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Investigating Cognitive Levels Progression Applied to English as a Foreign Language Acquisition Learning among Secondary Schools Learners in Parakou, Benin

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Abstract

Students' cognitive levels are very important in EFL classes. They determine lessons mastery by learners and also the teaching learning process achievement. This research has aimed to assessing the EFL students' different cognitive levels in class. Lycée Mathieu Bouké (LMB) secondary school in Parakou municipality at Northern side of Benin has constituted the setting of this research work. Both teachers and learners have been selected in sample, to participate to the study. They were selected through random way. Questionnaires, interviews, classroom observation and Montreal Cognitive Assessment (MoCA) were used to collect data, which have been processed through qualitative and quantitative approaches. The findings have demonstrated that 40% of the teachers met do not know anything about cognitive levels, 50% don't know which cognitive activities they should give to the students according to their levels. Only 30% are aware of that and are really boosting the students' cognition. Besides, 80% of the learners have a quick understanding and 20% have a low or medium understanding of the lessons taught. These observations may be due to the higher technology and the sociocultural practices that can influence positively or negatively the capacity to retain knowledge as learners. The study has pointed out six different cognitive levels classical as followed: remembering, understanding, applying, analyzing, evaluating and creating. These cognitive levels in the teaching-learning process can help learners to better improve the four skills as well as vocabulary, grammar, fluency, accuracy, knowledge and critical thinking.

Keywords: *Cognitive levels progression, EFL, Learners, teaching, learning*

INTRODUCTION

Education plays an important role in the young generation preparation for full participating to the society's development. Educationists and educational science researchers consider education as a crucial or capital factor when it comes to preparing the future generation to face the ever-changing future. Idris and al. (2012) found that education is very important for an individual's success in life. It helps a person to discover himself and his potentials as full participant of the society. To that perspective, English appears to be the best medium in today's globalized world. Due to its

importance in every domain, English is adopted as Second Language or Foreign Language in many non-speaking countries (Rohmah, 2005).

To make teaching learning process successful at school, teachers should be aware of students' cognitive levels and adapt their teaching strategies accordingly. In fact, the main goal of education is to enable students to make critical thinking, to solve complex problem and succeed in today's demanding world. Measurement of such knowledge and skills is essential to tracking students' development and assessing the effectiveness of educational policies and practices (Finn et *al*. 2014).

Students' cognitive skills are fundamental to EFL teaching learning. As a new language, students' need to make use of their inner capacities to acquire and install it. Some students have the capacity to quickly memorize or to analyze information. Other groups are creative an imaginative. All these skills contribute to help students to solve problems and to have good performance. Such can be possible only if the teachers are proficient and can differentiate learners' cognitive levels and make class activities and teaching materials and techniques fit with students' abilities and needs as well. For instance, students who learn by seeing or applying learn better when their teachers involve them in practices or when they watch videos. However, EFL teachers are not always aware of students' cognitive skills. They do not design class activities that boost students' intellectual abilities. While research showed that cognitive ability is highly correlated with schooling success and significantly contributes to future earnings (Cawley, Heckman, & Vytlacil, 2001; Green & Riddell 2003). Moreover, students do not perform well at school and thereby are missing their language needs essential for their future life. The aims of this survey are to:

- Identify the different types of intelligences that learners possess that affect their language learning achievement;
- Explore EFL teachers' perceptions about the learners' different intellects;
- Suggest techniques and strategies to reinforce students' levels in classroom.

Problem statement and Objectives of the study

Research problem

In the process of building knowledge, educators need to play the role of partner with learners in order to make learning a constant exchange of experiences. However, it is up to them and the psychopedagogue to be mediators, challengers and guides as well as to intervene in the learners' practices of activities to provide opportunities to advance in the process of building themselves and knowledge in its entirety.

In fact, in the field of language learning via the cognition development or evolution, the elements of development and interaction of the learners with knowledge, their human capacity which refers to the control of the being in relation to their intelligence allowing them to be in the process of learning, of knowledge to be apprehended from the world around and then, in school of language education produced at the end.

However, learners face more challenges while learning English language and some are not performing during exams. Thus, it has come more than important to raise teachers' awareness about the students' cognitive skills and their impact on teaching learning practice. With the purpose to resolve this problem, the present research work aims to investigate on the students' cognitive levels in EFL acquisition and learning among secondary schools' learners in Benin.

