

EFL LEARNERS' ENGAGEMENT AND LEARNING MOTIVATION IN TEAM-BASED MOBILE LANGUAGE LEARNING THROUGH WHATSAPP

by **David Imamyartha, Eka Wahjuningsih, Alifiyah A'yunin, Asih Santihastuti, Mitasari,
Dinda Laura Trisna Ayu Fauzie and Ervin Candra Hari Andika**

University of Jember, Indonesia

corresponding author: david.fkip @ unej.ac.id

Abstract

The study aims at portraying EFL learners' interactivity and motivational dynamics when engaged in team-based mobile learning (TBML) through WhatsApp within the environment of English for Academic Purposes. Data were collected through survey on online learning engagement and learning motivation and analyzed using descriptive statistics coupled with correlation analysis. Thematic analysis was operative to analyze students' reflection for more fine-grained insights on the nature of collaborative mobile learning, supported with directed content analysis geared to Activity Theory (AT) on the archives of group's online discussion. Albeit technical challenges and negative affectivity therefrom, the findings emphasize the potency of WhatsApp as a social-network (SN) learning platform which engages language learners in supportive micro and macro learning environment as the pre-cursor to elevated motivation, self-regulation, and pedagogical rethinking. The implication highlights teacher's necessity to scaffold group dynamics and condition student's mentality to live the target language in the mobile learning.

Keywords: Activity Theory; engagement; motivation; team-based mobile learning; WhatsApp

1. Introduction

Vast advancement in mobile technology, including fast connection, powerful operating system, and massive data storage, has afforded effective mobile language learning (Viswanathan, 2012). Today's English learners prefer learning through mobile technology with unlimited opportunities for virtual collaboration and communication (Annamalai, 2019).

Recent studies have corroborated the impacts of mobile technology on increased learning motivation (Zou & Yan, 2014), positive attitude to language learning (Kukulskahulme & Lee, 2020), learning satisfaction (Wang, 2017), and more effective instruction (Sung et al., 2015). Fundamentally, mobile devices can no longer be viewed as toy of pastime intertwined with time wastage. Clear objective and interactive activities integrated into mobile

learning can help to motivate learning and develop academic skills, such as critical thinking, analyzing problem and solution, and creating a learning strategy (Ankeny, 2019; Grigoryan, 2020; Zhu & Wang, 2019).

In response to the upheaval of mobile technology, WhatsApp, despite its infancy as learning platform, has been acknowledged to generate positive attitudes to learning (Annamalai, 2019) and pose influential impact on vocabulary learning (Lai, 2016; Man, 2014), writing performance (Awada, 2016), and academic achievement (Alkhalaf et al., 2018). When investigating the online immersion environment mediated by WhatsApp, Lai (2016) reveals strong correlation between chat frequency and vocabulary gain. He contends that students' mentality to plunge into virtual language environment determines the magnitude of their learning outcome. Research by Awada (2016) unraveled the potential of WhatsApp-mediated critique writing instruction on university students. WhatsApp enhanced group discussion by providing comfortable environment where everyone can share their thoughts easily using multitudes of media. Albeit the existing studies reporting on the pedagogical potency of WhatsApp, this study holds the view that there is paucity on studies linking theory and practice regarding the use of WhatsApp in language learning, and thus further investigation needs to be underway to shed light on its pedagogical impact and make explicit how it can be integrated into online learning environments.

There are three voids the present study attempts to fill. First, in congruence with Kukulska-Hulme & Viberg (2017), this study also holds the view that meaningful collaborative learning affords substantial impact in fostering language learning outcome, yet previous works lack the nature of communicative and collaborative language learning mediated by WhatsApp (Andujar & Salaberri-Ramiro, 2019; Ankeny, 2019; Çetinkaya & Sütçü, 2018; Khan, 2020; and Lai, 2016). This study delved into TBML in formal courses anchored to different areas of English instruction (see Zhu & Wang, 2019 for an overview of TBML) as a pedagogical framework for designing mobile collaborative learning. Also, albeit the potential of Activity Theory (AT) to shed lights on students' mental process in collaborative learning (Awada, 2016), the majority of current discussions on the pedagogical use of WhatsApp has yet to embrace this framework for investigating students' engagement in MALL setting (AT-MALL) (see Lai, 2016; Man, 2014; Mistar & Embi, 2016 for example). Following Grigoryan (2020), this study is geared to AT-MALL for scrutinizing the interactivity of learning tool (WhatsApp), community of learning, and labor division in online English class. Another gap is that the

abovementioned studies overlooked the actual online language learning engagement mediated by the platform and language learning motivation occurring therefrom.

This study strived to unravel EFL learners' interactivity and motivational dynamics stemming from TBML mediated by WhatsApp. This objective was guided by the following research questions:

1. What are the profiles of students' online learning engagement mediated by WhatsApp in team-based mobile language learning?
2. What are the profiles of language learning motivation stemming from the engagement mediated by WhatsApp in team-based mobile language learning? Does higher rate of engagement lead to increased language learning motivation?
3. What are the students' voices on their engagement in team-based mobile language learning mediated by WhatsApp?

