THE USE OF TELEGRAM BOT API IN LEARNING SEMANTICS OF EFL STUDENTS

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Abstract

Language teaching and learning is moving towards a new direction (mobile-assisted language learning/MALL)). MALL brings another way on how to assess students' learning. One of the mobile technologies that can be used to help learner in learning a foreign language is Telegram. Telegram has many channels and bots to educate English. This study presented the use of Telegram Bot API in learning Semantics as how it could influence EFL students' learning development through MALL application and how this could influence EFL students' satisfaction. Interactive continuum method was used to find out EFL students' development in comprehending Semantics materials and their satisfaction responses on this media use. Data of the EFL students' learning development and their satisfaction was gathered via test bot, survey and semi-structured interview. The ten participants were submitted paper based test and Telegram Bot API test, then the questionnaire were distributed after the bot. In order to clarify doubts of this questionnaire's result, interview then was conducted. The findings showed that there was a significant development of EFL students' achievement on the integration of Telegram Bot API in their learning and most of them were satisfied on this MALL media use. This conclusion then clarified by the interview results which showed that their satisfactions were range from its display and placement on presenting the test items and the choices, its user friendly, its accuracy, its flexibility on time response, to its other function beyond the form of a test such as a questionnaire.

Keywords: MALL, Telegram Bot API, Semantics, EFL students, learning development

Because language is a system of communication, it is useful to compare it with other systems of communication, such as sign. In linguistics, it is commonly noted that speech is primary and writing is secondary (Meyer, 2009). Meyer also adds whether it is spoken, written, or signed, every language has structure. They are rules and principles. Rules are studied under the rubric of grammar while principles within the province of pragmatics. Rules of grammar operate at various levels: Phonetics/Phonology, Morphology, Syntax, and Semantics (Meyer, 2009).

Semantics is the study of meaning in language. Meaning is a key concept of cognition, communication and culture, and there is a diversity of ways to understand it, reflecting the

many uses to which the concept can be put (Hurford *et.al.*, 2007). Understanding the mechanisms of meaning is vital to successful human communication.
So in order to convey students the everyday significance of Semantics, it's learned through its notions and examples (Hurford *et.al.*, 2007).

The kind of informal language learning found today was a common occurrence in former times and raises some interesting questions on the relationship between technology and language learning. At subject level, the availability and use of educational technology have traditionally been approached as opportunities to enhance learning (Kenning, 2007). Mobile technologies have changed the way we use and study language. Language teaching and learning is moving towards a new direction (mobile-assisted language learning/MALL), it is becoming more and more learner-centered and autonomous (Lixun, 2017).

A study conducted by Deng and Shao (2011) indicated that there was a high readiness of students to undertake mobile learning in their everyday life (Guo, 2015). A smartphone combines telephone capability with computing capability,digital camera, video, MP3/MP4 player, mass storage, Internet access, and networking features like Facebook, Telegram, Twitter or Whatsapp in one compact system (Corbeil & Valdes- Corbeil, 2007; Mehta, 2013).

Social networking is one tool which can assist teachers and learners to access information and facilitate the learning of English (Srinivas, 2010). According to Heidar & Kaviani (2016), one of the technologies that can be used to help learner in learning a foreign language is Telegram. Telegram is now considered as one of the most famous platform online social networks among media university students (Heidar & Kaviani, 2016).

Telegram has Bots to access information with the teacher. According to Omidi & Fooladgar (2015), Telegram intermediary server handles all encryption and communication with the Telegram API for the users. The users communicate with this server via the Telegram API. The server calls that interface as Bot API (https://core.telegram.org/bots/api).

Student test scores measure learning (Haertel: 2013). Based on the observation of the researcher, in University of PGRI Ronggolawe Tuban, students are usually only assessed by paper sheet test, especially on Semantics subject. This made students did not much concern on the test because they could cheat to friends next to them. MALL brings another way on how to assess students' learning. Since Telegram Bot API is a part of MALL, the researcher felt encouraged to find out whether this Telegram Bot API can be used to measure students' Semantics learning in a form of MALL test.

