KnE Social Sciences

ICESRE
5th International Conference on Education and Social Science Research (ICESRE)
Volume 2022

Knowledge E
enriching | engaging | empowering

Conference Paper

Activities Based Contextual and Constructivist Learning: A Model for Enhancing Students' English Learning Outcomes

Husni Mubarok[1], Nina Sofiana[1]*, Diah Kristina[2], Dewi Rochsantiningsih[3]

[1]English Education Department, Universitas Islam Nahdlatul Ulama Jepara, 59427, Indonesia
[2]English Literature Department, Universitas Sebelas Maret, Surakarta 57126, Indonesia
[3]English Education Department, Universitas Sebelas Maret, Surakarta 57126, Indonesia

ORCID ID
Nina Sofiana: https://orcid.org/0000-0002-7609-2007

Abstract.
Changes from the current curriculum in Indonesia to the *Merdeka Belajar* (independent learning) curriculum require teachers to make learning more meaningful and fun for students by connecting concepts to the real world. This study aimed to develop a learning model with constructivism and contextual teaching and learning (CTL) approach to improve students' English skills. The specific objectives of this study are to map the English learning model that has been implemented by teachers, identify the needs of students and teachers for the English learning model, develop a learning model with CTL and constructivism approaches, and test the feasibility of the model. The data were collected through observation, interviews, documentation, questionnaires, and tests in 12 public and private SMP/MTs spread across the Jepara, Demak, and Kudus districts. The collected data were analyzed qualitatively and quantitatively. Based on qualitatively collected data, students and teachers need a learning model that can provide students with learning experiences that are more meaningful. The developed model was proven effective by the value of the effectiveness test where the t-test results show greater than the t-table. Therefore, it implies that the learning models based on CTL and constructivism can be an alternative to the current learning models that can be applied to learning English at school.

Keywords: Meaningful activities; contextual learning; constructivism learning.

Corresponding Author: Nina Sofiana; email: ninasofiana@unisnu.ac.id

Published 21 December 2022

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the ICESRE Conference Committee.

1. Introduction

The challenge English teachers face in the 2013 curriculum is the availability of learning materials based on meaningful principles with the application of innovative learning models. In fact, teachers do not know the true nature of learning English and do not touch the realm of developing student competencies. This raises the main problem in learning English, namely the low absorption of students to the material. This can be seen from the decrease in the average national level score for the 2017 National

Examination for the SMP/MTs English subject released by the Ministry of Education and Culture in 2018 (1) where the average value of the material 1) social function is 54.56, 2) text structure is 51.78, and 3) linguistic elements is 39.94. This is in line with the results of international assessments such as those conducted by PISA (Program of International Student Assessment) and PIRLS (Progress in International Reading Literacy Study) which state that Indonesian students' reading ability is the lowest in the world (2).

Based on these problems, a learning model that emphasizes meaningful activities is needed for students. It is meaningful learning activities connecting students' learning journeys with real-life contexts (3). This activity is student-centered (4) where students are asked to convey meaningful communication during learning practices (5). Then, approaches that can be applied to create meaningful activities in learning are contextual teaching and learning (CTL) and constructivism (6). These two approaches are proven to be able to improve students' English skills (7).

Meaningful activities, CTL, and constructivism have become a new paradigm in learning. It is because they connect the material contextually, not textually by prioritizing meaningful learning activities not the completeness of teaching materials. For students, they will be active in building their own understanding and knowledge that is in accordance with the context of their lives where they are not difficult to memorize material and get ideas that they will use in communicating and interacting. For teachers, the results of this study will be an alternative learning model to improve students' English skills. For schools, the results of this study are expected to be a guide for policy-making related to the use of English learning models that are in accordance with the characteristics of students and the 2013 curriculum.