2. Theoretical framework

2.1. Activity Theory in MALL

Activity Theory (AT) denotes a concept aimed at interpreting human practices, particularly concerning human's interaction behavior and tool (Bakhurst, 2009). Grounded within dialectical psychology, it transcends the traditional concept of micro and macro, intervention and observation, thought and action, and qualitative and quantitative by encompassing three elements of the objective, the ecological, and the sociocultural (Engestrom, 1999). AT denotes a cross-disciplinary framework which views human interaction as physically, psychologically, and culturally situated in specific context and materially as well as socially mediated (Grigoryan, 2020). As Grigoryan contends, human activity takes place in harmony with the available instrument, the community, and the labor division among community members.

MALL is subordinate of m-learning which allows language learners to access and process learning resources at anytime and anywhere (Elaish et al., 2017). AT has been integrated into MALL, known as AT-MALL, due to the emergence of studies investigating the AT components in mobile learning environment (Sung et al., 2015). AT-MALL also involves six components: subject, object, regulation/control, tool, context, and communication (Sharples et al., 2007). This model offers a more complete and relevant framework for analyzing the mobile language learning experience under investigation as it relates to both AT and MALL. What follows is the AT-MALL framework in our study.

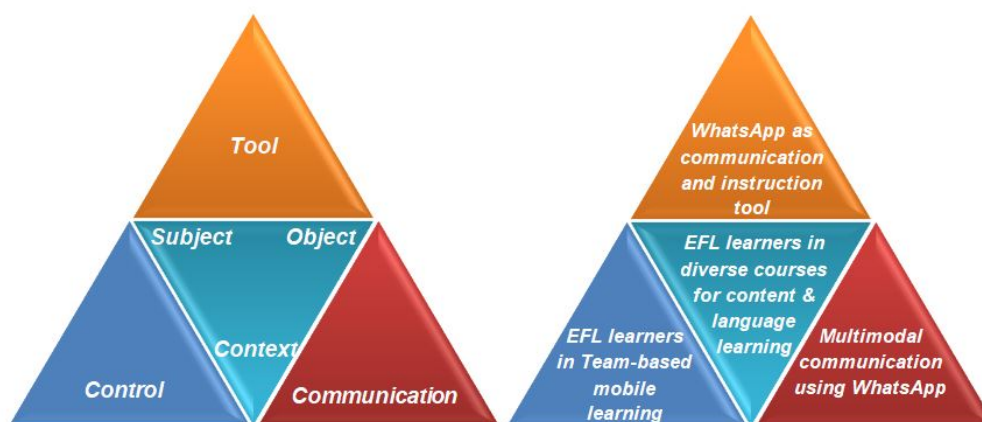


Figure 1. AT-MALL model in WhatsApp-mediated TBML (adapted from Sharples et al., 2007)

Figure 1 portrays the initial model of Activity Theory and the adapted model in team-based mobile learning mediated by WhatsApp. The subject in the study is the EFL learners at tertiary education wherein they are required to learn both discipline-related content and language. They partake in team-based mobile learning for the whole term, representing the regulation over the learning activity. Geared to community of learning within academic culture, the activity is mediated by interactive multimodal communication enabled by WhatsApp.

2.2. Team-based mobile language learning via WhatsApp

Language learning collaboration is congruent with labor division in AT in that both emphasize the essentials of learner autonomy and sociocultural nature of human activities as the precursor to learning outcomes (Bakhurst, 2009; Gibbes & Carson, 2013). One study by Resnik & Schallmoser (2019) delves into pedagogical structure oriented to online collaboration, e-Tandem, which underscores two focal components for language learning, encompassing reciprocity and autonomy. The former is germane to learners' commitment to their own and their partners' learning, while autonomy dictates learner's ability to design, monitor, and assess their progress.

The current discussions on collaboration mediated by mobile technology have marked multiple gains in cognitive, affective, and motivational dimension. Resnik & Schallmoser (2019) report that engaging learners of different cultural references through mobile technology

helps to scaffold their intercultural communication. In addition, collaboration through peer feedback has been proven effective to elevate communicative language proficiency (Bruen & Sudhershnan, 2016). Mobile technology also plays a crucial role in elevating achievement motivation (Alshaibani & Qusti, 2020) and learning satisfaction (Choi & Im, 2015).

TBML framework designed by Zhu and Wang (2019) encompasses four elements: a) permanent team division, b) readiness empowerment, c) application activity, and d) peer assessment. This design is actualized in conjunction with the socioconstructivist nature of language learning mediated by mobile technology. What is more, the framework is inherently congruent with the nature of abovementioned mobile collaborative learning in that TBML follows the idea that enacting holistic students-centered learning supported with well-developed learning materials and relevant e-resources, technology-aided instruction, and the shifting of teacher role will result in increased learning engagement and outcomes.

