

## **A STUDY OF BILINGUAL EFFECTS IN ENHANCING COGNITIVE ABILITY OF EFL STUDENTS IN E-LEARNING CLASS**

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### **Abstract**

This study aims to determine how the use of favorable bilingual activities effect in enhancing the cognitive abilities of EFL students in the E-Learning class. Researcher used E-Learning class observation through the google meet application as well as student and lecturer interviews as a qualitative research instrument. The results of this study indicate that the habit of using bilingual activities is one way to improve students' cognitive in terms of mastery of 2 languages in participating in E-Learning classes. It turns out that the role of the lecturer is one of the determining factors for the success of this bilingual activity, while the factor of the lack of data and network quotas makes students not focus on learning so that it hinders students' cognitive abilities. The results obtained prove that the way bilingual activity effect the enhancement of students' cognitive abilities in the E-Learning class is to make it a habit which mostly influenced by lecturer actions.

**keywords:** Bilingual, Bilingual Activity, Cognitive Ability

### **INTRODUCTION**

The use of bilingualism in students' social interactions in the school environment aims to create "quality" human resources. Therefore, the school as a formal education provider institution which is an institution of community trust in creating the nation's generation that is able to compete at the world level must be more serious to carry out their duties.

In a period of very rapid development today, mastering two or more languages has become a basic need for people everywhere. Indonesian people turned out to have quite good language skills due to the factor of national language habits combined with the local languages of the community itself. Mastery of two languages in sociolinguistic science is called bilingualism. (Keikhaie & Khoshkhoonejad, 2015) Bilingualism can be broadly defined as the ability to speak

two languages; however, there are many grey areas when establishing which are the first language, the second language, and the third language of a bilingual. We can see that people who are able to communicate as bilingual or multilingual usually have the ability to interact and adapt better with those around them. Bin-Tahir et al (2018) found that the multilingual students have the extrovert and ambivert of speaking behavior while the mono multilingual students tend to be the introvert behavior in English speaking. Otherwise, the mono multilingual students have the good performance in term of the accuracy and comprehensibility while the multilingual students have the good performance regarding the comprehensibility and fluency. This shows the influence of the use of bilingual and multilingual to one's cognitive abilities.

Indicators of the overall development of cognitive aspects of someone who has a relationship with success in the school environment and residence is the language development of the speakers. When someone is able to communicate well, can understand the meaning in social interaction, and understand reading in several forms of language, it can be concluded that the cognitive abilities of the person are at an above average level. Besides that, there are many people who are currently developing their cognitive abilities through linguistics by studying English as a foreign language. As we know that English has been established as an international language, so it is indeed very important to learn. English is not only used to communicate with the world community, but is also useful to improve someone's insight.

Teaching and learning methods using e-learning are currently used prodigiously, due to the covid-19 outbreak that caused everyone to remain at home. This causes the teacher must provide online teaching for students so that the learning process continues under any conditions. so many benefits offered by using E-Learning, its use can provide convenience for teacher and students in solving problems faced in learning process especially in term of time, space, condition, and circumstance (Sadikin & Hakim, 2019). For teachers and students who use 2 or more languages in class, they will still be like that even though they are taking online classes so that the good effects caused by using these 2 languages can be maintained and not reduce the students' language abilities themselves. Carrying out a bilingual e-learning teaching system will run as it should in the classroom itself, the difference is that the teacher and students are not in the same place but they still face to face and interact with each other, in this activity the teacher is still able to evaluate in it. Learning either face-to-face, non-face-to-face (e-learning), or a combination of both, is a process that involves 3 activities that are interrelated with each other, namely: (1) presentation activities, namely exposure or presentation of learning materials, (2) interaction activities, namely reciprocal communication activities between learners with facilitators and between learners, and (3) evaluation activities that serve as a measure of progress and success of learning (Elfin Noor, 2017)

Improving the quality of education at the highest level of education, namely universities, such as Makassar Muhammadiyah University, which has pioneered various departments, one of which is the Department of English Education to produce English teachers for more than 20 years, has implemented various methods to improve the quality of education through strategic efforts. Learning systems that use two or more languages which put on class activities as a bilingual activity where the lecturer and students utilize Indonesian language as native language while

English applied to be the second language which is add into the learning methods that exploit e-learning then used continuously. Furthermore, the use of that can elevate language ability of students to be master of these two languages and become fluent in applying the languages in all aspects especially in the next occasion, when they are ready to be teacher, more interactive, communicative, and analytic, which will affect later cognitive abilities of these students.

Based on the phenomena then author discuss the science problem of a study of how the use of bilingual activity affects the favorable impact of cognitive abilities to EFL students in e-Learning Class at Makassar Muhammadiyah University, Department of English Language Education.