According to Mayer (2002) in Sailin and Mahmor (8), meaningful learning involves the construction of knowledge whereby students make sense of their experiences by engaging in active cognitive processing. The process are such as paying attention to relevant incoming information, mentally organizing incoming information into a coherent representation, and mentally integrating incoming information with existing knowledge. Meaningful learning is achieved when the student experiences an optimal learning experience (9). Meaningful learning theory is a promising strategy in a formal teaching situation, which consists of non-arbitrary and non-literal interaction of new knowledge with relevant prior knowledge (subsumption) (10). Therefore, it can be concluded that meaningful learning, based on Ausubel's theory, should be the goal of formal higher education, which is achieved through sustained critical discourse (11) by fulfilling five descriptive characteristics; active, constructive, intentional, authentic, cooperative.

There are some previous studies which some researchers conducted. To be an effective teacher, teachers must always provide meaningful learning for students (12). By presenting meaningful activities in education, learning is no longer boring, the instructions are diverse, clear, and students become more comfortable in learning. The results of the t-test on the implementation of meaningful learning and CTL show that the experimental group is higher than the control group (13). Meaningful learning can occur in various learning situations (14). The contextual approach resulted in better CTL memory retention and stimulated students to participate more in learning (15). Constructivism is centered on integrating academics and skills by building knowledge with real situations. The development of CTL teaching materials can be applied in classroom learning. Furthermore, this will also provide benefits for developing the quality of professional development of English teachers (16).

Meaningful activities are meaningful learning activities that link new information with existing concepts. This theory comes from Ausuble's meaningful learning theory, which connects new material with the taught material (7). The theory of meaningful activities relates to three terms in language learning. The first, mechanical practice refers to the activities of students who are still controlled without having to understand the material discussed properly. Secondly, meaningful emphasizes the meaningfulness of the material received. Lastly, communication requires the occurrence of direct communication based on the context of the lives of students. Therefore, to help students gain new knowledge of learning material, it is necessary to have an initial concept that is already owned by students related to the new concept to be studied.

Meaningful activities and CTL become a new paradigm in learning because it connects the knowledge that already exists in students with the knowledge to be learned. The teacher acts as an intermediary for students to be more active in formulating the phenomena they experienced and connecting them to the material contextually, not textually. So, teachers need to understand the learning methodology in teaching and learning activities, especially by prioritizing meaningful learning activities, not the completeness of teaching materials.

CTL is a concept that helps teachers relate subject content to real world situations (17). Teachers can encourage students to make connections between their knowledge and application in the context of their daily lives. CTL theory is based on Vygotsky's theory where learning is a process of social interaction (18) where higher mental functions will appear in conversation and interaction between individuals within a range known as the zone of proximal development (ZPD). There are seven components in CTL

(15): constructivism, inquiry, questioning, learning community, modeling, reflection, and actual assessment.

Constructivism requires students to construct their own knowledge. This theory is a development of the theory of Piaget, Vygotsky, and Bruner (19) where students find their ideas. Constructivism assumes that the process of forming students' knowledge cannot be influenced by external factors (20). The learning process focuses on developing intellectual abilities in a social and cultural context, starting from students' background knowledge and cultural perspectives (21). Therefore, according to constructivism theory, the teacher does not just provide knowledge to students, but students must build their own knowledge in their minds. In other words, the teacher gives students steps to a higher understanding.

This study aims to develop a meaningful learning model with a contextual and constructivist approach. This research was conducted in junior high school, with the research subjects being students and English teachers.

2. Method

This research design was educational research and development consisting of several stages. The first stage was the identification of English learning comprising a) theoretical and practical studies on the English curriculum, b) field studies and needs analysis using observing the learning process in the classroom, interviewing English teachers, and questionnaires for students about teaching and learning process and the desired learning model. The second is setting goals and formulation of learning models including a) preparation of product objectives carried out by holding *FGD*s to formulate the objectives of the learning model, b) formulation of learning model. Then, the last stage was model development stage. This stage covered some steps. They are a) making learning model prototypes, b) expert judgement or model validation using an assessment checklist instrument that includes validity, practicality, and product effectiveness, continued with an *FGD* that was conducted by the research team and experts, c) revising the validation result model, d) initial field trials at 1 *SMP/MTs* conducted by three experts to find out whether the product design had met the rationality aspect by using the methods of classroom observation, interviews with teachers, d) field trials limited to 7 *SMP/MTs* to know the achievement of test results using one group pretest-posttest design, e) revision of the limited trial product through the *FGD* of the research team and 3 experts, f) the field trial expanded to 12 *SMP/MTs* to test the effectiveness

of the learning model using the randomized control group type pretest-posttest design, and g) the revision of the trial product.