Deployed to power TBML, WhatsApp can serve as social, cultural, and collaborative tool to provide language learners with robust cognitive engagement, authentic communication, and entertainment (Awada, 2016; Ma, 2017; Resnik & Schallmoser, 2019). The present study contends that collaborative learning, active learning, sharing community, and learning community enhance learning experience and outcome. To this end, WhatsApp functions as the catalyst for learning as it amplifies learner collaboration in online course (Lai, 2016), and it therefore leads to the co-construction and dissemination of knowledge mediated by enhanced motivation (Annamalai, 2019), learner engagement (Rambe & Mkono, 2019), and meaningful language learning (Çetinkaya & Sütçü, 2018). Following abovementioned lines of thoughts, the present study proposes WhatsApp-aided TBML, the framework of which is shown below:

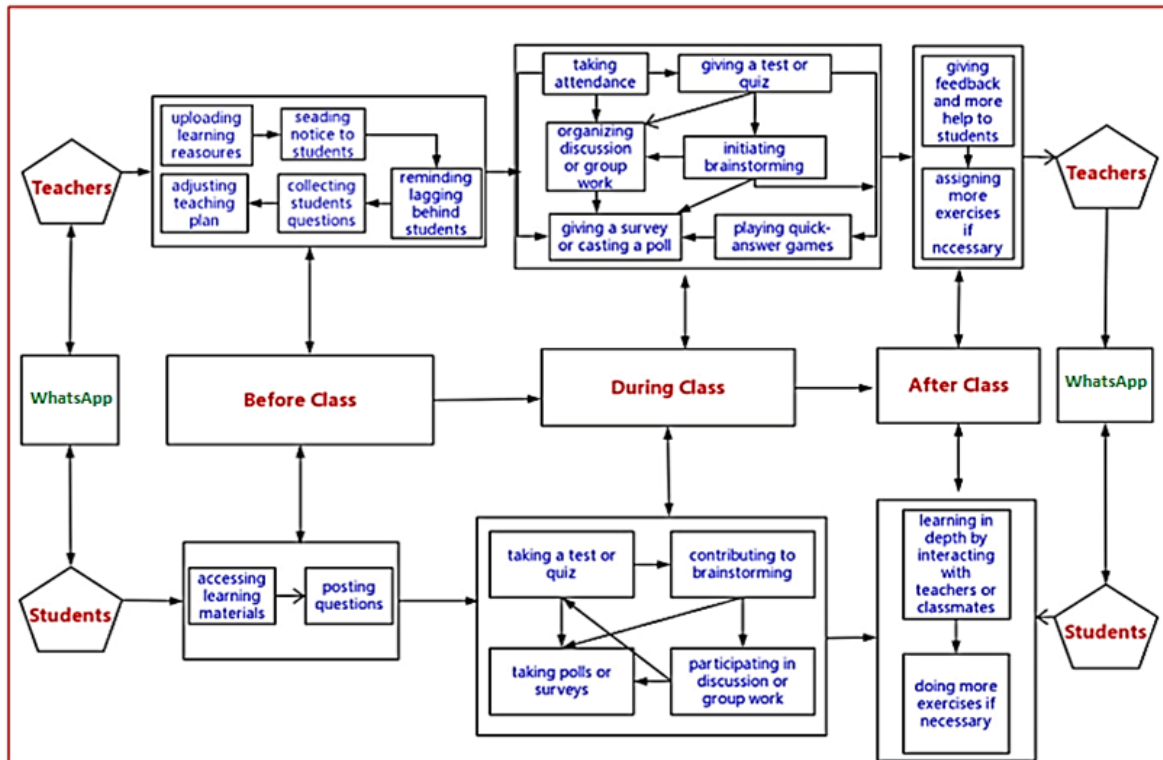


Figure 2. Typical learning activities in WhatsApp-aided TBML (adapted from Zhu & Wang, 2019)

3. The study

The current research delved into both quantitative and qualitative phenomena for informative, balanced, complete, and fruitful research results (Johnson & Onwuegbuzie, 2007). The approach allows focused investigation on *a priori* research questions without restricting the analysis on emerging findings.

3.1. Settings and participants

The study was conducted at an Indonesian university. Due to the pandemic, all courses were run online mediated by both computers and mobile phones, during ten meetings within a three-month timespan. The study involved 62 males and 313 females of different majors, with age ranging from 18 to 22 years old. The majority of the students were at the B1 level of CEFR, as necessitated by pre-requisite to the course enrollment. The study involved students majoring in English for Academic Purposes, Extensive Reading, Advanced Paragraph Writing, Teaching English as Foreign Language, and Critical Discourse Analysis. The courses on EAP constituted half of the entire samples. Hereunder was one sample lesson in one EAP class for Management students.

Topic: Environmental Economics

Learning objectives:

- a. Identifying stated details in a short video of explanatory genre
- b. Composing complex sentences to explain a series of environmental economic issues and relevant solutions

Table 1. Sample of instructional activities in TBML

Phase	Teacher activity	Student activity
Before class	<ol style="list-style-type: none"> 1. Informing the lesson plan 2. Sending the material 3. Preparing online quiz on e-learning 	<ol style="list-style-type: none"> 1. Learning the material
During class	<ol style="list-style-type: none"> 1. Showing a video on “Trash Village” 2. Distributing role-based listening task on the video 3. Assigning roles to each group: group leader, environmental analyst, economics analyst, & solution seekers, as shown by guided task 4. Monitoring group discussion 5. Giving feedback on discussion results 	<ol style="list-style-type: none"> 1. Analyzing the issues shown in the video 2. Completing the task based on the video 3. Sharing the roles with group members 4. Analyzing the videos and describing environmental issues, economic issues, and solutions as guided by the writing task 5. Sharing the discussion results with the whole class
After class	<ol style="list-style-type: none"> 1. Assigning the groups to collaborate on text composition of explanatory genre 	<ol style="list-style-type: none"> 1. Taking part in joint text composition by sharing different text parts

The research objective and procedure were explained to the participants, and they granted the written consent to partake in the study.