## **METHODOLOGY**

This research has been conducted with a qualitative approach, namely research in which data are in the form of words (not numbers) derived from interviews, report notes, documents, etc., or research in which prioritizes analytical descriptions of events or the process as it is in the natural environment to obtain the deep meaning of the process. This approach is a process of collecting data systematically and intensively to gain knowledge about "The Study of Bilingual Effect in Enhancing Cognitive Abilities of EFL Students in E-Learning Class at The English Department of Muhammadiyah Makassar University".

The subject of this research has been the EFL students in the 6<sup>th</sup> semester of English Education Department in Muhammadiyah Makassar University. The author had chosen English Education Students as the research subject because English Education students and their lecturer actively used English-Indonesian as the language use while doing teaching and learning activity as well as the bilingual class done.

The data source that has been explored in this study consists of the main data source in the form of words and actions. Sources and types of data consisted of data and actions, written data sources and photographs. So that data sources that have been used in research in the department of English Education Department at the Muhammadiyah Makassar University is online interviews and online observations.

Data analysis technique was the way which had been used to analyze the data have collected in research.. Rijali (2019) explained that qualitative research, conceptualization, categorization, and the description was developed on the basis of "events" obtained when field activities take place. Hence, between activities data collection and data analysis cannot possibly be separated each other. Both took place simultaneously, the process was cyclical and interactive, not linear. According to Miles et al., (2014) the analysis consists of three streams of activities that occur simultaneously, namely: data reduction, data display, and drawing conclusions / verification.

By using the 3 stages of data analysis above, it had really helped the author in processing the various instruments that had been used by the writer in the process of this research, so that the initial results were still unclear to be more accurate and convincing.

## RESULT AND DISCUSSION

How the Use of Bilingual Activity (Indonesian-English) Affects the Favorable Impact of Cognitive Abilities of EFL Students in E-Learning Class.

The result of the analysis shows how the favorable effect of cognitive abilities of EFL students in E-Learning class by using bilingual activity is influenced by actions among the lecturer and students, those acts are displayed in the following table below:

- a. Lecturer action that affects cognitive ability of EFL students in E-Learning class by using bilingual activity

No	OBSERVATION RESULTS FOR LECTURER (LECTURER ACTION)
1	Opening the class by Asking students activity along that week
2	Giving motivation for all students before teaching
3	Switching the language in proper time
4	Clarifying the students understanding
5	Delivering question to make sure that students comprehend the material
6	Giving appreciation after students answer the question
7	Reprimanding unfocused students
8	Closing the class by giving quiz which will be explained next week

Table 4.1 represents that there are some acts produced by the lecturer which affects the right effect in cognitive ability of EFL students in E-Learning class by using bilingual activity. Showed from lecturer-students' interactions while online learning activity using google meet, the lecturer did some activities that influence student's cognitive aspect by utilizing bilingual activity. Those lecturer-students' interactions that develop students' cognitive ability can be seen in the following conversation:

Conversation 1-3 appointed Lecturer-Students Interactions that Affect good impact to the Students Cognitive Ability in E-Learning Class by Using Bilingual Activity

### Conversation 1

Lecturer: Assalamualaikum class, this is great to face u today in this special month, Ramadhan kareem. So, how's your life in this fasting day?

Students: Good mam, always sleepy mam, mantap, no problem....

Lecturer : Wika? How about you?

Subject 8: I'm good mam, I still can handle it.

Lecturer : Good job! Sri, and you?

Subject 3: Yes mam. *Aman* (handled mam)

Lecturer : Alhamdulillah, I hope we can go through this fasting

Conversation 1 displayed us that lecturer opened the class by asking the students condition then they started to do bilingual activity when the lecturer asked how's your life in this fasting day?. Thereafter the student simultaneously responded by using two languages (Indonesian-English) Good mam, always sleepy mam, mantap, no problem.... This act also made students rising their spirit in joining e-learning class by using bilingual activity. Because the use of bilingual activity and action of lecturer, the researcher vied that students cognitive ability were enhanced. It was evident by reason of students comprehend language, speech production advanced .

### Conversation 2

Lecturer: so class, what is variable based on what you've got from the explanation?.

Subject 1: me mam!

Lecturer : yes, please!

