

# Playing with e-CALF: “Regulate My Own Learning”

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**Abstract**— e-CALF facilitates digital natives to learn in their way. The researcher of this study used descriptive qualitative design to investigate the implementation of e-CALF in the school setting by finding six students' experiences, challenges, and responses in playing the game. It also found out how the implementation of e-CALF promotes self-regulated learning (SRL). Recording and interviewing were conducted to collect the data. As a result, playing with e-CALF is very fun for the students. e-CALF can increase their vocabulary and their desire to read English. In promoting students' SRL, e-CALF was an ideal environment to give the students a significant degree of autonomy over their actions. This autonomy included the freedom to determine their topic to be played, strategy to finish the game, and reflection on the progress and achievement. They could also set when, where, and how they play with and learn from the game.

**Keywords**—*playing; e-CALF; self-regulated learning.*

## I. INTRODUCTION

With the fast development of technology and the essential growth of psychology, education has significant changes that aim at helping to increase the learners' achievement [1]. Thus, the learning system nowadays cannot be separated from the emergence of technology. Therefore, teachers are looking for an excellent strategy to foster students' skills in technology and psychology. With the emergence of technology, teachers can teach by using ICT. ICT is beneficial in learning and teaching because teachers can have quick and affordable up to date information [2]. Thus, ICT can be one of the best ways to provide new meaningful learning.

Meaningful learning means that we give a chance for students to learn something that has something to do with their life and prepare them to face 21st-century skills. Thus, to realize a good communication skill, critical thinking, and collaboration of the students, the traditional teaching method is no longer used anymore [3]. As a result, enhancing the

students' skills above promotes self-regulated learning [1]. Some argue that self-regulated learning refers to a process that centered on the students' cognitive control and their achievement [4]. This process includes goal-directed activities in which the students are actively engaged in learning rather than being passive recipients of knowledge that is explained by their teacher. Self-regulated learning (SRL) is a process that helps the students to manage their thoughts, behaviors, and emotions in order to achieve their goal in learning. There are three critical components of self-regulation. The first component includes meta-cognitive strategies used by the students in which they plan, determine their objectives, do self-monitor, and organize their activities. The second component focuses on the students' management in doing academic assignments. The third component of SRL is the use of cognitive strategy, which provides an opportunity for the students to understand and remember the learning concept that they use to learn [5] [6].

In order to develop students' intrinsic motivation and cultivate the students' 21<sup>st</sup>-century skills, the teacher needs both knowledge and skill [7]. The motivation and achievement of the students are closely related to each other. For today's students, motivation can be raised by the use of technology to make the students more engaged in learning either in and out of the classroom. Therefore, one of the technologies that can engage students in learning is a digital game. Instead, learning using digital games could provide entertainment in learning a language [8]. Students in this digital era should be an autonomous learner. Some argue that education should aim at helping children to mature into autonomous adults [9]. This expectation will not come true unless the children have opportunities to learn autonomously. Thus, to make the students become autonomous learners, the digital game is one media that can trigger them to develop autonomous learning habits. It can also lead to a self-regulated learning situation.

Together with the advancement of technological tools, the concept of SRL in the language learning context has gained new dimensions [10] [11]. Technology has also offered many sources for students to get them occupied with language learning activities on their own. As supported by the literature [1, 13, 14, 15, 16], technology-enhanced language learning can facilitate a self-regulated learning situation.

The use of ICT in supporting SRL in education has a broad investigation. Some researchers have carried out a study investigating the use of ICT in promoting self-regulated learning. By using ICT, the students could still learn outside the classroom and self-regulate their learning [1, 17]. Also, there is a research which had examined Japanese students' perception toward self-directed language learning through English language website [18]. The result of the study indicated that web-based learning is effective in promoting the planning, monitoring, and evaluating skills of the students. Thus, it contributes to self-regulate in their language learning.

In this case of research, the use of ICT in the form of digital game e-CALF implemented self-regulated learning. The CALF game (board game made from wood) develops e-CALF itself, which was created in 2017 by Mahayanti [19]. Furthermore, an excellent opportunity for the students to learn gradually from vocabulary mastery, filling the sentence, and understanding text using ICT is in line with the e-CALF game. This game is for all grades in elementary school. The topics included in the game are developed based on syllabus analysis. Thus, they will be matched for the learning situation, both in the classroom and outside the classroom.

Since the e-CALF is an excellent media for reading comprehension, it is crucial to see how the students can implement this game at home. Thus, this research paper has the ultimate objective of investigating the implementation of the e-CALF digital game outside the classroom situation. It should also find and elaborate to which extent the digital game e-CALF can promote the students' self-regulated learning. Also, this paper intends to provide insight into which way the digital game e-CALF can serve SRL in English language learning. In other words, it examines to initiate possibilities for the learners to be more active in their education and learning.