3.2. Data collection

The study employed a questionnaire on students’ learning engagement adapted from Dixon (2010). The other instrument measuring students’ language learning motivation was adapted from Xuejun (2020). Due to the relevance to mobile learning under investigation, original items were sorted, and selected items were translated into Indonesian language to ensure accurate understanding. The initial instrument was trialled with one class of 40 students for a reliability test. Out of 40 initial items, 1 item was removed due to unsatisfactory internal validity (p 0.492), resulting in a 39-item survey with α 0.921. For the third inquiry, two reflection questions were formulated and distributed to the students at the end of the term. These pertained to the following reflection points:

- a. How did the engagement in WhatsApp-aided TBML assist you in studying the course material and completing your assignments?

- b. What were your positive and negative experiences when engaged in WhatsApp-assisted TBML?

The students responded to these questions in Indonesian language to ensure flexibility and accuracy. For in-depth investigation and triangulation of the initial findings from the survey, archives of group chats were also put under analysis.

3.3. Data analyses

Descriptive statistics were operationalized to answer the first and second research question, with correlational analysis integrated to further probe into the latter. Following Braun and Clarke (2006), thematic analysis was at play upon analyzing the data for the third question, the data of which pertained to students' responses to the questionnaire and excerpts of WhatsApp chats. The triangulation on students' responses and WhatsApp chats was coupled with multiple coders and audit trail (Rambe & Mkono, 2019) for rigorous data analysis, especially on checking the accuracy of translated responses from the open-ended questionnaire.

3.4. Findings and discussion

3.4.1. RQ 1 – finding: high rate of online learning engagement

Our first analysis unraveled substantial learning engagement propelled by WhatsApp. The students reported an average of 4.1455 for the overall online learning engagement. This intense engagement was also evident in multifaceted areas of online learning engagement as students shouldered the responsibility of monitoring their learning, took part in discussion and individual assignment, supported their peers, and discovered personalized link with the language learning. With regard to learning skills, the students reported extensive monitoring and engagement in the online discussion both during and after the lesson ($M= 4.2147$, $SE= .03073$, $SD= .059514$). Such joint knowledge construction led to comprehensive organization of learning, by which students acquired important points of the lesson. In addition, they managed to learn from the discussion and posted comments to teacher and peer's responses. Students' participation in the online learning was found to be high ($M= 4.1622$, $SE=.03329$, $SD=.064468$). With students involved in discussion and group work, individual and group performance were maintained at fairly high intensity manifested in the discussion, collaboration, and perceived language ability ($M= 4.0809$, $SE= .03296$, $SD= .063819$). Since WhatsApp was easy to operate and offered interactive learning environment, students

confirmed strong emotional engagement ($M= 3.9749$, $SE= .03271$, $SD= .063339$) upon collaborating to reach learning goals.

WhatsApp catered for students' needs to collaborate with their peers and accomplish learning tasks, therefore creating a positive learning atmosphere (Annamalai, 2019; Çetinkaya & Sütçü, 2018). The semi-asynchronous communication in WhatsApp encouraged students' learning autonomy and self-efficacy as they organized their learning both within and beyond the class (Zou et al., 2018). The learning environment empowered the students to keep up with the course materials and tasks particularly since they used the app extensively. Similar to what previous works unveiled (Awada, 2016 and Lai et al., 2018), this study highlights that, with easy access to the course at their disposal, the students gain the impetus to hone their language skills directly within authentic setting in collaboration with their peers, albeit their language barriers.

TBML came to its element as students played active role in collaborative learning. Collaboration within the MALL environment links the internal cognitive process to the social interaction (Lai, 2016; Lin et al., 2019). What is more, they became a real member of learning community where they were able to engage in joint knowledge construction and language acquisition through authentic communication. This notion of learning community denoted the catalyst for the learning process and outcome as students devoted their efforts to learning when they realized their learning goals by taking part in not only instructional but also sociocultural practices. This finding resonates with the research by Lai et al. (2018), which points out that mobile technology affords information-, social-, and instruction-oriented experiences.

With the social and instructional affordances of WhatsApp, students perceived that they were able to leverage their language competence by taking part in online discussion and group work. Textual, pictorial, and aural language input encouraged students to better take part in communication and think critically as they were exposed to numerous hybrid resources. As they collaborated with their peers to achieve learning tasks and, concomitantly, used the language as both medium and end of learning, they eventually perceived control and values of the mobile learning experience in linkage to their major (Ma, 2017). When they discovered the learning enjoyment in authentic communication, they became even more engaged with learning process where they obtained feedbacks from their peers (Resnik & Schallmoser, 2019). The learning enjoyment in meaningful collaborative learning resulted in perceived language improvement.

