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The Acceptance of Mobile Games to Improve Filipino and English Vocabulary among Children from Urban and Rural Areas

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Abstract: The Programme for International Student Assessment (PISA) 2018 National Report of the Philippines showed that students from the southern part of the country with a mother tongue other than English or Filipino had lower proficiency levels in reading than students from the National Capital Region. It was also reported that students residing in urban communities outperformed those from rural areas. This paper first investigates the attitude and perception towards Filipino and English among elementary students from urban and rural areas in the southern region of the Philippines who are non-native speakers of Filipino and English. Then they were introduced to mobile-assisted language learning through the *Ibigkas!* educational mobile games which were developed to help improve the students' Filipino and English vocabulary. Results showed that there are differences in the perception and usage of Filipino and English between the groups and these are consistent for both languages. With regards to the *Ibigkas!* games, the positive feedback of the students in terms of the game-based learning engagement and intrinsic motivation inventory as well as some learning gains from their first time playing them are regarded as indications of acceptance and the promising potential of the said mobile games.

Keywords: Mobile-assisted language learning, game-based learning, Filipino language learners, mother tongue-based multilingual education, second language learning

1. Introduction

The Philippines is one of the most linguistically diverse nations in South East Asia with around 187 languages spoken across different regions, resulting into multiple mother tongues (MT) (Metila, Pradilla, & Williams, 2016). Although many of these languages exhibit dialectal variation, it is important to note that these are considered languages, not dialects. This means that these variations are so different that a speaker of one language may not easily understand communication in the other languages (McFarland, 2008). This diversity is associated with the country's geographical composition: an archipelago of 7,100 islands divided into three major groups. The northern group of islands which include the National Capital Region (NCR) is named Luzon, the central group is Visayas, and the southern group is Mindanao. The majority of people from NCR speak Tagalog while the rest of Luzon mostly use Ilokano, Bicol, Kapampangan, and Pangasinan. In the Visayas, the dominant languages are Cebuano, Hiligaynon, and Waray. In Mindanao, the use of the 8 mentioned languages is more dispersed (Jubilado, 2004).

In the education sector, the Vernacular Education Policy (1957) was implemented to use various regional lingua francas (LF) and English as the language-in-education but was replaced by the Bilingual Education Policy (BEP) in 1970 that required the use of Filipino (a standardized version of Tagalog) and English. Moreover, both the 1973 and 1987 Philippine Constitutions formally designated Filipino as the national language and symbol of national identity and culture. This further strengthened the implementation of BEP that ensures the development of literacy in Filipino as a linguistic symbol which is a representation of our unity and the literacy in English as the perceived universal language in preparing globally-competitive students. Under the BEP, Filipino and English were the primary mediums of instructions in schools across grade levels and linguistic regions (Dekker & Young, 2005).

In 2009, this policy changed. The Philippine Department of Education (DepEd) established Mother Tongue-Based Multilingual Education (MTB-MLE) (Philippines Department of Education, 2009) that aimed to have children start formal education in the language they know best. This decision was aligned with prior research that showed that the students' mother tongue offered the best foundation for learning additional languages and academic content (Barron, 2012; World Bank, 2005). Learning was therefore best achieved through mother tongue immersion in the first few years of formal education (Ball, 2010). Since its nationwide implementation in all public schools in 2012, the local mother tongue is taught as a language subject and used as medium of instruction in teaching all subjects from kindergarten to third grade (K3). Starting from fourth grade (K4), the medium of instruction shifts to Filipino for *Araling Panlipunan* (Social Studies), *Edukasyong Pantahanan at Pangkabuhayan* (Livelihood Education), *Musika, Sining, Edukasyong Pangkatawan at Pangkalusugan* (Music, Arts, Physical Education, and Health), and *Edukasyon sa Pagpapakatao* (Values Education). For Science and Mathematics, the medium of instruction shifts to English (Barnachea, 2013).