**II. METHODS**

This study was carried out by using a qualitative design in which the data were in a qualitative form. The researcher collected the data through observation and interview. The researcher descriptively described the data. The object of the study was an e-CALF digital game, and the subjects of the study were six students at one private school in Buleleng, three males and three females. The researcher chose the subject randomly to give a fair chance for all students in that school. The researcher chose a small number of subjects in order to conduct the observation intensively. The students played the digital game e-CALF using mobile phones provided by the researcher since they were not allowed to bring a mobile phone to school. The researcher invited the subjects to come to the language laboratory during the English class and gave them a chance to play the game individually.

After the subjects had completed all the topics and levels in the digital game, the researcher interviewed the subject by using a semi-structured interview guide one by one. The researcher interviewed the subjects in a relax situation as the reflection of the game.

**III. FINDINGS AND DISCUSSION**

In order to know the implementation of digital game e-CALF, the researcher observed six students who played the game outside the classroom. Those students got a chance to play digital game e-CALF in the researcher's mobile phone in 4 meetings, 30 minutes for each meeting. The researcher observed each of the students since the first time of opening the game.

From the observation, the researcher found that the students opened the application with no problems at all. Since the options in the game are clear, they found no difficulties in starting the game. Five students started the game directly from topic one. However, one student decided to see the option 'how to play' to understand the instruction first. For the five students who directly played the game, the researchers observed that they knew how to answer the questions in level one by only doing twice trial 'clicking' and 'dragging'. When the first 'clicking' did not work, they tried to 'Drag' the pin. For one student who had read the instruction for conducting the game, she had no difficulties related to what to do.

After several minutes, all the students played level to level and looked enthusiastic during the session. When the students have no more time left, the students can reload the level, and they can play the game from the beginning. They cannot move to the next level before finishing that level. The game has the same timing and scoring on every level. The time provided was 3 minutes for each level, and the highest score was 15 at every level. Technically, each student spent around 5-15 minutes in playing one topic of the game, in which one topic consists of 6 levels. The researcher reported the time spent during the implementation of the game of each student in Table 1 until table 6.

TABLE 1. TIME SPENT BY STUDENT 1 DURING THE PLAYING

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 1	1	1	11	1	10	1	8	1	11
	2	1	9	1	10	1	12	1	9
	3	1	9	1	10	1	8	1	13
	4	1	11	1	8	1	9	1	7
	5	2	8	1	10	1	10	1	10
	6	2	10	2	10	1	10	2	10
<b>Total</b>		8	58	7	58	6	57	7	60

Note: Time in minutes

At the first meeting, Student 1 had completed all levels in topic Seasons, with the time calculated was 8 minutes. At the second meeting for topic Tourism, Student 1 finished six levels in 7 minutes. For the third topic (Direction), Student 1 had finished all levels faster. It was for 6 minutes. For the last topic (Airport), Student 1 needed 7 minutes to complete the game. In calculation, Student 1 only spent 28 minutes completing the game e-CALF.

TABLE 2. TIME SPENT BY STUDENT 2 DURING THE PLAYING

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 2	1	1	11	1	10	1	8	1	11
	2	1	9	1	10	1	12	1	9
	3	1	9	1	10	1	8	1	13
	4	2	11	1	8	2	9	1	7
	5	2	8	2	10	2	10	1	10
	6	1	10	2	10	2	10	2	10
<b>Total</b>		8	58	8	58	9	57	7	60

Note: Time in minutes

Student 2 had finished topic 1 in 8 minutes at the first meeting. In level 1, 2, 3, and 6, the student only needed 1 minute in each level to complete it. Moreover, the student needed 2 minutes each in finishing level 4 and 5. In meeting 2, topic two had been completed in 8 minutes, 1 minute each for level 1, 2, 3, and 4. 2 minutes each were needed to complete level 5 and 6. While, in meeting 3 for topic 3, the student needed time for 9 minutes to finish it, for levels 1, 2, 3, spent 1 minute each, and for levels 4, 5, 6, it spent 2 minutes each. At the last meeting, the student spent 7 minutes on topic 4, and only level 6 was done in 2 minutes, the others were done in 1 minute each. Student 2 needed 27 minutes to play the game for all topics and levels.