The finding is in harmony with previous works which highlight the importance of supportive learning environment for encouraging students to use target language meaningfully and ensuring the positivity throughout the course (Alshaibani & Qusti, 2020; Mistar & Embi, 2016). The present study resonates with previous works by Çetinkaya & Sütçü (2018) and Mistar & Embi (2016) in that it acknowledges technological affordances of WhatsApp to support mobile language learning, particularly pertinent to instant messaging in foreign language, and therefore gives rise to positive attitudes and emotion to mobile learning. Being conditioned in TBML through role distribution, peer feedback and teacher assessment (Lai, 2016), students gain the learning ownership upon determining the strategies toward the learning objectives in technologically enabling learning community, laden with abundant authentic language inputs and diverse linguistic repertoires as fundamental assets for their meaningful language output.

3.4.2. RQ 2 – finding: intrinsic motivation as dominant predictor to online learning engagement

The statistics in Table 2 reports a high rate of motivation to language learning within the context of TBML, with a low level of demotivation at the same time. The students' motivational profile mirrored their intense online learning engagement, as portrayed by both extrinsic and intrinsic motivation.

Table 2. Students' responses on EFL learning motivation

Aspects	Mean	Std. Error	Std. Deviation
Demotivation	1.4773	.04037	.78174
Extrinsic motivation	3.8489	.03295	.63814
Intrinsic motivation	4.2476	.03205	.62074

Probing further into the motivational profile, one-sample test confirmed significant difference between the extrinsic and intrinsic motivation ($p = 0.000$). We continued with Pearson's product moment at the 0.01 level (2-tailed), and the result acknowledged moderate correlation between the overall learning engagement and the aggregate of intrinsic and extrinsic motivation ($r = 0.449$ and $p = 0.000$). As we noticed a higher rate of intrinsic motivation, we conducted two bivariate correlation analyses at the 0.01 level (2-tailed) on the overall engagement, delving into its separate correlation with each of extrinsic motivation ($r = 0.298$ and $p = 0.000$) and intrinsic motivation ($r = 0.507$ and $p = 0.000$).

The study has revealed a strong correlation between TBML and language learning motivation. The psycho-social properties of TBML mediated by WhatsApp created an empowering environment in which students were encouraged to support one another without fearing their language barrier. Creating a holistic student-centred learning environment triggers more inherent motivation for language learning and learning outcome, particularly when technologically-enabling device and resources are afforded by the teacher serving the role of facilitator (Resnik & Schallmoser, 2019; Zhu & Wang, 2019). This is in congruence with previous works which contend that when students are immersed in authentic and empowering learning environment they will develop the motivation to learn and use target language (Çetinkaya & Sütçü, 2018; Lai, 2016).

Language learning motivation, from the perspectives of AT, is inherently associated with MALL activities (Lin et al., 2019). To that end, the findings corroborate the claim that learners develop stronger learning motivation and self-regulated learning when they become members of a learning community aided with appropriate mobile technology affordances. WhatsApp offers diverse resources and multiple mediations for both language learning and language uses in meaningful contexts, which makes it an attractive and interactive platform to better serve students' needs and sustain their self-regulated learning (Ma, 2017). In harmony with previous studies on language learning mediated by WhatsApp (Alshaibani & Qusti, 2020; Lai, 2016; Annamalai, 2015), this study expounds that WhatsApp provides interactive and multimodal attributes supportive to TBML and, in effect, it boosts learners' intrinsic motivation and self-regulated learning as students are engaged not only in instruction-oriented technological experiences, but also in entertainment- and information-oriented ones.

3.4.3. RQ 3 - finding: learning engagement and empowerment despite technical challenges in mobile learning

Authentic language learning community

The technological affordances created resource-rich micro and macro settings, which empowered the students to take part in hybrid discourse involving textual, aural, and pictorial messages. Such affordances were pivotal in amplifying their attention and language performativity in meaningful communication within learning community. The following responses acknowledged the abovementioned line of thought.

EFN-A_7 As the teacher explained and informed details in English to the students, they were motivated to think and respond to the discussion in English, too. This allowed them to learn structuring sentences right away.

CDA_14 It was helpful to learn how to take part in discussion in English properly. Also, the PowerPoint presentation in English helped me to learn English.

The above vignettes demonstrate how the communicative approach to mobile language learning is at play when the students showcase their language performativity in English-mediated instruction, regardless of different majors: the former was a student majoring in nursing, while the latter majored in English education. As emphasized by Andujar & Salaberri-Ramiro (2019), the semi-synchronous communication makes the learning input more comprehensive and permanent, which therefore better caters for students' sub-optimal proficiency. The following chat archive portrays how students jointly sustained English-mediated discussion focusing on co-construction of knowledge and language production despite limited linguistic repertoires.