Although both Filipino and English are taught as language subjects from K1 to K3, the shift in the medium of instruction imposes challenges to students. At this point, they may not have yet mastered even their mother tongues, much more so Filipino and English which are essential in acquiring new knowledge and skills from K4 onwards. Also, as Tagalog is the base of Filipino, it may follow that Filipino is already considered the medium of instruction for Tagalog-speaking students from K1 to K3 and they only need to adjust to the shift to English for some subjects when they reach the fourth grade. This results to a disadvantage for students whose mother tongue is not Tagalog for they still have to learn Filipino as their second language and English as their third language in order to adjust to the shift in the medium of instruction (Tupas & Lorente, 2014).

The consequences of these policies on learners are partially reflected in the results of international tests. The Programme for International Student Assessment (PISA) 2018 National Report of the Philippines showed that the country obtained an average of 340 points in Overall Reading Literacy and was classified at Proficiency Level 1a, two levels lower in comparison to the average of the Organization for Economic Cooperation and Development (OECD) countries which was 487 and ranked at Proficiency Level 3. Within the Philippines, 94.70% from Region 12 (Central Mindanao) obtained lower than proficiency level 2, including the 33.97% with proficiency level 1c and below. On the other hand, 32.98% from the National Capital Region obtained proficiency levels 2 to 4 while they only have 8.56% with proficiency level 1c and below. It is also interesting to note that in the PISA report, the type of community was also seen as a factor on the significant differences on the average performance of students. Students residing in urban communities outperformed those from rural areas in reading literacy (355 against 313 points) (Philippine Department of Education, 2019).

Do students value English and Filipino language learning? Do they see these skills as beneficial or important? Among non-native speakers of English and Filipino, we hypothesize that: (1) urban-based students accept and use the languages more and (2) urban-based students have better language skills than rural students.

The study reported in this paper was conducted with the following goals: (1) to examine the differences in the usage, attitude, and perception towards Filipino and English among elementary students from urban and rural areas in southern Philippines, (2) to investigate the potential of educational mobile games to help improve the students' Filipino and English vocabulary, and (3) to compare the performance of urban-based and rural-based students in a digital game for English and Filipino vocabulary.

2. Mobile Games for Language Learning

2.1 Digital Games and Mobile-Assisted Language Learning (MALL)

Advances in mobile devices, particularly on handheld gadgets such as personal digital assistants (PDAs), tablets, and smart phones have enabled the use of multimedia in mobile applications and provided both educators and learners a wide variety of learning resources (Huang, Chen, & Chen, 2009). The development of such diverse educational mobile applications added value to how mobile technologies can support learning outside the classroom (Mouza & Barrett-Greenly, 2015). According to Ozdamli and Cavus (2011), mobile learning has seven core characteristics: (1) ubiquitous because it

provides more spontaneity than other learning models, (2) portable because mobile learning tools are relatively small and do not require much space and complicated set ups, (3) blended because it can be combined with other modes of instructions, (4) private because most mobile devices have a one-to-one ratio which means only one learner at a time has access to the resource and can independently work on the tasks, (5) interactive because m-learning environments make use of latest multimedia technologies in developing engaging tasks, (6) collaborative because mobile technologies support communication between students and with the teachers, and (7) instant because mobile technologies allow the delivery of immediate queries and responses. Developers leverage these characteristics in creating applications that can be used for both formal and non-formal education (Kukulska-Hulme, Lee, & Norris, 2017).

Over the last decade, there has been a significant growth in research work on digital games and language learning (e.g. Cornillie, Thorne, & Desmet, 2012; Godwin-Jones, 2014; Reinders, 2012; Sykes, 2018). Coupled with the increasing popularity of mobile technologies for learning, digital games have also undergone a rapid shift to mobile platforms (Giannakas et al., 2018) and as such have been utilized for mobile-assisted language learning (MALL), an area within mobile learning that focuses on various language learning (Miangah & Nezarat, 2012). MALL research has shown that mobile devices can indeed be effective tools for delivering language learning materials to the students and it allows them to autonomously study a second language (Kukulska-Hulme et al., 2017). Educators have used games in the MALL context which have been shown to improve language skills such as listening, vocabulary, and grammatical accuracy to help improve language proficiency and integrate them into the curriculum as supplementary activities (Sykes, 2017). One example of such a game is *Ibigkas!* (Rodrigo et al., 2019).