As indicated in the literature, technology use is one of the most vital developments in education, especially in language teaching and learning (Mahmood et al, 2014). They continued that the study in the field of ESL particularly on the use in the area of technology and the ESL classroom is underdeveloped. Therefore, to address this gap, this study intended to address the question of how this technology, especially Telegram Bot API, influenced PGRI Ronggolawe University EFL students' Semantics learning development and how this intervention affected the EFL students' satisfaction. The research questions for this small scale study are as follows: 1) How does the Telegram Bot API influence EFL Students' development on English Semantics learning? 2) How does the Telegram Bot API intervention affect the EFL Students' satisfaction?

LITERATURE REVIEW

According to Meyer (2009), whether it is spoken, written, or signed, every language has structure, which can be described, as Leech (1983) notes, by postulating:

1. *rules*. Rules govern the pronunciation of sounds; the ways that words are put together; the manner in which phrases, clauses, and sentences are structured; and, ultimately, the ways that meaning is created;
2. *principles*. Principles stipulate how the structures that rules create should be used (e.g. which forms will be polite in which contexts, which forms will not).

Rules are studied under the rubric of grammar, principles within the province of pragmatics. Grammar is a word with many meanings. According to Meyer (2009), rules of grammar in linguistics operate at various levels, they are:

1. Phonetics/Phonology

   This level focuses on the smallest unit of structure in language, the phoneme. Linguistic rules at this level describe how sounds are pronounced in various contexts.

2. Morphology

   The next level of structure is the morpheme, the smallest unit of meaning in language. Rules of morphology focus on how words (and parts of words) are structured.

3. Syntax

   The largest level of structure is the clause, which can be analyzed into what are called clause functions: subject, predicator, object, complement, and adverbial.

4. Semantics

   Semantics is the study of meaning in language (Hurford *et.al.*, 2007). Meaning is a key concept of cognition, communication and culture, and there is a diversity of ways

to understand it, reflecting the many uses to which the concept can be put. The fact that semantics is a component of linguistic theory is what distinguishes it from approaches to meaning in other fields like philosophy, psychology, semiotics or cultural studies. Because meaning is at the core of human communication, the study of semantics cuts across all of the other levels. But even though meaning is present at all levels of linguistic structure, the study of semantics is typically focused on such topics as the meaning of individual words (lexical semantics) and the ability of words to refer to points in time or individuals in the external world (deixis).

Meaning is a notion investigated by a number of disciplines, including linguistics, philosophy, psychology, artificial intelligence, semiotics as well as many others. There are some basic notions of Semantics as mentioned by Hurford *et.al.* (2007) in *Semantics: a Coursebook Second Edition.* They are: utterance, sentence, proposition, reference & referent, sense, referring expression, opaque context, equative sentence, predicate & predicator, universe of discourse, deictic word, context of an utterance, definiteness, extension, prototype, analytic, synthetic, contradiction, necessary condition, stereotype, synonymy, logic, ambiguous, etc.

Understanding the mechanisms of meaning is vital to human communication, so Semantics is need to be learned (Hurford *et.al*., 2007). A factor which should be taken into account is that in today's world language learning cannot be restricted to the walls of the classroom with limited hours. The continuity of language learning is easier since knowledge is accessible through the internet. The idea of learning English anytime, anywhere with the use of mobile devices can motivate the students due to the fact that they feel that they have the responsibility of their own learning process, which makes them feel that they have the authority over the process. One of the most common reasons for the use of mobile devices in learning a language is to learn the meanings of the new words students see in a text. (Bezircilioğlu, 2016).

Language teaching and learning is moving towards a new direction (mobile-assisted language learning/MALL) (Lixun, 2017). Mobile Assisted Language Learning (MALL), in broad terms, is the use of mobile devices into language learning process. Learners use their mobile devices to assist their language learning (Burston, 2013). MALL is not easy to define in one way as it has been one of the most sophisticated fields, which is growing at an accelerating rate (Bezircilioğlu, 2016).