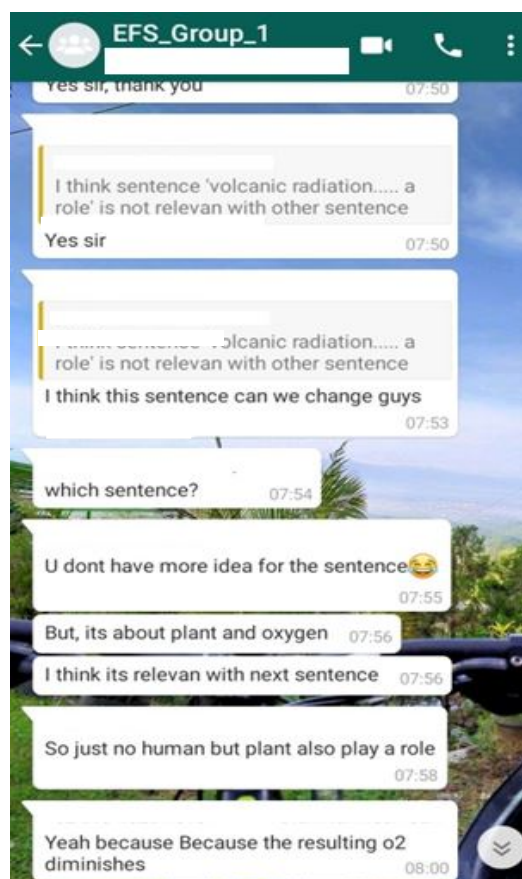


Figure 3. English-mediated discussion regardless of collective language gaps

Following Lai et al. (2018) and Lai (2016), the findings demonstrate students' learning resilience to use the target language for meaningful purposes as they attempt to understand and accomplish group tasks, despite their suboptimal linguistic proficiency. To this direction, Çetinkaya & Sütçü (2018) explicate that ambient atmosphere and a sense of belonging enacted

by group chats propel the students to attempt their best to initiate, adjust, and sustain the discussion in English through which they jointly adjust their performativity to be understood and compensate for each other's language gaps.

The language experiment mediated by WhatsApp tapped upon integrated language skills as students confirmed the involvement of both spoken and written discourse. The following excerpts on integrated language learning are in line with previous works highlighting the usefulness of WhatsApp for enhanced language learning (Kukulka-Hulme & Viberg, 2017; Mistar & Embi, 2016; Rambe & Bere, 2013).

- EFN-A_14 The positive side of the class was the opportunity to learn materials from the discussions and practice listening and speaking directly
- EFN-B_5 The English class via WhatsApp was effective to practice reading, writing, listening and speaking, because we could share any files instantly.

The interactionist-oriented activities in TBML exposed the students to comprehensive input from their peers as well as teachers and encouraged them to produce meaningful and perceivable output as the cruxes to the noticing of new language and negotiation of meaning.

Learning engagement and ownership

Group-based chats, coupled with vernaculars, banter, and humor, were extensively engaging and gave students full learning ownership, amplifying their self-regulated learning within both micro and macro settings (Ma, 2017). The following responses delineate the opportunity to run discussion in which everyone takes part to share their ideas and to give comments on each other's contribution. This resulted in the aggregates of chats and learning artifacts, which basically was as much vital as teacher's explanation.

- EFS-B_12 There were class' WhatsApp group and team's WhatsApp group. Team's group encouraged the students to be more active in accomplishing group work because everyone had to work in tandem to complete group work.
- CDA_21 In every meeting, there were direct guidance from the teacher and group discussion to help understand the materials. I could ask questions and received feedbacks directly in the group, which became resource for the group discussion. My team members were enabled to voice our opinions and comments on each other's ideas, and that helped us to accomplish group work.

The other voices also depict how diverse levels of individual performance became vital resources for group learning. WhatsApp not only connected the students to accomplish tasks, but also brought them into authentic learning community and intense shared reflection among members.

- EFS-B_24 Learning through WhatsApp allowed me to manage discussion with my friends, and I was able to gain new knowledge from them.
- EFM_28 When I did not understand the material, I simply asked for help from my partners in the team or the teacher.

Following Kukulska-Hulme & Viberg (2017), the exchange and sharing of ideas related to task accomplishment empower students to develop stronger metacognition, cognition, and self-regulation, enriching the vitality and dynamics of learning community. The findings echo recent studies corroborating the power of mobile technologies harnessed in collaborative learning for enhanced cognitive processes (Ma, 2017), perceived self-growth and intrinsic motivation (Li et al., 2019), and increased engagement and enjoyment coupled with waned nervousness (Kukulska-Hulme & Lee, 2020). The integration of WhatsApp into the socio-cultural and instructional practices manifests perfect juxtaposition to the use of mobile technology in learners' daily routines beyond the class (Çetinkaya & Sütçü, 2018; Krouska et al., 2018). It results in stronger motivation to achieve not only learning goals but also joint problem solving to address learning obstacles and ambiguities.

Augmented knowledge concretization and consolidation of learning

With fast internet access and multimedia affordances, WhatsApp allowed the opportunity to receive and organize learning materials in bite size rather than in chunky bundles. Students' familiarity with how the app operates made it a boundary-crossing platform for escalated reflection and learning transformation (Rambe & Mkono, 2019).

One of the students acknowledged the familiarity with the platform which helped to accrue seamless learning by which students shared learning materials within resource-rich digital context. Language learners commonly exploit mobile devices to cater for their diverse learning needs, including accessing dictionary, search engine, audio, and video (Kukulska-Hulme & Lee, 2020). The following response delineates how WhatsApp satisfies the needs for instant access to diverse resources and activities.

- APW_21 Almost everyone had the app, so we easily communicated with each other. It also afforded diverse features, particularly for transferring files, such as document, link, pictures, videos, and audio. The app was easy to use even by layman.