2.2 The Ibigkas! Games

Ibigkas! (translated as "Speak Up!" in English) is a mobile game developed to help improve English literacy skills (Rodrigo et al., 2019). It focuses on the recognition of English words, specifically students' knowledge of rhymes, synonyms, and antonyms. It is a drill-type game that can be played in single player or multiplayer modes. In a single player mode, the player starts by selecting the type of game, the level of difficulty, and speed (Figure 1a). The game gives the player a target word and the player must choose from the 3 options the correct rhyme, synonym, or antonyms depending the game s/he is playing (Figure 1b).

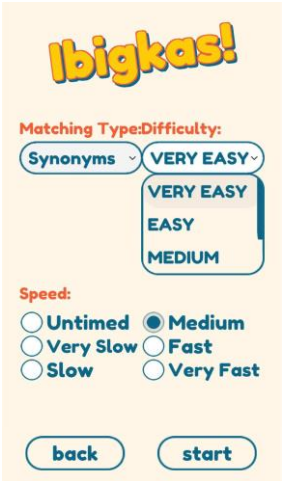

Figure 1a. Ibigkas! Game Settings.

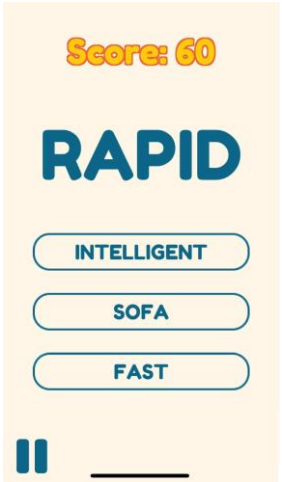

Figure 1b. Ibigkas! Target word and choices

If the player's answer is correct, the background flashes green and the game proceeds to the next word until the time runs out (Figure 2a). If the player's answer is incorrect, the background flashes red and the player must choose another word until s/he gets the correct answer (Figure 2b).

Figure 2a. Screen flashes green for correct word

Figure 2b. Screen flashes red for incorrect word

In multiplayer mode, all the players must have their own mobile device and must be connected to the same network. One player must act as the host to choose the type of game. Each player would then receive three different words on their screen but one of them is also given the target word. The player with the target word must 'speak up' what target word is for all the other players to hear. The player with the correct word (rhyme, synonym, or antonym) shouts out the answer and tap it on his/her screen.

The Filipino version of *Ibigkas*! was later developed to help teach Filipino synonyms and antonyms (translated as '*magkasingkahulugan'* and '*magkasalungat'* in Filipino, respectively). The Filipino version follows the same mechanics as the English version.

3. Data Collection

The *Ibigkas*! games (English and Filipino versions) were tested on elementary students (grades 4, 5, and 6) from a rural public school and an urban public school in southern Philippines. The mother tongue of these students is Cebuano. Since there were no face-to-face classes due to the pandemic situation, a field staff was assigned to go to each of the participant's house to deliver the questionnaires and mobile device for testing while observing the required safety protocols. The researcher then communicated with the participants over the phone for orientation and instructions.

The participants first answered a demographics questionnaire to determine their level of access to mobile devices as well as their usage, attitude, and perceptions towards the English and Filipino languages. They were given statements like "I speak English at home" or "I speak Filipino at home" (with Cebuano translations) and they indicated their level of agreement using a five-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). The participants then answered a pre-test on English and Filipino synonyms and antonyms. After which they were asked to play six *Ibigkas!* games: (1) English Rhymes, (2) English Synonyms, (3) English Antonyms, (4) Filipino Synonyms, and (5) Filipino Antonyms. The level of difficulty depends on the grade level: the 4th grade students played "medium" difficulty, the 5th graders played "hard" level, and the 6th graders played "very hard". All students played the games twice on the same difficulty setting but with different speeds, first with medium speed and then with fast speed setting. Interaction logs are automatically recorded on the device.