This research was carried out in 12 schools spread across the coastal areas of Central Java, consisting of the districts of Jepara, Kudus and Demak. The research subjects were English teachers and eighth-grade junior high school students. Data were collected through 1) observation, 2) interviews, 3) questionnaires, 4) assessment checklists, 5) tests, and 6) documentation. The data of observation, interviews, questionnaires, assessment checklists, and documentation were carried out by qualitative descriptive analysis through the theory of Miles and Huberman; reduction, presentation, and verification of data. The test data were analyzed quantitatively to determine the effectiveness of the product using the t-test.

3. Result and Discussion

In general, this research was carried out in three stages: introduction, development, and refinement. In the preliminary stage, there were some stages like the following:

3.1. Identification of English Learning

This stage was done by conducting 1) theoretical and practical studies on English curriculum, 2) field studies and needs analysis by means of a) observing the learning process in the classroom, b) interviewing English teachers, and c) administering questionnaires for students about teaching and learning process and the desired learning model.

English learning is directed at the achievement of competencies that can be seen from the skills of students to perform based on correct communication steps. In identifying English learning in the stage of theoretical and practical studies, the researchers conducted a study of the current English curriculum to the junior high school level. The results show that there are two types of curriculum used at schools, namely the 2013 curriculum for grades VIII and IX and the independent curriculum for grade VII. The second finding reveals that English language skills have different emphasis where in the 2013 curriculum there are only four skills, namely listening, speaking, reading, and writing, while in the independent curriculum there are additional skills, namely viewing and presenting. In addition, the distribution of core competencies (KI) 3 in the form of knowledge was less than the distribution of core competencies (KI) 4 in the form of skills. It shows that English learning focuses on 6 skills: listening, speaking, reading, writing, viewing and presenting.

By looking at the English curriculum applied at schools, the appropriate learning model is meaningful learning. This is because, with meaningful learning, students can gain new knowledge if it is connected with concepts that already exist in students. Genre-based and transactional conversations still dominate the material in English subjects. Therefore, learning English should be directed to a learning model that facilitates students to learn meaningfully by constructing their knowledge by connecting it to the context of everyday learning.

Based on the learning observations, it is known that the teacher has implemented the learning steps well starting from the introduction, core, and closing but there are several findings, namely 1) the teacher has not linked the material that has been taught with the material to be taught, 2) the teacher has not facilitated students to connect the material with the real-life context of students, 3) the students has the lack of opportunities to interact with fellow students.

The results of the interviews also clarified the findings during observation, namely 1) 46% of teachers stated that students were active in participating in classroom learning and the rest was less active, 2) students' learning completeness still varies between schools where there are 54% of students have completed the criteria, 3) not all schools have complete facilities where there are 34% of schools do not have complete learning facilities, and 4) the teaching resources used by teachers vary based on the material being taught but have not used a contextual and constructive approach.

Based on the results of student questionnaires, the results of the clarification are obtained in Table 1:

3.2. Setting Goals and Formulation of Learning Models

The product developed aims to facilitate meaningful learning by connecting and building the students' background knowledge with their new knowledge so that meaningful learning emerges based on the real-life context of students. The product developed is a meaningful learning model by prioritizing activities that are able to facilitate students to relate the received material to the concepts that have been built in their minds. These activities are based on contextual teaching and learning (CTL) and constructivism approaches. There are five learning steps in the developed product. It consists of advance organizer, progressive differential, contextual and constructivism, developing meaningful learning, and evaluation. In preparing the product formulation, the researchers considered several aspects including the selection of topics, materials

Table 1: Students' Responses to learning English.