As cited on Guo (2015), a study conducted by Song and Fox (2008) found that the mobile device greatly help highly motivated learners to communicate about word meanings with their classmates and lectures outside the classroom. Another study conducted by Deng and Shao (2011) indicated that there was a high readiness of students to undertake mobile learning in their everyday life.

A smartphone combines telephone capability with computing capability,digital camera, video, MP3/MP4 player, mass storage, Internet access, and networking features like Facebook, Telegram, Twitter or Whatsapp in one compact system (Corbeil & ValdesCorbeil, 2007; Mehta, 2013). Among a great variety of iOS and Android apps, there is a considerable number of apps facilitating second/foreign language learning(Godwin-Jones, 2011).

According to Srinivas (2010), social networking is one tool which can assist teachers and learners to access information and facilitate the learning of English. According to Heidar & Kaviani (2016), one of the technologies that can be used to help learner in learning a foreign language is Telegram. Telegram is now considered as one of the most famous platform online social networks among media university students (Heidar & Kaviani, 2016). Telegram has Bots to access information with the teacher. According to Omidi & Fooladgar (2015), Bots are simply Telegram accounts operated by software – not people – and they'll often have AI features. They can do anything – teach, play, search, broadcast, remind, connect, integrate with other services, or even pass commands to the Internet of Things. Telegram intermediary server handles all encryption and communication with the Telegram API for the users. The users communicate with this server via a simple HTTPS- interface that offers a simplified version of the Telegram API. The server calls that interface as Bot API (https://core.telegram.org/bots/api). The Bot API is an HTTP-based interface created for developers keen on building bots for Telegram.

Student test scores measure learning (Haertel: 2013). Since Telegram Bot API is a part of MALL, the researcher used this Telegram Bot API to measure students' Semantics learning in a form of MALL test.

METHODOLOGY

This study is interactive continuum, because its objective is "to answer questions concerning current status of the subject study" (Gay, 1987). This involves collecting the data quantitatively by means of a test. Qualitative data are gathered through questionnaire and

interview. The subjects who submitted their responses are 10 EFL Semantics students from 36 all Semantics students at the beginning. This study was conducted from 14th of June 2017 until 13th of July 2017.

To examine the influence of this Telegram Bot API on students' learning development, the researcher first tested students' learning achievement by paper-based test. Next, she asked students to do another test through Telegram Bot API test, @UnirowSemantics_bot. Both tests' items were adapted from Hurford's *Semantics: a Coursebook Second Edition* (2007). After that, she distributed questionnaire to them. Semi-structured interview was conducted toward 6 random participants who had tried this Telegram Bot API test to collect their opinion of their reasons of satisfaction or dissatisfaction, the strengths and the limitations on this Telegram Bot API use in their learning.

The tests data were analyzed by using Microsoft Excel 2010 by using AVERAGE formula to measure the mean scores. Their grading qualifications were also analyzed, range from very poor, poor, fair, good, & excellent qualifications as the Table 1 presents below.

Table 1 The Grading System for the Students' Scores.

No	Degree of mast.	Qualification	Letter Gr.	Number Gr.
1	90 – 100	Excellent	A	4
2	80 – 89	Good	B	3
3	65 – 79	Fair	C	2
4	55 – 64	Poor	D	1
5	0 – 54	Very poor	E	0

Questionnaire items were also tabulated by using the same software. Interview data were interpreted by the researcher on points of ideas.

FINDINGS AND DISCUSSIONS

1. Analysis of Paper-based test and Telegram Bot API test

After administrating both paper-based test and Telegram Bot API test for 10 EFL students, the researcher found scores gained by the subjects as presented in the following Table 2 below.