Subject 1 : we can say, variable is the most important part of research, *yang menjadi konsep of research dan sesuatu yang bisa diukur*. (we can say, variable is the most important part of research, which be concept of research and measurable)

Conversation 2 points us that lecturer asked to all students about given material. That was seen on the observation that lecturer tried to make sure students understanding of the subject by asking what is variable based on what you've got from the explanation ?. Then after student answered, the lecturer gave feed back " wahh good job, who next?" this way was kind of Indonesian people talking which aimed to give appreciation of student's response. These bilingual actions drives students to make their self regularly used bilingual activity which established students cognitive ability in using two languages such us competence in understanding language, turn taking, and memory

Students action that affects cognitive ability of EFL students in E-Learning class by using bilingual activity

No	OBSERVATION RESULTS FOR STUDENTS (STUDENTS' ACTION)
1	Answering lecturer question
2	Asking lecturer unclear explanation
3	Permitting to exchange the language

4 Asking questions and expressing opinions during learning activities

Table 4.2 shows that there are some actions represented by students which affects the nice impact to their own cognitive ability in E-Learning Class. Indicated from lecturer-students and students-students' interactions while online learning activity using google meet, students did some activities that influence their cognitive ability by utilizing bilingual activity. Those lecturer-students and students-students interactions that develop students cognitive capacity can be seen in the following conversation:

**Conversation 4**

Lecturer: wahh good job, who next?

Subject 11 : nurul, mam.

Lecturer : oke, Nurul!

Subject 11: can I use Indonesia, mam?

Lecturer : yes nurul, please!

Conversation 4 describes us that lecturer-student discussion run bilingually where the students sometime ask permission to lecturer for using Indonesian Language by saying can I use Indonesia, mam? (subject 11). This case indicated that students sometime still need to use her mother tongue to strengthen her language comprehension and speech production

**Conversation 5**

Subject 13 : excuse me mam, what exactly our task for next week?

Lecturer : I repeat, because we have learnt about variable, so I want you all to prepare variable that you interest to be researched. *Jelas yah nak! Jadi siapkan variable yang kira-kira kamu inginkan untuk diteliti* (is it clear students! (set variables which you want to be researched)

Subject 13 : ok mam

Conversation 5 describes us that lecturer and students did bilingual activity, the student tried to ask lecturer about unclear thing. Viewed lecturer re-explain the task to the subject 13 then the student directly understood. It means, cognitive ability of student in understanding language improved day by day because using English-Indonesia were being their habit in Online class.

**Conversation 6**

Subeject 15 : tugas kelompok ini mam?

Subject 18 : no, no, no, bukan wehhh... Individual task. Isn't it mam?

Lecturer : yah, this is individual task, each students must have 2 variables. *Ini sekalian kamu Latihan membuat skripsi nak* ( this will be a thesis making practice.

Conversation 6 indicates us that students-to-students interaction did run bilingually. It clearly seen that they have fluently used 2 languages while doing online class. When subject 15 asked to lecturer by utilizing Indonesian while other student, subject 18 answered it in English. It

means, the understand each other where it was proved of enhancing cognitive ability in understanding language and brain focus.

## **DISCUSSION**

There are several lecturers' actions that have a great impact on the process of bilingual activities that have a positive impact on students' cognitive abilities in online classes. The actions are "opening class by Asking students activity along that week, giving motivation for all students before teaching, switching the language in proper time, clarifying the students understanding, delivering question to make sure that students comprehend the material, giving appreciation after students answer the question, reprimanding unfocused students, closing the class by giving quiz which will be explained next week. These behaviors are done so that students are able to improve their cognitive abilities.

The "opening online class by asking students' activity along the week" made class situation started with full of spirit, students answered the teacher question enthusiastically. Most of them responded in the same time with a loud voice. It created happiness in early learning activity. Some of them said in Indonesian while others are English. The lecturer did not give limitation for students in speaking. It seemed when the students answered, the used what language the wanted. In the other hand, the lecturer always drove the students to use 2 language, combination between Indonesian and English. This way let students be more confidence to talk. This act also made students rising their spirit in joining e-learning class by using bilingual activity. Because the use of bilingual activity and action of lecturer, the researcher vied that students' cognitive ability were enhanced. It was evident by reason of students comprehend language and speech production more advanced.

After asking students activity, lecturer tried to give motivation before starting the lesson and always switched the language when she felt it needed. the students seemed to be listening well then began to react lightly by nodding their heads. The lecturer was always bilingual in every activity, sometimes she did not interpret what she was talking about when speaking English in the hope that students would start to get used to using foreign languages without being interpreted. It turns out that students have become accustomed to and understood the motivation given by the lecturer when giving motivation by using foreign languages only, it means that the students' vocabulary and their ability to understand the language increases. This is evidence that students' cognitive abilities are getting better with the presence of bilingual activities in online classes.

Hereinafter, "clarifying the students understanding, delivering question to make sure that students comprehend the material and giving appreciation" were the next action of the lecturer. In this case, initially, the lecturer gave an explanation of the day's lesson starting from the definition, examples, and how to apply it. Students listen carefully to all the lecturers' explanations, occasionally there are students who ask bilingual questions about the material explained. After that it was continued again with the lecturer's explanation. When all the material has been given, the lecturer began to ask questions to students with the aim that the lecturer could ensure that the material captured by the students was correct and ready to be applied in the next assignment, finally, students got appreciation from the lecturer, this was totally loved by students. At this

moment, between lecturers and students continuing to use their bilingual activities, it seemed that this bilingual question and answer activity which was a habit by the lecturers made students not hesitate and feel awkward when performing. So that the language acquisition of the students is getting better.