No	Statements	Percentage			
		4	3	2	1
Opening Phase					
1	The importance of English learning	13	87	-	-
2	Teaching four English skills well	9	89	2	-
3	Motivating students in learning English	38	59	3	-
4	Relating previous materials to next material	18	78	3	1
Teaching Process					
4	Preparing teaching well	8	89.5	2.5	-
5	Implementing sequential learning steps	16	79	4	1
6	Delivering authentic materials	25	64	8	3
Teaching Strategies					
7	Implementing teaching strategies	13.5	79.5	5	2
8	Implementing the strategies that could motivate students	21	65	9	5
Teaching Media					
9	Implementing teaching media	11	64	18	7
10	Implementing the media that could motivate students	16	45	23	16
Contextual and Constructivism					
11	Implementing contextual teaching and learning	26	48	15	11
12	Relating the material to real-life students' context	11	41	25	23
12	Arising students' knowledge to the material to participation	23	50	19	8
12	Giving the students' opportunity to find or apply their own ideas	13	35	39	13
15	Giving the students' opportunity to solve problems in learning related to teaching materials	16	24	35	25

and examples, determination of English skills, determination of model specifications for various skills, and determination of users.

3.3. Model Development Stage

The preparation of the model was carried out after several stages in the preliminary study. At this development stage, the researcher compiled a development model in the form of a meaningful activities learning model with a CTL and Constructivism approach (MACTCL). The stages carried out by researchers in the preparation of the development model are as follows:

The syntax of the developed model refers to the results of the stages of theoretical and practical studies, field studies and needs analysis. In addition, during the process of

making syntax, researchers also pay attention to the formulation of learning objectives. The formulations are such as cognitive aspects (remembering, understanding, applying, analyzing, and evaluating), dimensions of knowledge (factual, conceptual, procedural, and metacognitive), and behavioral skills (critical, creative, communicative, and collaborative). There are 5 stages in the MACTCL learning model which are divided into three learning phases, namely pre-activities, whilst-activities, and post-activities. Each of these stages has its own purpose which is described in the learning model module. Figure 1 is the syntax of the learning model developed.

After the prototype model is developed, it is tested to validate the model. There are two experts comprising an expert in English Language Education and in the field of material development. Based on the assessments obtained from the two experts, it is known that the average calculation score of the two experts is 42.5. If it is divided by the maximum score and multiplied by 100 then the obtained value is 81.7. This value indicates that the developed-product can be categorized as 'very good'. Therefore, the developed-model can be used for limited trials.

In the next step, *FGD*s were conducted with experts to obtain clarification and input from experts on aspects that needed improvement. The results of the *FGD*, two experts suggested revisions to the sub-variable of giving exercise in which examples of exercises need to be added with variations in English skills/expertise. In addition, according to the experts, the principles of the MACTLC learning model need to be emphasized and clarified so that it will reflect the meaningful learning paradigm.

The initial trial was carried out in one school which was then observed using an assessment checklist. The result show that the total score obtained from the sum of the scores made by the expert is 41.7. The score is then divided by the maximum score and multiplied by 100 to obtain a score of 81.6. It means that the developed model belongs to a 'good' category. Even though it is in the good category, the learning that needs to be improved is in the aspect of motivating students to be able to learn well. This is because the teacher missed the aspect of building student's motivation. In addition, in the closing phase, teachers are expected to be able to provide assessments to students and provide conclusions about the subject matter that has been taught.

Based on the results of observations, the product developed is in the good category because it can bridge students to link old information with new information and process it into meaningful activities by connecting the context of their real life. In addition, the model can also encourage the involvement of students to be more active in learning. The experimental results of the early stage of *MACTLC* development are following the studies conducted by Allard and Gallant (14) and Somyürek (22). Therefore, it can be