The other finding was germane to the permanence of stored messages in WhatsApp. One of the students reported the benefit of unlimited opportunities to review stored learning artifacts in their device. Such permanence allowed them to consolidate and assimilate their learning in sizeable bits in a non-restricted environment. This finding resonates with previous works highlighting how WhatsApp empowers the students, beyond the classroom, to organize

their learning in bite size rather than in bulky notes prevalent in face-to-face learning (Annamalai, 2019; Awada, 2016; Lai, 2019).

APW_8 The explanation from teacher and discussion among students remained intact since these were stored in the form of text or voice messages, allowing us to review them later on.

WhatsApp affordances satisfied students' cogent preference for fast and manageable access to course and learning as the fuel to maintain their serendipitous learning, particularly for under-prepared learners. The opportunity to concretize knowledge through access to learning artifacts was intertwined with collaborative learning, resulting in more intense engagement, mutual support, and eventually more robust L2 agency (Ma, 2017; Man, 2014; Mistar & Embi, 2016). Mobile instant messaging (MIM) came to its elements as students took part in discussion via group chats, as elaborated in the following response.

CDA_18 The lecturer sent PDF and PowerPoint files with recorded explanation. It was helpful to learn the materials. In addition, we had question-answer sessions which helped me to understand the materials as well since I was able to raise questions in the WhatsApp group, with instant feedback delivered afterwards. Another point important to help me learn the materials was the written feedbacks shared in the group. This allowed me to learn from my friends as well.

Collaborative activities via WhatsApp also led to serendipitous learning. The crossing between social- and instruction-oriented technological experiences was emphasized in the present study. The following recount depicted how student consolidated his learning by reviewing stored materials and the other learning artifacts at ease. Not only did the app afford augmented opportunity to concretize students' learning through multimedia affordances, but it also empowered learning consolidation and performativity through opportunistic learning.

BP_28 I starred important materials, so I could access them anytime at my disposal. Also, all discussions and feedbacks were stored in the team's WhatsApp group, making them easily accessible, unlike searching files in laptop. Also, I did not have to write notes on the material or feedbacks since I was able to read and review each material or feedback stored. This afforded more time to do my chores, so I simply continued reading the material afterwards.

Ambient learning environment

Following Rambe & Mkono (2019), the reconfiguration of teacher-students relationship was an influential element to embrace the students into the supportive environment that even introvert students were willing to be open and subsequently voice their ideas about team's learning progress and product. Also, the social nature of mobile chat lends itself to extending and enforcing learning in a friendlier and more candid fashion, resulting in the willingness to

experiment with the target language for meaningful purposes (Andujar & Salaberri-Ramiro, 2019).

EFS-B_9 Students were able to understand learning material since the teacher's explanation seemed like casual chats among peers. This made everyone in the group active. Also, it was beneficial to introvert students who hesitated to raise questions in face-to-face discussion.

Mobile learning catered for language learners' needs due to multitude technological affordances. The vignette below expounded how WhatsApp provided the student with ample learning resources and fostered his self-regulation, which was important to address the limited linguistic repertoires. Such autonomy over challenging tasks accrued self-esteem as he discovered self-perceived improvement (Ma, 2017). To that end, motivation mediated learner's self-regulated learning and strategic knowledge and skills to cope with learning tasks and opt for personalized mobile learning.

EFN-A_23 The class via WhatsApp group was helpful since I was able to replay the videos from the teacher and re-read the chats in the group. Sometimes, I was not able to understand teacher's explanation, but that motivated me to translate the explanations and find new words. I also learnt pronunciation by replaying the voice notes from my teacher to understand what he said. What I liked the most was when my teacher sent a video of his talk. From the video, I learnt lips movement and how it produced different sounds in English.

The constellation of motivation, personalization, and self-regulatedness grounded within both macro and micro habitat of learning clearly manifests the emergence of L2 learner's agency (Lai, 2019). WhatsApp-aided TBML created common macro socio-cultural learning context where individual learners collaborate to set strategies and direct their efforts towards learning goals. Concomitantly, each student orchestrates a personalized micro setting in which they developed strategies relevant to their learning beliefs and styles.

Another contextual factor triggering students' engagement was the diluted power asymmetry between teacher and students. Compared to class-based chat, team's WhatsApp group created a more ambient environment in which students experienced joyous learning coupled with deep personal meaning due to living in harmony with one's true self. This finding attends to previous studies on WhatsApp (Gachago et al., 2015; Kukulska-Hulme & Viberg, 2017; Raiman et al., 2017) which explicate that WhatsApp has the power to flatten the hierarchy of communication due to familiarity between teacher and students and the frankness of interaction. The excerpt below emphasizes the interlacing of jokes and vernacular with academic talks as the adhesives which keep authentic conversation going.

EFN-A_26 Positive communication between students and teacher was there throughout the course,

and the teacher did not hesitate to crack jokes so everyone was engaged in the discussion.

The previous excerpt regarding group chats portrays how the social architecture of WhatsApp structures the social molding to teacher-students interaction characterized by the mashing-up of informal learning into formal one. The following chat archive delineates similar findings on the use of banter and humor as the social molding in academic discourse in Rambe & Mkono's study (2019). As shown in Figure 4, one student sparked joke to mitigate the confusion upon task accomplishment and further mentioned *aoleng cetakkuu*, which is a vernacular meaning “my head is dizzy”.