From such problematic, some research question emerged:

- What learning competences should EFL learners achieve in secondary schools?
- What practical experiences of cognitive learning can be offered to learners so as to achieve learning goals and competences in EFL classes?
- How to efficiently organize learning in the action of intelligence toward the learners?
- How can we be sure that competences are installed with the progress of intelligence/cognition during learning process?

In the framework of this research some hypotheses need to rephrased:

The leading survey in developmental cognitive neuroscience can drive us to the prefrontal cortex likely orchestrating the functions of many other brain regions during development. The prefrontal cortex may provide advantages to neural networks and connections in EFL learning process The changing brain has something to do with the learners' cognitive development leading to activation of some brain zones Brain zones need to include the controlling attention, the reducing interfering thoughts and inhibitions of actions and flexibility during language classes learning process.

Research objectives

Cognitive skills bring academic success to students and help them to efficiently think, read, prioritize, understand, plan, remember, and solve difficulties. Thus, when cognitive skills are strong, students pick up things faster, more easily, and find it fun.

In EFL classes, most of the teachers do not know how cognitive skills that learners possess in EFL acquisition and learning can impact their language achievement. Furthermore, cognitive skills are determinant for teachers to assess learners 'language needs and know which activities should be put in their program. So, the teachers can apply differential teaching so as to meet students' individual needs and by so doing, get learners motivated and focused in classroom activities.

The general objective of this study is to evaluate and measure the students' cognitive levels in EFL classes.

In the sense that the school fulfilling purposes of learning, one can consider the problems of learning to read and write or listening and speaking English as a Foreign Language in a context where learners' capabilities to acquire has something to do with difficulties of acquisition. It may imply some lacks of construction and development their cognitivism in coherence to the activities that allow learners to access in a given speed the knowledge. The learning of the four modalities of EFL therefore, is a process that occurs in the social field where the learners do not accept the interference in a passive way. This is where they need to internally transform what they receive from the social background.

In this process of taking their own, their individuality, learners in such posture go through contradictions between the thought as an intelligence they receive from the world, and the process allows them to build new strategies of acquisition or learning that enable them to conceive their personal language modalities. As a consequence, it is important to emphasize that the subject makes throughout their life in such environment of knowledge is possible from two ways: "through declarative memory (words and images structuration) and procedural memory (mental structurations)". To that end, language educators must get prepared to adequately deal with those categories of learners in the classroom and in other environments. (Ribeiro, 2004, p.38 – 39).

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LITERATURE REVIEW

To the point of Piaget (1954), learners search to build their understanding of the globe, the evolution of the brain or the intelligence generates the skeleton. These are practices or representation of memory that plan the knowing of something. Piaget's theory, behavioral representations (physical activities) characterize learners of language at schools and their even cognitive activities influencing the learners. In orienting the ongoing debate, the learners use and adapt their drawing, by inspiring two concepts: assimilation and accommodation. Assimilation occurs when learners incorporate new information into the existing picture of knowledge. Whereas accommodation occurs in the learning process when the learners adjust their schemas to fit new information and experiences.

In other context, learners involved in an EFL/ESL program cognitively organize their experiences. Which organization in Piaget's principles is the grouping of isolated behaviors and thoughts into higher -order system. Continual refinement of this organization is an inherent part of development. For example, a learner with only vague idea about how to use an English particle or function also may have a vague idea about how to use other language resources. After learning how to use each one, he/she relates these uses, organizing his/her knowledge in brain or intelligence.

Not long ago, researchers thought that genes primarily determine how brains are wired and that the cells in the brain responsible for processing information just develop on their own with little or no input from environmental experiences. Whatever brain the genes have provided learners are essentially stuck with it. That view of brain where some can call upon intelligence or cognition, however, turned out to be true or wrong. Instead, it is clear that the brain has plasticity and its development depends on contexts, activities and experiences learners are engaged in (de Haan & Johnson, 2016; Goddings & Mills, 2017). Some factors constrain or advance the construction of cognitive skills (Karmiloff-Smith, 2017; Monahan & Others, 2016). In other words, the activities of learners in class can change the development of their brains.

