Gamifying Children's Linguistic Intelligence With the Duolingo App: A Case Study From Indonesia

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Chapter 7
Gamifying Children's Linguistic Intelligence With the Duolingo App: A Case Study From Indonesia

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ABSTRACT

This chapter discusses the use of Duolingo App to enhance children's linguistic intelligence. Linguistic intelligence is expertise in applying vocabularies effectively and efficiently. Duolingo is an application based on the Android platform which helps children mastering other languages that they can practice speaking, reading, listening, and writing through a play. Children in early childhood are in the period of 'playing' spontaneously. They will do activities of playing without any instruction from others. The activity of playing naturally will stimulate the aspects of linguistic and symbolic that this development is closely related to learning to speak by involving the ability to vocalize. The use of this application will implement toward gamification method. Gamification uses game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems. This chapter provides an illustration that gamification can be used specifically in stimulating linguistic intelligence based on a case study in Indonesia.

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INTRODUCTION

The term gamification started to exist around 2010 as part of a long process. In the beginning, the term was applied when office workers were getting bored with their routines and needed activities to refresh their bodies and souls. Academic researchers have held that "gamification is a term originated in the digital media industry". The first documented uses date back to 2008, but gamification entered widespread adoption only in the second half of 2010, when several industry players and conferences popularised it (Deterding, Khaled, Nacke, & Dixon, 2011). The use of gamification spread through the education field, until Kapp employed the term in a learning context in his book explaining how gamification can motivate learners. He defines gamification as "using game-based mechanics, aesthetics, and game-thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2014). In gamification, while elements of games such as points, badges, freedom to fail, and challenge are used, the intent is not to create a self-contained unit—not to create a game. The intent is to use elements from games to encourage the learners to engage with the content and to progress toward a goal. The argument is supported by Nicholson's observation that gamification is like a reward. Scoot states: "Rewards have been used for centuries to change behaviour; children and pets are trained through rewards and punishments, soldiers are rewarded for achievements through ranks and badges, and schools use grades to entice students to do schoolwork" (Neeli, Reiners, & Wood, 2015). The rewards referred to in this article are used to change behaviour, so that children previously uninterested in something will become interested, and will want to join in certain activities. Reward is one of elements in game which can be used to attract attention. This article provides an illustration in which gamification is used specifically to stimulate intelligence, in the sense stated by Gardner, who identifies eight intelligences in his book *Frames of Mind: the Theory of Multiple Intelligences* (Gardner, 2011). In this writing, the authors emphasise linguistic intelligence. Linguistic intelligence is the ability to understand and use spoken and written language. This can include expressing yourself effectively through speech or the written word as well as showing a facility for learning foreign tongues. Writers, poets, lawyers, and speakers are among those that Gardner sees as having high linguistic intelligence (Gardner, 2011). The example of famous people with high linguistic intelligence are William Shakspeare and J.K Rowling.

The use of smartphones in Indonesia has recently increased sharply, due to ease of access and affordability (BPS, 2017). In 2019, the number of smartphone users in Indonesia increased to 92 million (Katadata, 2019). The use of these devices affects the pattern of educating children. In the past, parents taught children how to read by giving them notebooks or letting them scribble on the wall. This shift in the pattern of education is a necessity that must be faced. If parents forbid children to use smartphones, they will become a generation closed to the outside world. Yet, allowing their children to interact with smartphones without clear objectives and boundaries will create unruly characters, highly dependent on their gadgets. Wise use of smartphones creates a generation of children who are independent and have broad knowledge. 'Wise' means obeying time restraints, obeying the rules, and being balanced. One of the wise things that can be done is to provide the right application for the child's age. Planting characters through smartphones is also a wise solution to their use. The phenomenon of education using smartphones also occurs in Indonesia, with parents installing applications to teach children to read, write, and understand vocabularies. One such application that is often used and installed is Duolingo. Irmayanti in her research argued the roles of the parents in assisting the use of gadget in pre-school children is extremily important, the factors which are supporting to guide children use the smarthphone are the knowledge of the technology and the impacts of using smarthphone to teach children (Irmayanti, 2018). One of

efforts of parents to maintain the postive effects of the Gadget is by mentoring the children, parents can supervise the children and directly guide the children to access the only positive contents in their gadget .

In this chapter, we will discuss how parents in Indonesia teach children how to read, write, and understand Indonesian vocabularies using the Duolingo application. This Android-based game is generally employed to teach children to recognise letters, words and sentences through interesting games; the case study approach was therefore employed to explore both the pattern of parents teaching their offspring how to read and write using the application, and the development of reading skills of these children. This case study lasted for approximately a year, with the authors as the research instrument observing a child from five to six years old. An approach of interview and observation is employed to explore data and the facts of how parents use this application in learning.