TABLE 3. TIME SPENT BY STUDENT 3 DURING THE PLAYING

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 3	1	2	11	1	10	2	8	3	11
	2	2	9	1	10	2	12	3	9
	3	3	9	1	10	3	8	2	13
	4	3	11	3	8	4	9	3	7
	5	4	8	3	10	4	10	5	10
	6	4	10	3	10	4	10	4	10
<b>Total</b>		18	58	12	58	19	57	20	60

Student 3 had completed all levels in topic Seasons, with the score calculated 18 minutes. In detail, 2 minutes each were needed to finish level 1 and 2, 3 minutes each for levels 3 and

4, and 4 minutes each were needed to complete level 5 and 6. At the second meeting for topic Tourism, Student 3 finished six levels in 12 minutes, 1 minute each for levels 1, 2, 3, and 3 minutes each for levels 4, 5, 6. For the third topic (Direction), Student 3 had finished all levels in 19 minutes. It was 6 minutes, 2 minutes each for levels 1 and 2, 3 minutes for level 3, and 4 minutes each for levels 4, 5, 6. For the last topic (Airport), Student 3 needed 20 minutes to complete the game. Level 1, 2, 4 were done in 3 minutes, level 3 in 2 minutes, level 5 in 5 minutes, and the last level were done in 4 minutes. In calculation, Student 3 needed 69 minutes in playing and completing the game e-CALF.

TABLE 4. TIME SPENT BY STUDENT 4 DURING THE PLAYING

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 4	1	1	11	1	10	1	8	1	11
	2	2	9	1	10	1	12	1	9
	3	2	9	2	10	1	8	2	13
	4	3	11	2	8	1	9	3	7
	5	4	8	3	10	2	10	2	10
	6	3	10	2	10	2	10	3	10
<b>Total</b>		15	58	11	58	8	57	12	60

Student 4 had finished topic 1 in 15 minutes at the first meeting. In level 1, the student only needed 1 minute to complete it. Moreover, the student needed 2 minutes each in finishing level 2 and 3, 3 minutes each for levels 4 and 6, and 4 minutes was needed for level 5. In meeting 2, topic two had been completed in 11 minutes, 1 minute each for level 1 and 2. 2 minutes each were needed to complete level 3 and 4. While, in meeting 3 for topic 3, the student needed time for 98 minutes to finish it, for levels 1, 2, 3, and 4 spent 1 minute each and for level 5, 6 spent 2 minutes each. At the last meeting, the student spent 12 minutes for topic 4, level 1 and 2 were done in 1 minute each, level 3 and 5 were done in 2 minutes each, level 4 and 6 were finished in 3 minutes each. Student 4 needed 46 minutes to play the game for all topics and levels.

TABLE 5. TIME SPENT BY STUDENT 5 DURING THE PLAYING

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 5	1	1	11	1	10	1	8	1.5	11
	2	1	9	1	10	1	12	1.5	9
	3	1	9	2	10	2	8	1	13
	4	2	11	1	8	3	9	1	7
	5	2	8	1	10	3	10	1	10
	6	2	10	2	10	3	10	1	10
<b>Total</b>		9	58	8	58	13	57	5	60

At the first meeting, Student 5 had completed all levels in topic Seasons, with the score calculated 9 minutes. At the second meeting for topic Tourism, Student 5 finished six levels in 8 minutes. For the third topic (Direction), Student 5 had finished all levels faster. It was 13 minutes. For the last topic (Airport), Student 1 needed 5 minutes to complete the game. The last level was the fastest topic done by the student. In calculation, Student 5 only needed 35 minutes to play and finish the game e-CALF.

Table 6. Time Spent by Student 6 during the Playing

Students	L	Meeting 1 Topic: Seasons		Meeting 2 Topic: Tourism		Meeting 3 Topic: Direction		Meeting 4 Topic: Airport	
		Time	Score	Time	Score	Time	Score	Time	Score
Student 6	1	1	11	1	10	1	8	1	11
	2	1	9	2	10	1	12	1	9
	3	2	9	2	10	1	8	2	13
	4	2	11	1	8	2	9	2	7
	5	2	8	2	10	2	10	2	10
	6	2	10	1	10	2	10	2	10
<b>Total</b>		10	58	9	58	13	57	10	60

Student 6 had completed all levels in topic Seasons, with the score calculated 10 minutes. In detail, 2 minutes each were needed to finish level 3, 4, 5, and 6, 1 minute each was needed to complete level 5 and 6. At the second meeting for topic Tourism, Student 6 finished six levels in 9 minutes, 1 minute each for levels 1, 4, 6, and 2 minutes each for levels 2, 3, 5. For the third topic (Direction), Student 6 had finished all levels in 9 minutes. It was 1 minute each for levels 1, 2, and 3, 2 minutes for levels 3, 5, and 6. For the last topic (Airport), Student 6 needed 10 minutes to complete the game. Level 1 and 2 were done in 1 minute each, and level 3, 4, 5, 6 were done in 2 minutes each. In calculation, Student 6 needed 38 minutes in playing and completing the game e-CALF.