After playing the *Ibigkas!* games, the participants answered a post-test on English and Filipino synonyms and antonyms. Then they answered the Game-Based Learning (GBL) Engagement Metric (Chew, 2017) to determine how engaged the students were with the game. They were given statements like "When I was playing the games, I feel interested" and they indicated their level of agreement using a five-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). Next, they were given the Intrinsic Motivation Inventory (IMI) (Ryan, 1982) questionnaire adapted for *Ibigkas!* with statements like "I tried very hard to answer correctly in the *Ibigkas!* games" and they indicated their level of agreement using a seven-point scale (1=Not at all true to 7=Very true).

4. Results and Discussion

4.1 Profile of Participants and Attitude towards English and Filipino

There were15 participants from each grade level (grades 4, 5, and 6) from urban and the same number from rural for a total of 90 participants. Out of the 90, 41 identified as female and 49 male. Only 17 from urban and 18 from rural have their own cellphone but more students from urban played mobile games including educational ones compared to those from rural (see Table 1).

Table 1. *Participants' Profile*

	Urban	Rural
Sex	Female = 18, Male= 27	Female = 23, Male = 22
Average age	11.13	10.38
Had their own mobile phone	17 (38%)	18 (40%)
Played mobile games	30 (67%)	21 (47%)
Played mobile educational games	23 (51%)	20 (44%)

4.1.1 Attitude towards English

The rural group has the smaller percentage of respondents who speak English at home (13.33%) and with their friends (13.33%) compared to Urban with 40.00% and 48.89%, respectively (see Table 2). When individual ratings were compared, a significant difference was found. In a survey conducted on 710 students from urban schools in National Capital Region, it was found that 35.41% speak some English at home (Rodrigo et al., 2019). The use of English at home or with friends may be more common in urban areas.

Also, more students from the urban group (80.00%) enjoy learning English than those from rural (51.11%). However, when asked if they enjoy reading in English, only 31.11% from urban while 57.78% from rural agreed to do so and the difference between groups was not significant.

Majority of the students from urban (57.78%) agreed that English is difficult to learn but only 8.89% disagreed, while the remaining 33.33% answered 'not sure'. The difference was significant when individual ratings were compared with rural group where 42.22% of the participants agreed and 42.22% disagreed. It is interesting to note that the urban group who use English more at home and with friends also found the language more difficult to learn whereas the rural group has the opposite observation. We looked at the relationship of the students' responses to the statement '*I find English difficult to learn*' and the average of their rating for using it '*at home*' and '*with friends*' and found a significant relationship, $r(88)=0.341$, $p<0.01$. Based on this, we can speculate that those who use it more are perhaps the ones more familiar to the level of difficulty of learning the language.

For both groups majority of the students expressed that they feel nervous when they need to speak English in class but all students expressed the desire to learn English and agreed that it is important to do so.

Table 2. *Attitude towards English: Urban vs Rural Comparison*

Questions	Urban		Rural		t-value	p-value
	mean	sd	mean	sd		
1. I speak English at home.	3.20	0.98	2.18	1.18	4.422	**<0.001**
2. I speak English with my friends.	3.31	1.11	2.22	1.09	4.632	**<0.001**
3. I enjoy learning English.	3.96	0.82	3.51	1.33	1.893	0.061
4. I enjoy reading in English.	3.44	1.27	3.36	1.59	0.289	0.774
5. I find English difficult to learn.	3.47	0.78	2.89	1.52	2.241	**0.027**
6. I feel nervous when I need to speak English in class.	3.44	1.04	3.42	1.54	0.079	0.938
7. I want to learn to speak and read in English.	3.91	0.78	3.96	1.28	-0.197	0.844
8. Learning English is important.	3.93	0.85	3.84	1.37	0.366	0.716

4.1.2 Attitude towards Filipino Language

Similar to the findings for the English language, rural has the smaller percentage of respondents who speak Filipino at home (13.33%) and with their friends (13.33%) and are significantly different when compared to urban with 42.22% and 55.56%, respectively (see Table 3). For both English and Filipino, results show that those from the urban areas speak the two languages more.

Most of the students from the urban group (80.00%) said they enjoy learning Filipino while 51.11% from the rural group said so but results show that students from both groups are not fond of reading in Filipino.

