutt, Ganesh Dalvi(2012)/The Effect of Contextual Teaching	India	(sample size = 27) of third year undergraduate students at Sant Baba Bhag Singh	1.Pre test 2.Post test	1. Design of instruction in the learning mikroprosessor the contextual	Applied of REACT (Relating, Experiencing, Applying, Cooperating and

	Learning of Microprocessors on the Achievement of Degree Level Students		Institute of Engineering, in the state of Punjab, India with CTL, and 27 students with conventional methods instruction		2. Students who are teaching by contekstual teaching learning gain better learning results	Transferring) methods.
6.	Doris Lewalter and Andreas Krapp (2004)/The Role of Contextual Conditions of Vocational Education for Motivational Orientations and Emotional Experiences	Germany	113 trainees in the insurance business (13 training groups in 7 different companies). The average age was 19.7 years, and 52% of the trainees were male. The lessons took place in small groups ranging from 3 to 14 trainees.	1. questionnair 2. Video 3. Experience Sampling Methods	1. Orientation in a significant higher during training in the workplace than at school. 2. higher levels of emotional experience during training in the workplace 3. There is a substantial relationship between contextual conditions and specific learning components such as the motivation of vocational orientation and interest-based motivational orientations.	The measures indicating the quality of emotional experiences with respect to the postulated system of basic needs (competence, autonomy, relatedness) did not vary systematically with the contextual conditions under consideration. At the level of learning arrangements, only the measures concerning the experience of competence differed significantly between both contexts
7.	Margo O' Sullivan (2006)Lesson observation and quality in primary education as contextual	Namibia, India	Teacher training	Review journal	1. Conceptualization of quality input and output 2. The reality of	Samples taken not representative for the country that develops, because it

	teaching and learning processes				teachers 3. Teaching observations supporting teacher learning process	only analyzes the two countries.
8.	Joyce Hwee Ling Koh , Ching Sing Chai , Lee Yong Tay (2014)/TPACK-in-Action: Unpacking the Contextual Influences of Teachers' Construction of Technological Pedagogical Content Knowledge (TPACK)	Singapura	Twenty-four teachers teaching these levels 1 4 dan 5 elementary schools	Audio recording, and analyzed using Pearson Chi Kuadrat, triangulasi	1. institutional Culture affect teacher contextually in the TPACK 2. Sometimes Intrapersonal and interpersonal teacher affects TPACK 3. Technology is not overly affected because the school had already facilitated 4. Need a facilitator to help teachers make ICT integrated construction	Grade level and competence of ICT need to be examined again
9.	IntanSatriani,Emi Emilia ,Muhammad HandiGunawan (UPI 2012)/ Contextual Teaching and Learning Approach to Teaching Writing	Bandung Indonesia	second grade students of junior high school's	Teacher observation sheets, interviews and documentation of student assessment	There were some benefits of using contextual teaching and learning approach in writing class: 1. engaging students in writing activity; 2. increasing students' motivation to participate actively in the writing class; 3. helping students to	A conceptual framework is not seen as a research guide

					construct their writing; 4. helping students to solve their problems; 5. providing ways for students to discuss or interact with their friends; 6. helping the students to summarize and reflect the lesson.	
10.	BünyaminÇoker , HakanÇatlÕo÷lu, Osman Birgin/2010/Conceptions of students about renewable energy sources: a need to teach based on contextual approaches	Turkey	The sample consisted of 107 randomly selected from elementary to JUNIOR HIGH SCHOOL in Turkey. 21 (19.6 percent) was in grade 4-5, 36 (33.7%) were residing in grade 6-8 (46.7 percent) and 50 were in grade 9-12	Open questions related to energy. In this study, the answers are analyzed using descriptive analysis techniques.	Through the application of practical and experiential learning, and further talks, reflection and authentic assessment in which students do contextual and real-life projects and works-based performances, students will consciously unaware of alternative energy supplies and their environment. As such, they will learn in a contextual and will better understand the concepts and issues of environmental and social issues associated with it.	just to learn the source of energy, can be developed for other lessons

EviSuryati et al (2010) were designed specifically to measure the effectiveness of contextual teaching and learning of Biology on the students' problem solving skills, and scientific attitude among secondary school students in Pekanbaru, Riau Indonesia. This quasi experiment involved some 215 form VII students from three government schools, segregated based on their existing cognitive abilities; viz. high, moderate and low. In this study, contextual learning module was developed by applying RANGKA strategy which mainly involved Rumuskan (conclude), Amati (observe), Nyatakan (state), Gabungkan (Combine), Komunikasi(communicate) and Amalkan(implement) covering the topic on Organism Diversity. The effects on students' problem solving skills and scientific attitude were measured by means of tests and observation. Overall, the findings revealed that there are significant differences across the experimental groups and students' ability in terms of their problem solving skills. However, there is no significant difference in terms of their scientific skills.

IntanSatriani, et al (2012) research about the implementation of contextual teaching and learning approach to teaching English writing to second graders of a Junior High Shool in Bandung. The study aims to investigate the strategies of Contextual Teaching and Learning (CTL) (as adapted from Crawford, 2001) and the advantages of using CTL approach.The study employed a qualitative case study research design. The findings revealed that the teaching writing program was successful to improve students' recount writing skill. Specifically, they showed some improvement on schematic structure, grammar roles, and graphic features.

Harmeet Singh et.al (2012) research uses Relating, Experiencing, Applying, Cooperating and Transferring (REACT) strategies to teach the subject of microprocessors. In this study an experimental group was taught using Contextual Teaching Learning strategies and a control group was taught through traditional lecturing method. t-test applied on post test achievement scores, revealed that experimental group had significantly higher mean achievement score than the control group (t=2.085). This has implications for engineering teachers and educators and the way curricula are implemented.