Additionally, the researcher interviewed in order to find out the challenges faced by the students. It also finds out their response toward the implementation of the game. The result of the interview reported that the students found minor challenges during the playing. The first challenge was that they felt confused about whether they had to click or drag the pin, but also realized that it happened because they did not see the instruction before playing.

Student 1: *"I did not know what to do in the first time. I tried to click, but it did not work. Then I thought I could drag the pin, and it works! I felt happy and started to play."*

Student 6: *"Because I saw there was an option "How to Play," I clicked it, and I spent my first 5 minutes to read the instruction, the I faced no difficulties."*

The next challenge is when they have to complete the level within a limitation of time.

Students 2: *"The time was limited. I needed to think and compete the time. It makes me nervous yet enjoy the focus in playing."*

Student 4: *"I think the time in vocabulary level and comprehension level should be different. I needed more time to read and answer the questions in levels 5 and 6."*

The last challenge found during the interview was in understanding the last level in each topic, reading comprehension. In reading comprehension level, they have two jobs, reading and understanding the text, answering the questions, and matching the pins.

Student 3: *"Reading is not easy. I needed more time to read the text, answer the questions, and drag the pin. But the vocabulary and exercises help me to understand the reading better."*

Student 6: *"I could finish the reading in topic three better because I had experienced finishing the previous two topics."*

The researcher asserted that the topic in e-CALF digital game was based on the grades [19]. For the students in first grade, the topics of the game are fruit, family, things in the classroom, and vegetables. For the students in second grade, the topics are greetings, introducing, part of the body, and number. For the students in third grade, the topics of the game are parts of the body, days, school environment, and animal. Then, for the fourth grade, the topics are colors, animals, part of the body, and jobs. For the students in fifth grade, the topics are public places, things, transportation, family tree, and descriptive job. After that, for the students in sixth grade, the topics of the game are the season, direction, tourism, and airport. Every game has the same procedures of playing and the same design. The one which distinguishes them is only the topics of the game for each grade.

Also, each of the topics in the game had six levels. The students are free to choose which of the topic they want to play first [19]. This freedom means that they could set their goal of which topic they feel the most needed for their learning. The opinion of Lai & Gu supported this result [10], which stated that ICT tools are committing the students' goal in learning. This statement indicates that digital game e-CALF is a significant source for the learner to reach their goal in learning. This result claimed that digital game e-CALF could promote the students' planning in their learning because before the students reach the goals, they have to set the plan first. Games should require a certain level of metacognition, so that players are expected to self-evaluate, self-direct, and self-select choices that lead to feasible solutions [20]. From the explanation above, the researcher concluded that the digital game e-CALF has a certain level of metacognition in which the students can set their goals before playing the game.

Digital game e-CALF is useful for executing the plan that made before by the students. e-CALF can give a chance for the students to learn English in a meaningful way. It is because the game has six levels in each topic. Every two-levels have a different type of question. Level 1 and 2 deal with vocabulary building, level 3, and 4 deal with filling blank

sentences, and level 5 and 6 deal with understanding a text [19]. This explanation means that digital game e-CALF can facilitate the students to implement the goal that they have set. Related to Zimmerman's concept, this digital game helps to promote the implementation or performance phase of self-regulated learning [21].

The third phase of self-regulated learning is self-reflection. In this phase, the students made a reflection on what they implement or perform. Digital game e-CALF has time allotment on each level. The students have to finish the game within 3-5 minutes. After the game has finished, the game will show the score. The time the students finish the game will reflect how long they need to answer the questions. They will reflect on themselves the time and the score they gain. In self-reflection, the students make judgments toward the activity they do [21]. As the above explanation, digital game e-CALF can help to promote self-regulated learning, especially for the self-reflection phase.

e-CALF as a digital game for helping students to learn does not only have beneficial impact for students' cognition like improving vocabulary mastery [22, 23, 24, 25, 26, 27, 28, 29, 30, 31] and honing students' problem-solving abilities [32, 33, 34, 35, 36], but the students can enjoy learning language in fun atmosphere without feelings of worries [26].

Together with the advancement of technological tools, the concept of SRL in the language learning context has gained new dimensions [10] [11]. Also, technology has many sources to offer to the students to get them occupied with language learning activities on their own. Using technology-enhanced language learning facilitates self-regulated learning situation [12, 13, 14, 15, 16].

#### IV. CONCLUSION

The recent study concludes that promoting students' self-regulated learning can be realized by the digital game because nowadays, the students have technology in their learning facilities. The teacher can use e-CALF to promote students' self-regulated learning. This game promotes SRL in the planning phase, implementing phase, and self-reflection phase. In the planning phase, the game provides an opportunity for the students to choose the topic freely.

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