The students' ratings to the question about the difficulty of learning Filipino is very similar to how they feel towards the English language. Majority of the students from urban (57.78%) agreed that Filipino is difficult to learn while 20.00% disagreed, and the remaining 22.22% answered 'not sure'. The difference was significant when individual ratings were compared with rural where 42.22% of the respondents agreed and 42.22% disagreed, similar response to English. We also looked at the relationship of their response to the statement 'I find Filipino difficult to learn' and their usage (average of using it 'at home' and 'with friends') and found a significant relationship, $r(88)=0.339$, $p=0.01$. A similar speculation as with English could be made where those who use it more are perhaps the ones more familiar to the level of difficulty of learning Filipino.

Both groups also expressed feeling nervous when asked to speak Filipino in class but agreed that learning Filipino is important and expressed the desire to learn the language.

Table 3. *Attitude towards Filipino Language: Urban vs Rural Comparison*

Questions	Urban		Rural		t-value	p-value
	mean	sd	mean	sd		
1. I speak Filipino at home.	3.40	1.08	2.33	1.07	4.636	<0.001
2. I speak Filipino with my friends.	3.58	1.06	2.27	1.06	5.783	<0.001
3. I enjoy learning Filipino.	4.09	0.86	3.53	1.28	2.392	0.018
4. I enjoy reading in Filipino.	3.38	1.12	3.44	1.48	-0.238	0.812
5. I find Filipino difficult to learn.	3.62	0.80	3.04	1.37	2.424	0.017
6. I feel nervous when I need to speak Filipino in class.	3.60	1.06	3.51	1.42	0.332	0.740
7. I want to learn to speak and read in Filipino.	3.93	0.80	3.98	1.24	-0.200	0.842
8. Learning Filipino is important.	3.98	0.80	4.00	1.17	-0.104	0.918

Results show that the attitude towards English of the participants from each group is almost similar and to how they feel towards Filipino. The differences observed between the groups are also the same for both languages.

4.2 Prior Knowledge

Despite of the differences in their attitude towards the languages, no significant difference was found on the pre-test performance between the groups for all grade levels. It is also interesting to note that no average percentage is higher than 71% which is relatively low. The overall averages are even lower: for the urban group it's 45% for Ibigkas! (English) and 57% for Ibigkas! Filipino while for the rural group, the averages are 45% and 56%, respectively. However, given the 15% to 25% standard deviations, we can say that the scores are varied. The fact that, overall, the majority of the participants do not speak neither English nor Filipino at home or with friends and are not fond of reading in both languages may have contributed to these scores.

4.3 In-Game Performance

To account for in-game performance, we look at the student's attempts per given word. If the student answers correctly on the first attempt, 1 point is awarded; a half point on the second attempt, and zero for the third attempt since the correct answer must have been revealed at this point. The percentage was

obtained by dividing the computed score by the total number of words given. All students played two levels of speed for the level of difficulty assigned in their grade level. For example, a grade 4 students were assigned medium difficulty for rhymes, synonyms, and antonyms and they have to play the games first with medium-level speed then fast-level speed. We then computed the average of the two speeds for each game per student to measure their performance per game type.

4.3.1 Comparison of In-game Performance between Urban and Rural

There was no significant difference on in-game performance between urban and rural for the *Ibigkas!* English games in all levels. For *Ibigkas!* Filipino, no significant difference was found for all games although there were differences in their attitude towards Filipino. Since there was also no significant difference found in the pre-test, this result is not totally surprising. It is also interesting to note that all average percentages for all grade levels are lower than 71% for urban and lower than 66% for rural.

The overall group averages are even lower. For the urban group it is 52% for *Ibigkas!* (English) and 57% for Ibigkas! Filipino while for the rural group are 59% and 55%, respectively.

The in-game performance of the students also reflect their pre-test performance. Considering the overall attitude of the participants towards English and Filipino as well as their usage, these numbers are to be expected especially that it was their first time to play the game.