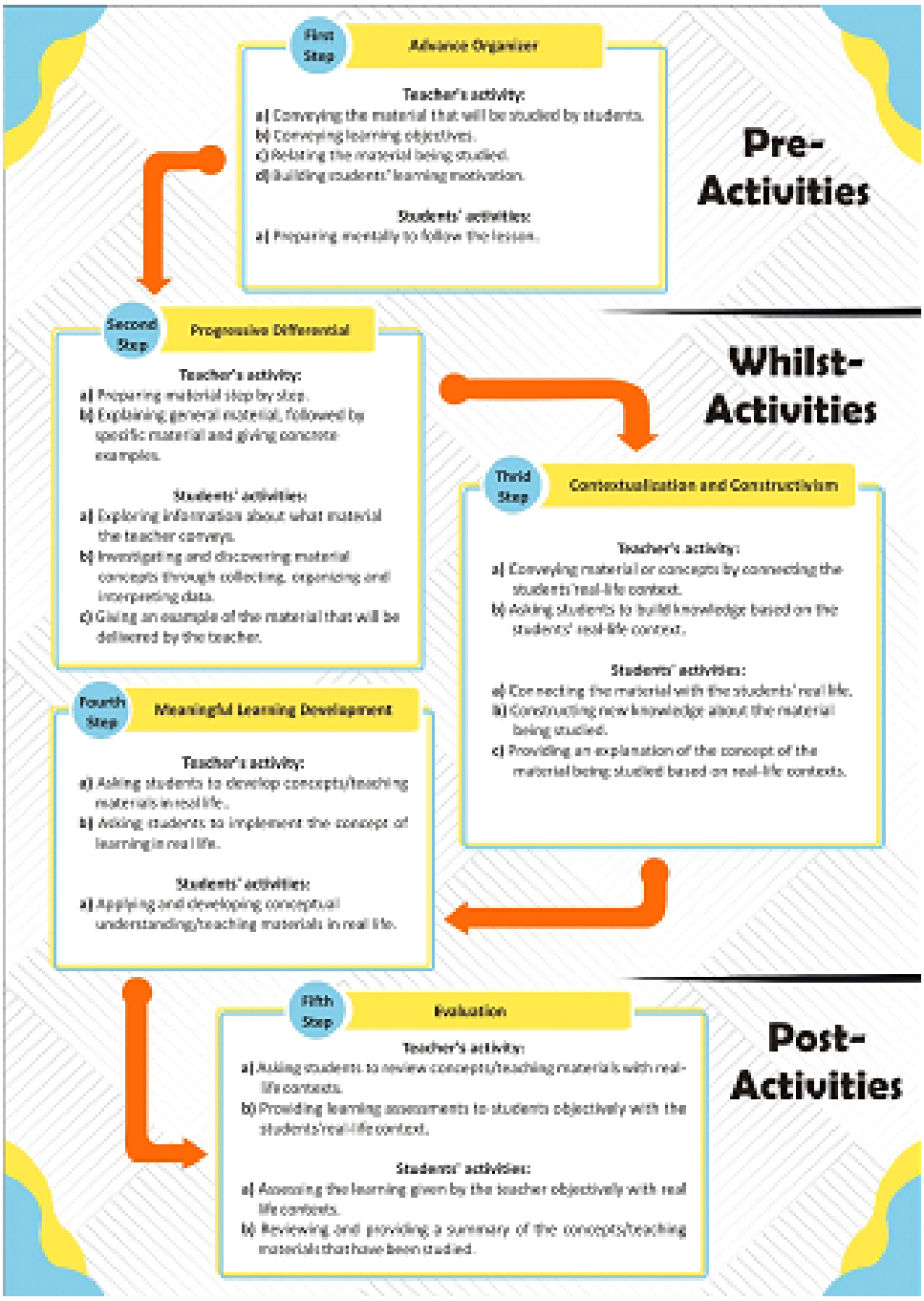

Figure 1: The Syntax of MACTCL Learning Model.

concluded that the *MACTLC* learning model can be continued to the next stage of a limited field trial.