Further, the last activities by lecturer in online classes which used bilingual activities that affect students' cognitive abilities, namely: reprimanding unfocused students and closing the class by giving weekly task. These acts were brought students be more aware about their second language. The thought that lecturer guide by always delivering kinds of task and steering them to be more focus on the lesson were highly gave big impact to the students' habit in using the foreign language. Resulting in, the cognitive ability in the language area such as comprehending language, speech production, and also representation of language be more progressive.

On the other side, there are some students 'actions which produced substantial effect by using bilingual activities in improving students' cognitive ability in online classes. The actions are answering lecturer question, asking question, clarifying unclear explanation, permitting to exchange the language, expressing opinions during learning activities. All of the above activities are a form of student effort so that they are able to develop their inner potential like comprehending foreign language.

Firstly, Answering and Asking question, this is one of students' real effort in enhancing their self-ability. In the result of the observation, it appears that students who are really serious about learning in online classes, they will often ask and answer questions from the lecturer bilingually. In addition to the two student activities above, clarifying things that are not clear from what is explained by the lecturer is also a student habit that is caught by the researcher. Sometimes there are directions that are not clear due to disruption of the internet network so that students ask to be explained again, either in the first language or in a foreign language. It seems clear that they are already very fluent in using 2 languages without any obstacles, even the language structure of English as a foreign language has begun to compile well. This proves that the habit of their continuing bilingual activity makes their ability to represent language and produce precise speech is better than those who do not often speak bilingual.

The next students' action was permitting to exchange the language. Taking online classes, it doesn't seem that much different from taking offline classes in general. Studying in bilingual online classes, sometimes students who still lack vocabulary, so when there is a moment to ask or answer something, those who initially use a foreign language will ask permission from the lecturer to speak in their first language with the aim that the questions or answers can be conveyed with good without confusion. This is an example that students always try to use a foreign language that is combined with their mother tongue so that their language skills become more proficient, for example speaking skills that are increasingly fluent and structured.

The findings of this research have a line with the research by Moriguchi & Lertladaluck, (2020) entitle 'Bilingual effects on cognitive shifting and prefrontal activations in young children' found that the verbal age of the second language and the length of time speaking it were significantly correlated with behavioral performances of cognitive shifting tasks.

Furthermore, Stocco et al., (2014) on his research under the title " Bilingual brain training: A neurobiological framework of how bilingual experience improves executive function. This



discover that Bilingualism is one of the very few practices that results in general cognitive benefits that have been assessed and replicated. Interestingly, one of the few “brain training” experiments that elicited general cognitive improvements (Jaeggi, Buschkuhl, Jonides, & Perrig, 2008) involved a training regimen that required participants to perform two N-back tasks at the same time, with visually presented and aurally presented stimuli. This training task presents the same characteristics of bilingual practice, including internal control of switching between similar tasks, top-down resistance to interference, and dual tasking. Ultimately, an improved understanding of the mechanisms underlying bilingual brain training could lead to widespread applications for improvement in general cognitive functions.

The next research is written by Khodos et al., (2021) with the title Bilinguals’ and monolinguals’ performance on a non-verbal cognitive control task: How bilingual language experience contributes to cognitive performance by reducing mixing and switching costs”. It is written that the study investigated whether language experience predicts cognitive performance in bilingual and monolingual adults. As indicators of language experience, we focused on language context, typological proximity/distance between two languages and onset age of active bilingualism. As indicators of cognitive performance, we measured mixing costs and switching costs to gauge proactive and reactive control processes during a computerized non-verbal cognitive control task. Then the result particular dimensions of bilingual experience rather than bilingualism per se are linked to enhanced cognitive performance.

## **CONCLUSION**

Based on the findings and discussion, the researcher concluded that the way of bilingual activity in improving the cognitive abilities of EFL students in online classes is to make itself being a habit that is mostly implemented by lecturer. Thus, all the lecturer action while teaching is intensively affect the EFL cognitive ability especially to catch the good impact of using bilingual activity.

## **SUGGESTION**

Based on the findings and discussion, the researcher suggests that:

1. Lecturers must be able to play their role in the right way when teaching based on the students and class situation.
2. The next researcher should prepare a comparison class so that they can see the comparison between those using bilingual and monolingual activities
3. Further researchers can conduct quantitative research by preparing tasks so that they are really able to see the cognitive improvement of EFL students.
4. Subsequent researcher will be better to choose EFL specific subject, such as Speaking class, writing comprehension class, reading comprehension class, etc.

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