4.3.2 Analysis of Attempts

Due to relatively low in-game performance, we look at the attempt level of the logs to understand how the students identified the correct answer to the given words. Since the players were given 3 options, they have a total of 2 chances to choose the correct word before the game would reveal the correct word. Specifically, we look at the incidence of correct-at-first-attempt and correct-at-second-attempt. We found that for all the games across grade levels and groups, majority of the correct answers were on the second attempt (see Table 4). This means that their first choice was revealed by the game to be incorrect by providing a visual cue of a flashing red background. On the second attempt, they are now left with two choices with a higher probability of getter the correct answer. By looking at the probability in a straightforward manner, we could say that during the first attempt, the probability of choosing the correct word from the three choices is 33.33%. During the second attempt with only two options left, we could say the probability increased to 50%. However, this approach does not totally explain the higher incidence of correct answers in the second attempt across all games and groups.

A similar concept can be found in the Monty Hall Problem where the player is on a game show and is given the choice of three doors. Behind one door is a car, and behind the other two are goats. Say, the player chose door 1, and the host, who knows where the car is, opens door 3, behind which is a goat (Selvin, 1975). According to the solution presented by Vos Savant (1990), the probability of choosing the correct door between the two remaining doors after the host revealed a wrong door is not 50% but actually 33.33% if you stay with your choice and 66.66% if you switch to the other remaining door.

Considering that the *Ibigkas!* gameplay and the Monty Hall mechanics have differences and that the probabilities in Monty Hall are heavily dependent on its context, we cannot fully assume that the probabilities apply to the *Ibigkas!* observations but this gives us an idea of looking at the *Ibigkas!* scenario from a different perspective. Given that there are 3 choices and the students are afforded 2 chances (2 out of 3) before the game reveals the correct answer, we can say that the players actually have a total of 66.66% probability to get the correct word. Hence, it is more likely that the students would get the correct answer by the second attempt.

Table 4. *Incidence of correct answer on the 1st and 2nd attempts*

Groups	Urban			Rural		
Games	Correct on 1st attempt	Correct on 2nd attempt	Game revealed the answer	Correct on 1st attempt	Correct on 2nd attempt	Game revealed the answer
English						
G4 Rhymes	31.72%	54.63%	13.66%	32.59%	58.27%	9.14%
G4 Synonyms	14.36%	70.79%	14.85%	16.60%	73.29%	10.60%
G4 Antonyms	24.67%	64.32%	11.01%	26.55%	61.28%	12.18%

G5 Rhymes	39.75%	52.17%	8.07%	46.24%	46.24%	7.52%
G5 Synonyms	13.38%	69.43%	17.20%	23.76%	66.30%	9.94%
G5 Antonyms	17.07%	65.24%	17.68%	18.31%	68.92%	12.77%
G6 Rhymes	33.14%	52.07%	14.79%	26.91%	64.00%	9.09%
G6 Synonyms	20.51%	59.62%	19.87%	13.76%	75.05%	11.18%
G6 Antonyms	12.67%	72.00%	15.33%	20.10%	69.28%	10.62%
Filipino						
G4 Synonyms	23.23%	58.59%	18.18%	12.38%	77.18%	10.44%
G4 Antonyms	28.57%	60.00%	11.43%	17.03%	71.82%	11.15%
G5 Synonyms	35.07%	57.46%	7.46%	18.21%	68.07%	13.72%
G5 Antonyms	40.43%	51.06%	8.51%	22.84%	68.07%	9.09%
G6 Synonyms	25.78%	63.28%	10.94%	14.77%	76.58%	8.65%
G6 Antonyms	23.90%	62.89%	13.21%	17.58%	70.97%	11.44%

Moreover, based on the percentages of correct answers on the first attempt, it was observed that students for all groups and grade levels performed best on rhymes, followed by antonyms, then synonyms for *Ibigkas!* English. For *Ibigkas!* Filipino, majority tend to perform better on antonyms than in synonyms. This observation is somehow opposite from the prediction of some teachers from a predominantly Tagalog-speaking region that students would find antonyms more difficult than rhymes and synonyms (Rodrigo et al., 2019).

4.4 Game-Based Learning Engagement and Intrinsic Motivation Inventory

Across all groups and grade-level, the students generally gave a positive feedback towards the games. Results from the game-based learning engagement questionnaire reveal that they carefully followed the instructions (3.9/5.0) and that they tried their best to identify the correct answer (3.9/5.0). They also agreed that when playing the game, they are able to use and practice what they have learned in class (4.2/5.0) and that the game helped them widen and improve their English and Filipino vocabulary (3.8/5.0). They though that game was interesting (3.8/5.0) that they look forward to completing the tasks (4.6/5.0), and that the games have enough difficulty to challenge them (4.1/5.0).