Table 2. Paper-based & Telegram Bot Api Tests Takers' Score

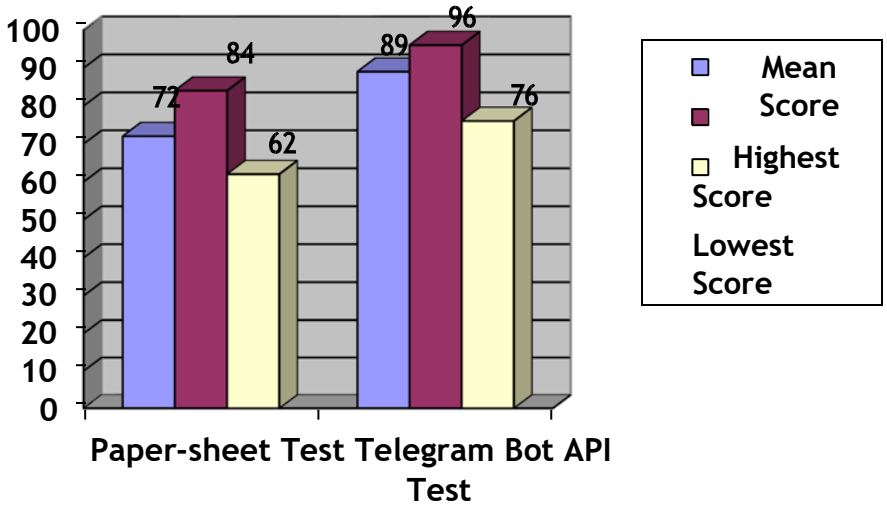
No	Name	Gend	Age	Telegram username	Test Results	
					Paper	Bot
1	STUDENT 01	M	23	@akhwan17	76	80

2	STUDENT 02	M	22	@Ahmad NM27	62	76
3	STUDENT 03	F	23	Ani Fitriati	70	88
4	STUDENT 04	F	22	Cicik Puji Lestari	84	96
5	STUDENT 05	F	21	Devi Rahayu	64	92
6	STUDENT 06	F	22	Febby Fenuinsa	84	96
7	STUDENT 07	F	22	@Ingelia	72	96
8	STUDENT 08	F	22	Karina E.p.	78	92
9	STUDENT 09	F	22	@Ma'rifatul Ulumiyah7	62	84
10	STUDENT 10	F	23	@monalisaary	68	88
				Mean Score	**72**	**89**

From the paper based test score of the 10 participants above, it can be concluded that the highest score attained by the students was 84, student 04 and 06, and the lowest score was 62, student 02 and 09. On the other hand, the highest Telegram bot API test score from the 10 participants listed was 96 which were gained by student 04, 06 and 07, and the lowest was 76 which were attained by student 02. it is mentioned that the mean score of those 10 paper based test takers is

72. After they did Telegram Bot API test, their mean score in Semantics test was improved from 72 into 89. This improvement proved their development in learning Semantics through Telegram Bot API test, better than using paper-based test. The mean scores, highest and lowest score of both tests can be represented in the following bar chart.

Figure 1. Bar Chart of Mean Scores, Highest and Lowest Score



The qualification obtained from the both tests can be seen in the following pie charts.

Figure 2. Pie Chart of 10 Paper-based Test Takers

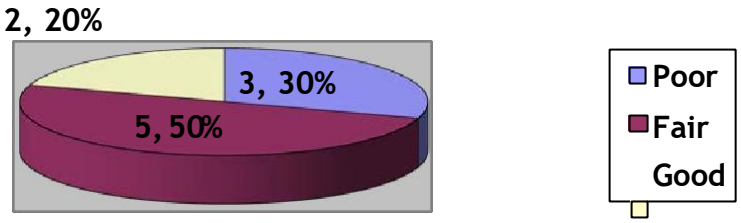
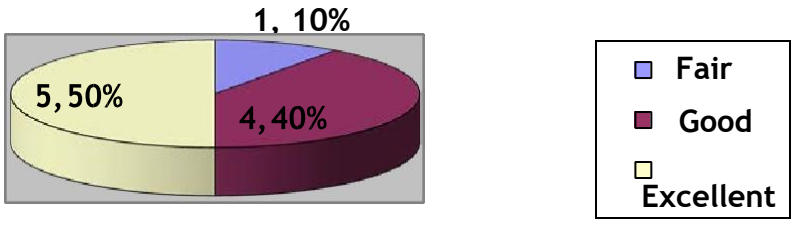