2. Themes 2 : Method to applied CTL

BünyaminÇoker et.al (2010) used Open-ended questions are to determine students' knowledge about the topic. Students' answers were analyzed using descriptive analysis technique. It is revealed that there were major differences in students' answers according to grades. In addition, these answers were depended on their conceptual frameworks. These frameworks can be classified into two categories as daily life and school context. It is hoped that this study would contribute both to understand students' knowledge related to this topic and to teach energy sources based on contextual approaches.

Zulkarnain et.al (2011) researchwas done to test whether or not the use of contextual statistics video is effective in learning engineering statistics for the engineering students in UTHM. The population consisted of two groups: electrical engineering degree students using contextual video and mechanical engineering degree students using non contextual video. The findings showed that students using the contextual video understand statistics better than the other group. Students using the non-contextual video prefer the lesson taught in class rather than watching the video. In conclusion, the contextual video appeared to be more effective in helping the engineering statistics students in their learning process.

MohdFahmi Adnan et.al (2014) review of literature on the perspectives of fundamental contextual knowledge from different disciplines and its applicability in Three Dimensional Computer Aided Design modeling. The related perspectives then will be used to guide the researcher to propose a new framework of contextual knowledge in Three Dimensional Computer Aided Design modelling.The findings of this study may enhance the understanding of the conceptual framework and essential contextual knowledge elements in Three Dimensional Computer Aided Design modeling systems. This paper helps inform the engineering education community about the presence of contextual knowledge in the Three Dimensional Computer Aided Design modeling in order to assist students to become a capable engineer.

Miller & Patricia Murdock (2015) research about an active, contextual learning model that places the student in an active role of applying and using subject matter. In the active contextual learning condition, students were in teams working on their Team Projects using collaborative learning, experimenting with new leadership and team building behaviors in the behavioral laboratory. The teacher facilitated collaborative learning, fostered the behavioral laboratory, trained and approached the students in leadership and team building. The contextual learning teacher rarely lectured. In the passive, traditional learning condition, students were also in teams completing semester-long authentic Team Projects. The students were encouraged to work together as much as possible; however, the class was taught primarily using a traditional teaching method of the lecture with some class discussion. This teacher also provided training in leadership and team building. This teacher encouraged but did not facilitate collaboration, building of the teams nor learning how to lead. This teacher did not assist in developing the social-based learning context and did not facilitate the behavioral laboratory. contextual learning is superior to traditional learning in knowledge learning, applications and the transfer of learning to new situations. Interestingly, results show that specific purposeful, goal-directed journal writing facilitates learning. It facilitates subject matter learning, higher order learning of applications and transfer of learning to new situations. The present findings show there is more involved than merely reflective writing. The secondary benefits observed in active contextual learning are the following: more depth of understanding of concepts, independent learners, more responsible learners, more ability to deal with ambiguity, demonstrated behavioral skills of problem solving and decision making, risk-taking, initiative taking, demonstrated leadership behaviors and team building behaviors.

3. Themes 3 : How teacher prepared CTL

O'Sullivan Margo(2006) review journal began on a positive note, highlighting that quality is at the top of education agendas in developing countries. The article considered the complex nature of the concept of quality and the various definitions of it and highlighted that policy-makers rely on only two subsections of the six definitions presented, i.e. an input and output conceptualization of quality. It considered the reasons for this, one of which used a political economic perspective of education to explain it. This conceptualization takes into account the normative nature of the concept and the extent to which it involves human action. It also focuses on how inputs are being used, which is critical to improvements in quality. A context-focused teaching and learning processes conceptualization of quality also enables a move away from the deficit explanations for poor quality, which tend to excuse it in the light of inadequate inputs, such as large numbers of unqualified teachers, lack of resources, and so on. It enables a focus on what realistically can be achieved within available inputs, specifically the viable teaching and learning processes. Teaching and learning need to be seen as the focus,

rather than the instrument of quality. Context-focused teaching and learning processes must move to the top of the quality agenda. Convincing policymakers is critical to and will institute a major challenge, but a challenge well worth accepting if we are to move away from the discourse of quality to action that could have a considerable impact on all our futures.

Joyce Hwee Ling Koh et.al (2014) studied about describes TPACK(Technological Pedagogical Content Knowledge) -in-Action, a framework that can be used to visualize the interplay between TPACK and four contextual factors Physical/Technological, Cultural/Institutional, Interpersonal, and Intrapersonal) that influence teachers' design of ICT lessons. Content analysis of the transcribed audio-recordings of teachers' discussions and chi-square analysis of coding frequencies found that when the logistics of lesson implementation as per the Cultural/Institutional category dominated group discussions, it curtailed the emergence of TPACK. When Intrapersonal factors such as beliefs of teaching and students were articulated and its pedagogical implications considered, it facilitated TPACK. Furthermore, the team facilitated by an experienced educational technologist also demonstrated higher occurrences of TPACK. These results suggest that for ICT innovation to be effective, the composition of design teams need to be carefully considered. Teachers also need to develop competencies to facilitate and discourse about design such that contextual concerns can be turned into opportunities to support pedagogical improvement.

Conclusion

The results of research and review journals above, seen that the CTL model of learning increase outcomes and enhance understanding learners on learning material. The existence of a variety of strategies and a varied learning methods make learners to be more active and creative teaching and learning so that not only are just monotonous. To carry out this CTL, the teacher must prepare a learning plan tailored to the material provided. Because not all material can be delivered with one method. Teachers should also be aware of and use the technology that is developing. Learning with the use of the media, whether it's contextual video, interactive media, and so on should have been prepared before learning. The exact alignment of the CTL with a science of everyday life experienced by learners.

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