The same positive response is reflected in the Intrinsic Motivation questionnaire. The students enjoyed playing the games (5.4/7.0), described them as interesting (5.8/7.0), and thought they were fun to play (5.9/7.0). They said that they tried their best (5.9/7.0) because it was important for them to do well (5.3/7.0) and they believed they did pretty good (5.7/7.0).

Engagement features were derived from the GBLE responses and motivation features from the IMI responses as described in (Moreno et al., 2019): behavior engagement (i.e. being attentive and trying their best to identify the correct word), cognitive engagement (i.e. using and applying what they have learned in class while playing the game, asking questions when they didn't know what to do, and thinking that the game has enough difficulty to challenge them), emotion engagement (i.e. being interested while playing and looking forward to finish the game), enjoyment (i.e. enjoying, having fun and finding the game interesting and not boring), effort (i.e. trying hard to answer correctly and thinking that it was important for them to do well), and perceived competence (i.e. believing that they played *Ibigkas!* pretty well and feeling satisfied with their performance). In the comparison between the two groups, no significant difference was found in terms of the GBLE features. For the IMI features, participants from the urban group had significantly higher self-report ratings for enjoyment (M=5.69, SD=1.01) than the rural group (M=4.93, SD=1.83, $t(88)$=2.40, p=0.02) and the same for effort where the urban group had higher ratings (M=5.92, SD=0.97) than the rural group (M=5.29, SD=1.48, $t(88)$=2.37, p=0.02).

4.5 Learning Gains

No significant difference was found on the learning gains between the groups except for 6th grades students from urban who had significantly higher gains on Filipino Synonyms (the highest among all learning gains) compared to the rural 6th grade students. Although there a number of negative gains, the game yielded positive gains up to 25% considering that it is the first time for the participants to be

exposed to and play the game and were only able to play one round for each type, level, and speed assigned to them.

The positive GBL Engagement and IMI feedback as well as some learning gains can be considered a promising step on the use of mobile games to improve English and Filipino vocabulary among learners who are non-native speakers of the languages.

5. Summary and Conclusion

Urban students tend to use English and Filipino more than rural students but they share the same sentiments as to the importance of learning both languages. We also found that students who used the languages more, are the ones who thought the languages were difficult to learn. We speculate that due to their exposure, they are more acquainted with the components of language learning. Both groups said that they get nervous when they have to speak the languages in class but they also agreed that learning English and Filipino can be enjoyable. Moreover, the fact that majority of the participants do not speak neither English nor Filipino at home or with friends and that they are not fond of reading in the said languages may have contributed to their low pre-test scores.

Their low in-game scores also reflect the participants' low prior knowledge and the overall usage and attitude towards English and Filipino. Upon further investigation of their attempts, it was found that for all the games across grade levels and groups, majority of the correct answers were on the second attempt. This could be attributed to the game mechanics that allows the students a total of 2 attempts given the 3 choices which gives them 66.66% probability of getting the correct answer on the second attempt. Also, the particular mechanic of the game that allows students to try again until the correct answer is revealed may have contributed to some of the positive learning gains considering that it was their first time to play the game.

The findings showed that: (1) urban-based students speak English and Filipino more at home and with their friends, they enjoy learning the both languages more, but they also find them difficult to learn more than those from rural areas (2) there is promising potential on the use of the *Ibigkas!* mobile games in improving the students' Filipino and English vocabulary as shown by the students GBL engagement and IMI responses as well as some positive learning gains from their first time playing the games, and (3) overall, no significant difference was found on in-game performance between urban and rural for all the Filipino games across all levels and most of the English games except between 5th Grade English Rhymes and 5th Grade English Synonyms.

In conclusion, results are consistent with the first hypothesis that urban-based students accept and use the languages more than rural-based students. On the other hand, it failed to prove the second hypothesis that urban-based students have better language skills than rural students as generally, no significant difference was found between their English and Filipino pre-tests, in-game performance, and post-tests.

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