Figure 3 Pie Chart of 10 @UnirowSemantics_bot Test Takers



At the paper-based test chart above, it is mentioned that neither of the test takers got very poor nor excellent qualification. On their paper-based test, 30% of them or 3 EFL students got poor qualification, 50% or 5 EFL students got Fair qualification, and the other 20% or 2 EFL students got Good qualification. Meanwhile, On the @UnirowSemantics_bot chart above, there was no students got Very poor or Poor qualification. The lowest qualification was Fair and only one test taker got it (10%). The other 40% or 4 EFL students had Good qualification and the 50% more (5 EFL students) were in Excellent qualification. It means that there was

development of their score qualification, from the highest on Good qualification into Excellent qualification and from the lowest on Poor qualification into Fair qualification. It means that there is a development on EFL students' Semantics learning.

2. Analysis of questionnaire data for EFL students' satisfaction

Questionnaire distribution to the students was to know about students' responses of satisfaction and students' opinion toward the use of this Telegram Bot API on Semantics learning. There were 12 items of the questionnaire. Table 3 below presents the percentage of students' satisfaction on the use of Telegram Bot API.

Table 3. Results of questionnaire

1 = Strongly Disagree
2 = Disagree
3 = Agree
4 = Strongly Agree

N = 10

Statements		St 1	St 2	St 3	St 4	St 5	St 6	St 7	St 8	St 9	St 10	St 11	St 12
TOTAL ANSWERS	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	3	3	3	0	0	1	0	0	3	1	0	0
	3	7	7	6	5	6	6	8	6	5	8	8	9
	4	0	0	1	5	4	3	2	4	2	1	2	1
	Total N	10	10	10	10	10	10	10	10	10	10	10	10

Percentage of 1	=	0	0	0	0	0	0	0	0	0	0	0	0	%
Percentage of 2	=	30	30	30	0	0	10	0	0	30	10	0	0	%
Percentage of 3	=	70	70	60	50	60	60	80	60	50	80	80	90	%
Percentage of 4	=	0	0	10	50	40	30	20	40	20	10	20	10	%

Based on the Table 3 above, for the first statement, no one of them very likes learning Semantics. Most of them (70 % or 7 students) still like learning Semantics and the rest, 3 students or 30 %, dislike learning it. The second statement's result shows that 30% (3 EFL students) of them had difficulty to understand Semantics. But the amount of student who could understand it, about 70 %, was still bigger. No one stated that it was very easy or very difficult to understand. So, the Semantics material was still acceptable for their capability to learn. On the third statement, it shows that the amount of students who mostly agreed that the materials available on @UnirowSemantics_bot were appropriate into materials they needed, 10% plus 60% (7 EFL students). Though there were still some who disagree into this statement, 30% or 3 EFL students, the comparison of the opinion was still higher on the agreed ones. So the material displayed by Telegram Bot API was mostly appropriate. On the fourth statement, it shows that there were 5 students (50%) who agreed and 5 students (50%) who strongly agreed that the display on presenting learning test of Telegram Bot API was more interesting than the traditional way test, paper-based

and pencil test. No one stated the contrast opinion in this statement. On the fifth statement, it shows that all of the EFL students (100%) agreed on this statement. So it was proved that the option placement could affect their responses. On the sixth statement, it shows that more than half of the students felt satisfied about the Telegram Bot accuracy, 30% (3 students) plus 60% (6 students). On the seventh statement, it shows that all users (100%) thought it was easy to operate, join, and do the test through the bot. On the eighth statement, it shows that TG Bot is also user friendly. They only just need to search the bot, join it and use it. 60 % or 6 EFL students agreed on this and 40% or 4 of them strongly agreed about it. On the ninth statement, it shows that half students (50% or 5 students) and 20% (2 students) more felt that they could respond the test by answering it on time. However, there were one third of the students disagree to this statements. On the tenth statement, it shows that 80 % participants agreed that the appropriateness of the display provided by the server on their Telegram account was good, as they had chosen. 10 % more participants supported this too. But, there were 10% or 1 students of them disagree to this statement. On the eleventh statement, it shows that Telegram bot API also provides EFL students to answers the test on the time as they wanted. When 'strongly agree' and 'agree' opinion were added, the researcher found all of students or 100 % of them were supporting this statement. On the eleventh statement, no body denied that it was possible to make Telegram Bot API as another media such as questionnaire media. 90% agreed and 10% strongly agreed about this. So, it can be interpreted that most of the subjects agree on all the researcher's statements of questionnaire which means that most of them satisfied into the use of Telegram Bot API as a learning media for Semantics.