In fact, the number and size of the brain's nerve endings continue to increase at least through the ages. Some of the brain's growth in size also is due to myelination, the process of encasing many cells in the brain with a myelin sheath. This increases the speed at which information travels through the nervous system (Fields, 2015). The implication for teaching/learning are that learners will have difficulty focusing their attention and maintaining it for very longtime, but their attention will improve as they move through the schooling. The most extensive increase in myelination, which occurs in the brain's frontal lobes where reasoning and thinking occur, takes place during the learning processes (Galvan & Tottenham, 2016). Cognitive levels are aspects of mental functioning, such as memorizing and remembering; inhibiting and focusing attention; speed of information processing; and spatial and causal reasoning (Robinson 2011). The individual cognitive abilities are measured by submiting people to formal test. The outcome of such test enables to pull out individual intellectual capacities in solving problems, thinking, keeping information, analyzing and reasoning in front of situations. Indeed, psychological science has used measures of several cognitive concepts to assess variation in domain-independent mental skills, including processing speed (how efficiently information can be processed (Kail & Salthouse, 1994)), working memory capacity (how much information can be simultaneously processed and maintained in mind (Cowan, 2005; Gathercole et al., 2004)), and fluid reasoning (how well novel problem can be solved; also termed fluid (Engle et al., 1999)). Even more, there is a significant co-relation among those three major aspects of mental skills. Studies from late childhood through young adulthood indicate that gains in processing speed support

gains in working memory capacity that, in turn, support fluid reasoning (Coyle et al., 2011; Fry & Hale, 1996; Kail, 2007).

In school context, students' cognitive levels are very important to their success. They influence their ability to integrate knowledge, which is the goal of education. Cognitive skills and knowledge involve the ability to acquire factual information, often the kind of knowledge that can easily be tested.

According to Finn et al. (2014), cognitive skills predict academic performance, so schools that improve academic performance might also improve cognitive skills. As matter of fact, studies have shown that attending school has a positive impact on students' intellectual abilities (Williams, 1997). Students with more time spent in school show better IQ level. This cannot be possible without teachers' contribution through adopting good teaching method, quality activities implementation and differential teaching.

Developing students' cognitive level at school calls for new approach of learning called cognitive learning. This style of learning is a powerful alternative to traditional classroom learning. Instead of focusing on memorization, this approach builds on past knowledge. Students learn to make connections and reflect on the skills that help them become better learners, and by so doing get more creative. As major benefits, cognitive learning improves comprehension, develops problem-solving skills, promotes long-term learning, improves confidence, and installs a love of learning (Jaeggi et al. 2011). Nevertheless, cognitive learning is influenced by three factors such as comprehension, memory and application (figure 1).

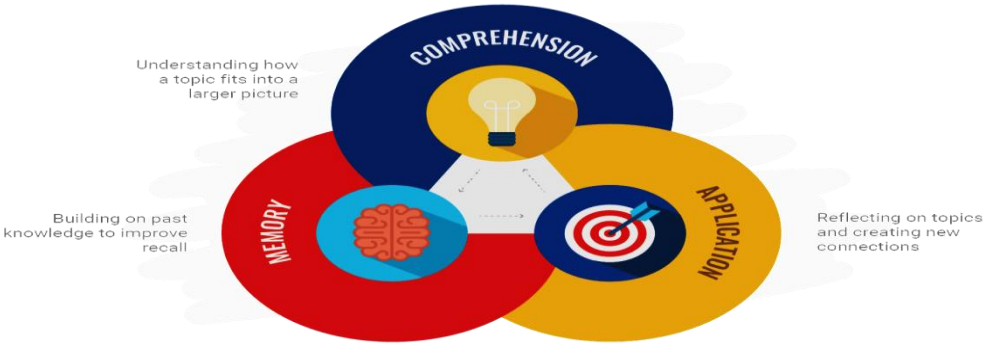

Figure 1: Factors influencing cognitive learning (https://gradepowerlearning.com/wp-content/uploads/2018/02/cognitive-earning-visual.png)

METHODOLOGY

Target population and sample

The participants to the present study are composed of both EFL teachers and learners of LBM secondary school of the municipality of Parakou in Northern Benin. Learners are involved in the survey since they are the major actors and the beneficiaries of the educational system. As for teachers, they are in charge of delivering knowledge and the guidance of learning in their knowledge building. The sample is composed of ten (10) teachers and fifty (50) students, selected randomly. The students belong to third and fourth forms.