The limited field trial has been carried out at 7 schools. From the table 2, it shows that the t-test value obtained a 2-tailed significance value of 0.000 which is smaller than 0.05, so the overall learning model developed and applied to the experimental group has an influence on the learning outcomes of students in that group. In the limited field trial, the t-test using an independent sample test showed that there were 6 schools

Table 2: Result of the Limited Trial of Independent Samples Test.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Value	Equal variances assumed	7.716	.006	-7.135	374	.000	-15.585	2.184	-19.880	-11.290
	Equal variances not assumed			-7.135	364.16	.000	-15.585	2.184	-19.881	-11.289

whose probability value of significance (2 tails) was lower than 0.05: School 1 0.000 < 0.05, School 2 0.001 < 0.05, School 3 0.000 < 0.05, School 4 0.049 < 0.05, School 5 0.000 < 0.05, and School 6 0.003 < 0.05. This shows that Ha is accepted and Ho is rejected where the *MACTCL* learning model given to students has an effect. Although there is still one school (School 7) whose value for the independent sample test in the equal variances assumes section is known to have a sig value. 2 tailed 0.616 > from 0.05 which means that Ho is accepted and Ha is rejected. This shows that at School 7, the application of the *MACTCL* learning model is not effectively applied.

Because the average value obtained in the research sample is still low, the researchers revised the model. The emphasis on revision lies in adjusting the syntax or learning flow that is clarified with the applicable curriculum. The results of the revision are then consulted with experts for assessment. Based on the results of the assessment by the experts, it shows that the calculated score is 42.5. The score is divided by a maximum score of 52, it is multiplied by 100. So, the value is 81.1. This value is included in the very good category. The next step is to conduct an expanded field trial.

After the revision step, the next stage was an expanded field trial. Expanded field trials were carried out in the twelve schools. The design used in this study is an experimental research design by presenting a control group. Samples were taken from each school by using simple random sampling.

Null hypothesis (Ho)

"There is no effect of meaningful activities learning models with CTL and constructivism approaches on students' English skills"

Working hypothesis (Ha)

”There is an effect of meaningful activities learning model with CTL approach and approaches on students’ English skills ”

Table 3 is a description of each sample in each school.

Table 3: Average Score of Both Groups.

Group Statistics					
	Groups	N	Mean	Std. Deviation	Std. Error Mean
Score	Experiment	308	73.08	2.601	.148
	Control	308	71.17	6.478	.369

Based on table 3, it is known that the average value of the experimental group is 73.08 and the average value of the control group is 71.17. This means that the average value of the experimental group is greater than the control group which is 73.08 > 71.17.

Table 4: Result of the Extended Trial of Independent Samples Test.

Independent Samples Test										
		Levene’s Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Value	Equal variances assumed	3.413	.065	4.800	614	.000	1.909	.398	1.128	2.690
	Equal variances not assumed			4.800	403.44	.000	1.909	.398	1.127	2.691

Table 4 shows that the significance (2-tailed) is 0.00 or less than 0.05. This shows that there is a difference between the experimental group and the control group. The t-test value also supports the data in the table above which is 4,800, which is greater than the t-table of 1,649 with a significance level of 5%. In other words, Ha is accepted and Ho is rejected. The results of the analysis are in accordance with research conducted by Dita where meaningful learning can improve students’ understanding based on the theory developed by David Ausuble and is able to provide effective results in learning (23).

4. Conclusion

The meaningful activities learning model with a CTL and Constructivism approach (*MACTCL*) is developed by going through several stages in which at each stage aims to make the developed product clearer when teachers and students use it. In addition, the learning model developed can improve students' English learning outcomes. This is evidenced by the acceptance of the working hypothesis on the t-test, which was carried out both on a limited sample scope and on an expanded sample scope. For further research, the extended trial can be expanded to a wider scope so that it can be seen to what extent the improvement of the students' English achievement is taught using the developed model.

Acknowledgments

Thanks, are given to the Ministry of Education, Culture, Research, and Technology for facilitating this research in the form of funding so that this research can be carried out properly and produce useful research outputs. Thanks are also addressed to Research and Community Service Unit of Universitas Islam Nahdlatul Ulama Jepara that have assisted in the research process, especially at the administrative level.