3. Analysis of semi-structured interview for clarifying students' satisfaction The results of interview data can be seen on the following Table 4.

Table 4. Results of interview

No.	Statements	Reasons for agree	Reasons for disagree
1	I like learning English Semantics	A part of English learning	Difficult to understand
2	Semantics is not too difficult for me to	Taught them the content and the context of English	The terms and the definitions were

	understand	meaning	confusing
3	Test materials displayed in Telegram Bot are appropriate with Semantics materials I needed.	It was appropriate on Semantics they learned	Lack of their understanding on Semantics materials and lack of their attendance
4	Telegram Bot provided more interesting test display than pencil and paper-based test.	• No much letter in a page • Can be done anytime anywhere • No need to look for a pencil/pen	It still remains a test and no direct feedback.
5	Test items and options placement on Telegram Bot facilitated me to respond the test.	It's like playing a game	-
6	I'm satisfied on Telegram Bot accuracy	The choice they had chosen was processed by the server accurately.	make them touch the different choice which they didn't mean to choose
7	Telegram bot is easy to use by first time bot-user.	Easy to use, just join and touch	Less understanding & using of mobile technology
8	Telegram Bot is user friendly	Easy to get & small size app	Remote area, difficult signal
9	I could respond the answer on Telegram Bot on time.	They had longer time to answer	Misunderstanding to the statement
10	The answers I chose were appropriate with the answers displayed by the server on my Telegram account.	It showed appropriateness.	easily mistouch their choice so that the answer which displayed in the screen was different
11	Telegram Bot facilitated me to respond the test items as the time I wanted.	It was flexible. It was not forcing. Delay able into their free time.	-
12	Telegram Bot can be used for other various functions such as a questionnaire media.	The placement display of the test was similar to a questionnaire (questions & options)	-

Based on the students' satisfaction results, most of them were satisfied. Their interest of the lesson, Semantics, was affecting their satisfaction too. From the interview, most of them like learning Semantics even though it is difficult for them to understand the material. The complicated terms and ordinary teaching method were

reported as their difficulty factor. After they tried to learn by themselves through the Telegram Bot API, they felt interested into this media, started from its display and placement on presenting the test items and the choices, its user friendly,
its accuracy, its flexibility on time response, to its other function beyond the form of a test such as a questionnaire. Most of participants were reported satisfied and agreed on this.

However, there were several participants who felt less satisfied on its use. This dissatisfaction was different from one participant to another. In summary, their dissatisfaction was because of two factors, the lack of internet connectivity and the lack of direct feedback from the bot. Due to these factors, the participants expected that it would be a better learning application when it is accompanied by direct feedback facility.

Some suggestion that the researcher got from the participant are that it would be better if there is such an offline bot where the users can answer the test offline and connect to internet only when they want to submit it. Another suggestion from the participant is that it would be better if it provides direct feedback of the answer so that they can learn which one is the correct answer and develop their learning.

CONCLUSION

Based on the analysis, it can be concluded that:

1. The mean score of the paper-based test they got was 72 while their mean score of Telegram Bot API was 89. The qualification of the score was also develop, from the highest on Good in paper based test into Excellent in @UnirowSemantics_bot test and from the lowest on Poor in paper based test into Fair in this Telegram Bot API test.
   These mean that there is a development on EFL students' Semantics learning development..
2. The percentages of questionnaire results mostly showed agreements on the statements. They agreed because of its goodness. It is easy to use. It is also flexible to do and to bring it anytime and anywhere by the participants. Besides, the display is also more interesting than paper based test. And it is also user friendly. These mean that EFL students are satisfied in to the use of Telegram Bot API in their learning.

So, the use of Telegram Bot API can bring development on EFL students' Semantics learning and this use also brings satisfaction toward EFL students in Semantics learning.

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