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Techniques of Data collection

Four major techniques were deployed such as classroom observation, peer teaching, interviews, questionnaire and Montreal Cognitive Assessment (MoCA).

Interviews

As a qualitative research method, individual interviews were conducted with teachers and learners on the basis of questionnaire. This technique aims at collecting detailed information about participants' experiences, opinions, and attitudes in their own words. Interviews have been administered for better understanding of the research topic.

Peer teaching

Peer teaching is a suite of practices in which peers instruct each other in a purpose-driven, meaningful interaction. Many programs feature older, more experienced peers, or those with greater mastery in a subject area teaching younger, less experienced peers or those who are yet to master the skills and content of the subject area (Bradford-Watts, 2011). This technique was used to determine the students' cognitive levels such as their concentration, their creativity, etc.

Montreal Cognitive Assessment

The Montreal Cognitive Assessment (MoCA) was used to know the students' cognitive levels. Indeed, MoCA test is designed as a rapid screening instrument for mild cognitive dysfunction (Koski, 2013). It evaluates different cognitive domains such as attention and concentration, executive functions, memory, language, visual constructional skills, conceptual thinking, calculations, and orientation. The test lasted approximately 10 minutes. It's concerned 24 students (12 in third class and 12 in fourth class) and has been done just after peer teaching.

Classroom observation

According to Koshy (2005), as cited in Elen N.A. (2020) Classroom observation plays an important role in any kind of data-gathering and most active research projects use this as an instrument. Observation is a natural process that one uses to observe things or people and make judgment based on what has been observed. As technique it helps to collect behavioral and non-verbal responses from the participant. During class observation everything happening in the class is written. Then some remarks and suggestions have been suggested with the purpose to improve teaching and learning process. In so doing, the purpose is to gain a closer insight into the cultural practices, motivations and emotions of students about the cognitive levels and other different affective factors. Two class observations have been conducted, one in 6ème class and the other in upper sixth grade class ended.

Questionnaire

Questionnaires have been used as instruments for data collection. These questionnaires are designed based on Focused Observation of Real -World language teaching items. From their individual background in the teaching to learning of the English by referencing (Crew& Bodycott, 2005). To that point, Teachers' questionnaire and the learners' one as well are in closed-ended format. It means that their answers are limited to a fixed set of responses among which they choose. Both questionnaires are ranged from the general to the specific. It means that the questionnaires start from daily life experience to a specific point related to the topic under study. The teachers have returned their questionnaire sheets one week later. As

far as learners are concerned, one has distributed the questionnaire sheets to them and collected their answers on the spot.

FINDINGS

Data presentation

From the data collected, our research team categorized them and inserted them into a template in the form of tables for visibility in order to appreciate the quality of variables in questioning.

Table 1. Teachers' responses to the questionnaire

Questions	Teachers' answers	Numbers	Percentage
How many hours do you have for your English class?	21 hours	10	100%
	Over 21 hours	00	0%
How many hours are normally required?	22 hours	10	100%
	Over 22 hours	00	00%
Since ELT is changing as far as its techniques are concerned, should Benin government update its English syllabus / curriculum?	Yes	10	100%
	No	00	00%
Do you often take into account your learners learning levels during speaking lessons and exams?	Yes	8	80%
	No	2	20%
Do you feel the need of implementing new techniques in ELT?	Yes	10	100%
	No	00	00%
Does covenant management include interaction and creating motivation?	Yes	09	90%
	No	01	10%
Do your learners actively participate in speaking lessons?	Yes	05	50%
	No	05	50%
Which of the classroom management styles do you use during speaking lessons?	Authoritative style	00	00%
	Authoritarian style	08	80%
	Indifferent style	00	00%
	Laissez- faire style	02	20%

Source: Investigation data, 2023

In table 1, it is revealed that 100% of the teachers involved complete 21 hours class per week. All believed that Benin should update its English curriculum. 80% use to take into account learners' level while teaching. All of them feel the need to implement new technique. 90% answered that class convenient management includes interaction and creating motivation. 50% said that their learners participate actively in speaking lessons. 80% follow teacher's centeredness style in classes.