References

[1] Kemendikbud B. Pendidikan di Indonesia Belajar dari Hasil PISA 2018 [Internet]. Pusat Penilaian Pendidikan Balitbang Kemendikbud. 2019. Available from: http://repositori.kemdikbud.go.id/id/eprint/16742

[2] Widana IW. Modul penyusunan soal higher order thinking skill (HOTS). Jakarta: Kemdikbud; 2017. 46 p.

[3] Huang YM, Chiu PS. The effectiveness of a meaningful learning-based evaluation model for context-aware mobile learning. British Journal of Educational Technology. 2015;46:437–447.

[4] Wightman A. What is meaningful learning? Meaningful Learning. Canada; 2013.

[5] Richard JC. Communicative language teaching today. New York: Cambridge University Press; 2006. 52 p.

[6] Smith SSE. (Re)Counting meaningful learning experiences: Using student-created reflective videos to make invisible learning visible during PjBL experiences. Interdiscip J Probl Learn. 2016;10:2–16.

[7] Hrin TN, Milenković DD, Segedinac MD. The effect of systemic synthesis questions [SSynQs] on students' performance and meaningful learning in secondary organic chemistry teaching. International Journal of Science and Mathematics Education. 2016;14:805–824.

[8] Sailin SN, Mahmor NA. Improving student teachers' digital pedagogy through meaningful learning activities. Malaysian Journal of Learning and Instruction. 2018;15:143–173.

[9] Díaz de León-López MG, Velázquez-Sánchez MDL, Sánchez-Madrid S, Olais-Govea JM. A simple approach to relating the optimal learning and the meaningful learning experience in students age 14–16. Information. 2021;12.

[10] Agra G, Formiga NS, Oliveira PS de, Costa MML, Fernandes M das GM, Nóbrega MML da. Analysis of the concept of meaningful learning in light of the Ausubel's Theory. Revista Brasileira de Enfermagem. 2019;72:248–255.

[11] Mystakidis S, Berki E, Valtanen J. The Patras Blended Strategy Model for deep and meaningful learning in quality life-long distance education. Electron Journal of e-Learning. 2019;17:66–78.

[12] Khaefiatunnisa. The effectiveness of contextual teaching and learning in improving students' reading skill in procedural text. Journal of English Education. 2015;3:80–95.

[13] Mvududu NH, Thiel-Burgess J. Constructivism in practice: The case for english language learners. International Journal of Educational Development. 2012;4.

[14] Allard AC, Gallant A. Is this a meaningful learning experience? Interactive Critical Self-inquiry as Investigation. Studying Teacher Education. 2012;8:261–273.

[15] Baron P. A cybernetic approach to contextual teaching and learning. Constr Found. 2016;12:91–100.

[16] Darmuki A, Andayani, Nurkamto J, Kundharu S. The development and evaluation of speaking learning model by cooperative approach. International Journal of Instruction. 2017;11:2226–2227.

[17] Trianto. Model-model pembelajaran inovatif berorientasi konstruktivistik. Sunarni, editor. Jakarta: Prestasi Pelajar Publisher; 2008. p. 1–165.

[18] Tanaka M, Sanchez E. Students' perceptions of reading through peer questioning in cooperative. The Electronic Journal for English as a Second Language. 2016;19:1–17.

[19] Slavin RE. Cooperative learning; Theory, research, and practice. 2nd ed. Massachusetts: Allyn & Bacon; 1995. p. 1–189.

[20] Sutinen A. Constructivism and education: Education as an interpretative transformational process. Studies in Philosophy and Education. 2008;27:1–14.

[21] Drajati NA, Tan L, Haryati S, Rochsantiningsih D, Zainnuri H. Investigating English language teachers in developing TPACK and multimodal literacy. Indonesian Journal of Applied Linguistics. 2018;7:575–582.

[22] Somyürek S. An effective educational tool: construction kits for fun and meaningful learning. International Journal of Technology and Design Education. 2014;25:25–41.

[23] Fan KK, Xiao P wei, Su CH. The effects of learning styles and meaningful learning on the learning achievement of gamification health education curriculum. EURASIA Journal of Mathematics, Science and Technology Education. 2015;11:1211–1229.