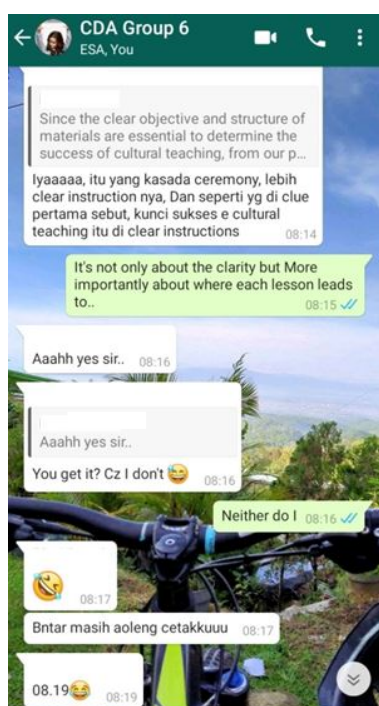


Figure 4. Students using banter and vernaculars to joyously vent their frustration



Figure 5. Teacher-students interaction using banter to initiate a discussion

As shown in Figure 5, our findings also revealed how banter instigated teacher-students interaction in a more friendly fashion. Teacher-initiated humor paved the way for friendly communication as a means to engage students' true self and further sustained their learning engagement. Using emoticons, repetitive letterings, and ellipsis denoted social objects of self-actualization within natural interaction (Cremades et al., 2019). These objects invited the peeling of masks and instigated the students to co-create a joint ecstatic learning experience.

Monotonous interactivity in asynchronous communication

The students marked the nature of asynchronous text-based communication as the primary challenge to TBML. Despite consistent engagement in different course episodes, students had to grapple with sorting important instruction-related information among social-bound, assumedly, irrelevant chats. As a corollary, they felt exhausted as they had to read the constantly emerging chats on their mobile phone screen and occasionally made them left behind their peers. This was presumably what led to some students being free riders throughout the group work. These findings are in line with Annamalai (2015) and Kaliisa et al. (2017) who contend that technical issue denotes primary challenge in mobile learning.

Technical challenge prevailed throughout the course especially among the students in remote areas. One of the students reported that connection and power issue were significant obstacles to their learning engagement. In congruence, the extensive work on mobile phone screen reduced their attention span. This finding echoes Zou, Li, & Li's (2018) finding which unravels students' negative affectivity resulting from the inconvenience in working on mobiles.

APW-A_19 The drawback of learning via WhatsApp was, mainly, the connection because my house was in remote area, so during the course I was oftentimes late to respond to the discussion and submit my work. This was even more so when I was not able to open learning material due to extremely slow connection.

EFS-C_6 The downside was the exhaustion due to extensive work on the gadget

The asynchronous communication through chats was deemed ineffective as students spent much time on texting, sorting chats, and interpreting bundles of texts. One student voiced the dearth of intense discussion because of text-dominant communication. This was also coupled with the cumbersome and lengthy chats. This resonates with the previous study on WhatsApp by Çetinkaya & Sütçü (2018), reporting the distraction of unnecessary messages within group.

ER_15 The material was not clearly delivered, and the class was boring as well as complicated due to rigorous concern with texting. Written communication easily led to misinterpretation, which was why it took more time.

APW-A_18 Oftentimes, the material or teacher's explanation were swamped by series of chats which simply contained "Yes, Sir" reply. This made me scroll up all the previous chats several times or just clear all chats.

The other issue was germane to the students' absence during the discussion. Synchronous communication posed the leeway to disengage from learning process.

EFN-B_5 Another shortcoming was that only few team members made responses, while others simply opt for just reading and remaining passive. This made the discussion lengthy and

ineffective.

5. Conclusions and implications for the future

This study, in large part, resonates with the literature review on the state of the art in mobile collaborative learning by Kukulska-Hulme & Viberg (2017) as the findings have acknowledged that WhatsApp helps to establish the linking between the global and local, between the periodic and the extended, and between the personal and the social. Grounded within AT-MALL framework, the integration of WhatsApp into TBML has provided the students with the autonomy as co-designers of meaningful language learning in which they are engaged in collaborative activities geared to authentic language learning laden with hybrid discourse elements. However, teachers need to be aware of the negative affectivity due to the fatigue and inconvenience of working on mobile devices as these may trigger students' disengagement. Mobile collaborative learning indeed creates ambient and supportive environment for students of diverse language proficiencies to commence and sustain integrated language learning, leading to the development of intrinsic motivation, metacognitive skills, cognitive skills, and stronger learning agency. To this end, the more learners acknowledge perceived usefulness of WhatsApp, the more effort expectancy increases as students engage with learning community. If sustainable language learning is at the core of English instruction, teachers need to grant adult language learners with more autonomy to embark on their learning trajectory within resource-rich micro and macro terrains, while continuously monitoring and providing feedbacks on their language experiment aided by social-network (SN) platform (Krouska et al., 2018).

Notwithstanding, the study has several downsides. First, it only involves students of basic and intermediate language proficiency. More fine-tuned understanding of affective, cognitive, and behavioral traits toward WhatsApp-aided TBML will be obtained by including advanced language learners for more comprehensive sample. Second, the notion of language improvement in the study is solely perceptive in nature. Employing a standardized test within the experimental setting is believed to garner more accurate and valid measures of language proficiency resulting from mobile collaborative learning experiences.

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