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Table 2. Data from the questionnaire addressed to the learners

Questions	Learners' Answers	Numbers	Percentages
Does your English teacher allow you to express yourself during classes?	Yes	40	80%
	No	10	20%
Do you always get the good marks in all the subjects in the class?	Yes	45	90 %
	No	05	10%
Do you find yourself involve during the teaching and learning process?	Yes	05	10%
	No	45	90 %
Is Speaking activity in class relaxing or boring?	Relaxing	45	90%
	Boring	05	10%
Is there any English club in your school?	Yes	50	0%
	No	00	100%
Is there any library?	Yes	00	00%
	No	50	100%
How often do you go and read over there?	Once a week	00	00%
	Twice a week	00	00%
	Never	50	100%
Where do you speak English?	At home	00	00%
	At school	100	100%
	Nowhere	00	00%
With whom do you speak English?	Parents	00	00%
	Teachers/Classmates	50	100%
Are your parents involved in English language learning?	Yes	10	20%
	No	40	80%

Source: Investigation data, 2023

In table 2, 80% of the students said that their teachers do not allow them to express themselves during class. 90% always get good marks in all the subjects in the class; 90% are not involved in teaching learning process; 90% feel bored while speaking activity. All of them said that there is no language club in their school as well as library. They speak English only at school with their teachers or classmates.

Data from students' evaluation

Twelve EFL learners have randomly been selected both in the third form ($4^{ème}$) and fourth ($3^{ème}$) to participate in the test. They have been tested in terms of fluency, proficiency and accuracy. EFL learners' oral presentation followed (but not strictly) the 4-3-2 minutes time frame as provided in Jones' (2012). They have then been graded according to their test score. The results are in the following tables.

Table 3. Learners' test record in the third form ($4^{ème}$)

Learners	Proficiency (1-5)	Fluency (1-5)	Accuracy (1-10)	Test score (/20)	Grades
S1	4	4	2	10/20	B
S2	2	2	1	5/20	G
S3	3	4	3	10/20	C
S4	3	2	2	7/20	D
S5	1	1	1	3/20	G
S6	3	5	4	12/20	A
S7	2	1	2	5/20	D

S8	2	1	2	5/20	G
S9	2	2	2	6/20	F
S10	3	2	1	6/20	I
S11	1	2	1	4/20	G
S12	4	4	3	11/20	A

Source: Investigation data,2023

Table 3 revealed that among 4ème class students evaluated, only three (03) students got over 10/20. They are students S1, S6 and S12 who got respectively 10/20, 12/20 and 11/20. The nine (09) other students are under or equal to the average.

Table 4. EFL learners' test record in the fourth form (3ème)

EFL beginners	Proficiency (1-5)	Fluency (1-5)	Accuracy (1-10)	Test score (/20)	Grades
S1	4	2	6	12/20	B
S2	1	3	3	7/20	G
S3	1	3	2	6/20	H
S4	2	3	5	10/20	C
S5	3	3	6	12/20	B
S6	2	2	4	8/20	F
S7	3	2	4	9/20	E
S8	1	1	3	5/20	I
S9	3	3	4	10/20	C
S10	1	2	4	7/20	G
S11	2	2	4	9/20	E
S12	2	1	2	5/20	I

Source: Investigation data, 2023

Analysis and comments

The analysis was developed through comparative elements or indicators contributing to the progress of proficiency by taking into account the evolution of learners' brain or intelligence. That means that all the progress made had something to do with the development of their individual cognition in language classrooms.

The findings reveal that five (5) out of ten (10), that is 50% of teachers said that their learners participate actively during classroom lessons and others said the opposite. Also, eight out of ten, it is 80% of teachers follow authoritarian styles while two of ten (20%) follow « laissez-faire style » during lessons. It means that teachers do not allow their learners to interrupt in the class.

Moreover, the study showed that, four (4) out of ten (10), that is 40% of the teachers investigated do not know what is cognition. Consequently, they do not design activity that can really help students to develop their cognitive differences. In fact, half

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of them, this is 50% of the teachers don't really know which cognitive activities they should give to the students according to their levels. Only 30% are aware and said to have been really improving the cognitive levels of the students.

The analysis of the data reveals that of fifty (50) students and

forty (40), this is 80%, declared that their teachers allow them to talk during classes while ten (10) out of fifty, that is 20% said that they do not allow them to participate actively to lessons and thereby they do not feel engaged during exams.

The majority of EFL learners (90%) attested that they like speaking lessons and 10 % find it difficult. All of them confirmed that their college has a library but all of them do not visit that library with the purpose of reading. The results prove that learners only have the opportunity to speak English at school with their classmates and teachers. Also 100% of them declared that their parents do not engage in their learning context. In addition, more than half of the learners are willing to participate actively in what goes on in the classroom.

The English class observation and peer teaching reveal that 80% of the learners have a quick understanding and 20% have a low or a medium understanding of the lessons.

Data from MoCA assessment shows that of twelve (12) learners involved in the test in 4ème class, four learners representing 33.33% presented their work acceptably. Eight students representing 66.66 % have a grade under the average. Only four learners that is 33.33% have a grade beyond average. In fourth class, of twelve (12) students evaluated, four (4) learners representing 33.33% have presented their work acceptably. Eight (8) students, representing 66.66 % have a grade under the average.

DISCUSSION

The analysis revealed that 50% of the investigated teachers make learners participate actively to class activities while the other half does not do. The majority of them use authoritarian style to teach students. This has shown that the teachers do not use appropriate strategy and teaching style that can really make learners feel involved and by the way take part fully to the school activities. These observations have raised the problem of lack of professional training as notified by Arslam, Mirici and Öz (2019). The authors in their research point out that it is crucial to train teachers on vocabulary instruction, teaching pronunciation, material development, use of instructional technology in ELT, teaching mixed-ability classes, and classroom management. Lemperou Chostelidou and Griva (2011) made similar conclusion when they said that teachers should be taught on the inclusive way of teaching.

The study showed that 40% of the teachers don't know what is cognitive level. Half of teachers don't know which cognitive activities they should give to the students according to their levels. Only 30% are aware of them and said to have been really improving the cognitive levels of the students. These results demonstrate the teachers' incapacity in assessing learners' cognitive skills and helping them to develop those skills. Evendi et al. (2022) have confirmed in their study that assessing students' critical thinking skills viewed from cognitive style is very crucial to successful classroom. This is the reason why Erikson & Erikson, (2019) said that equipping students with critical thinking skills is a fundamental task of a university in the contemporary higher education system in the current century. Bezanilla et al., (2019) stressed that the intervention of critical thinking teaching programs in classrooms must be optimized so that it becomes a way for the university to develop students' critical thinking.

Learners' data show that the big majority are participating actively to classroom activities against 20% who feel not to be engaged in the lessons. Almost all of them are

motivated in speaking English, most importantly with their mates and with their teachers at school. They expressed the need to be the main actors of their knowledge building. This is a good result since the students' motivation is tremendous for successful teaching learning. Al-Munawwarah (2018) made similar conclusion when she discovered that both instrumental and integrative motivation play a crucial role in the students' EFL learning process. In addition to this, 80% of the learners have a quick understanding and 20% have a low or a medium understanding of the lessons.

This is normal because in the field of acquiring or learning a language, learners' success may vary since they have different characteristics (Al-Munawwarah, 2018). Moreover, MoCA assessment completed in both third and fourth classes revealed students possess different cognitive levels that are remembering, understanding, applying, analyzing, evaluating and creating. All these skills are affected by the motivation that determines the differences in acquiring a language (Crisfield & White, 2012).

CONCLUSION

The present study has investigated the cognitive levels in EFL Acquisition/ learning among Secondary Schools Learners in Benin. The findings have revealed that the learners are strongly motivated in learning English language and participate actively to classroom activities. However, the teachers do not know much about students' cognitive levels and are not helping them to develop those levels through adequate teaching strategy and appropriate lessons. In addition, the majority of the learners have quick ability to understand lessons. Six major cognitive levels are pulled out such as remembering, understanding, applying, analyzing, evaluating and creating. Further studies should focus on those individual skills to better enlighten teachers' awareness in developing them in EFL classes.

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