Background

Gamification has been much discussed by some experts, initially in the economics sector. Activities such as training of trainers, employees' motivation, and briefings before starting work are activities related to gamification. Torsten's book *Gamification in Education and Business* explains how gamification "draws from multiple areas and (at present) from multiple theories borrowed from multiple disciplines, providing a medley of theoretical foundations for research in this area" (Neeli et al., 2015). These disciplines include, for example, the sciences of business, economics, and education. Gamification is part of game-based learning, Prensky argued that game-based learning can be use to figure out and invent ways to include reflection and critical thinking (either built into the game or through a process of instructor-led debriefing) with the learning and still make it a fun game (Prensky, 2000). However, the main difference between the gamification and game-based learning is the integration of game mechanics with training content. Game-based learning fully integrates the two, so the game is the training. On the other hand, gamification uses game elements as a reward for completing existing training modules (Findlay, 2016).

In the education field, gamification can be used thoroughly at both basic and upper levels – in practice, up to the level of senior high school or university. Recent research, however, indicates that gamification can be applied at the level of younger children. The strongest reason why this gamification is applied to children is that it comprises elements of game-based instruction. Research on gamification for children is very limited, with only a few literatures discussing the implementation of gamification methods for early childhood learning. In a book entitled *Gamification for Human Factors Integration: Social, Education, and Psychological Issues*, Tootell's chapter about the implementation of gamification provides an illustration of gamification as one of learning methods which can maximise learning outcomes in accordance with the curriculum. Curriculums from various countries, such as The Australian Early Years Learning Framework (EYLF), US National Association for the Education of Young Children (NAEYC), New Zealand Te Whariki, and UK Early Years Foundation Stage (EFYS), all agree on six learning outcomes which must be maximized in early childhood education. These are: child centred; active learning; plenty of time for children to pursue interests; studies or projects; reading with dialogue, questions and discussions; and creative, open-ended experiences (Bishop, 2014).

Naturally, when young children in early childhood are in a period of 'playing' spontaneously, they will carry out play activities without any instruction from others. Mary D. Sheridan advises: "Give the opportunity for children playing 'spontaneously'". In other words, they provide their own motivation to play and act without prompting or intervention by an adult. The type and duration of the play in which they engage are entirely determined by them, and activities can be taken up and stopped at will.

"The child, playing is an end in itself, and to an observer there may not seem to be any obvious goal or conclusion" (Sheridan, Howard, & Alderson, 2010). Synodi adds: "Playing is considered to be a part of young children's life, which is recognized as a contributor to a child's social, personal, linguistic, physical, cognitive, moral, creative and artistic development" (Synodi, 2010). According to him, playing is closely related to the parts of children's life which can contribute to social, emotional, linguistic, physical, cognitive, moral, creative, and aesthetic development.

When playing, children experience growth in accordance with their age (Allen, 1989). Various aspects of development are ready to be stimulated, such as physical aspects, so that when playing, children can control their movement. The age of 3 to 6 years offen reffered to as the "preschool period". Children's language, social emotional and cognitive skills are rapidly expanding. During this period the stimulation and learning that come from play (UNICEF, 2018). The activity of playing naturally will stimulate the motor skills of children, both fine and gross. The second aspects are cognitive and symbolic, and the development of both is closely related to acquiring knowledge and skill through processing and using information meaningfully. This skill includes imagination and creativity, abstract thought, logical reasoning, problem solving, and action. The third aspect refers to linguistic and symbolic, an area of development closely related to learning to speak by involving the ability to vocalise (or to pronounce words), to understand, and to obtain vocabularies which continue to develop. Children learn by using language in more complex ways, for example by giving opinions and exploring ideas. The fourth aspect which can be developed through play is related to social and emotional growth. Babies greatly depend on their carers, but when they play they become independent children, developing skills of self-help and understanding of social and cultural perspectives. Besides, control over emotion develops along with the way they express opinions and feelings. The last aspect is moral and spiritual. When playing, children will be examined on how tough they are in facing problems, particularly about honesty. Moral development generally copes with the understanding of values such as honesty, justice and respect, the concept of 'right' and 'wrong', responsibility, and the consequences of a person's actions.

Playing is closely related to intelligence. Research on play in early childhood has been increasing, supported by some of the academic journals, and in Norway playing activity is included in to the curriculum (Guss, 2005). In this journal article, Guss states: "A new understanding is arrived at not by asking what is play, but by asking how is playing?" This is important, because by asking only "what" play leaves children stuck only in a definition; asking "how" they play suggests involvement in the game. The statement is strengthened in a journal article entitled "Governing Early Childhood Education through Play" (Ailwood, 2003) which specifically discusses how to manage a game for early childhood education. This idea about playing is also implemented in language/literacy teaching. The research explores teaching in early childhood, with reading ability in different languages developed through playing activity (Moon & Reifel, 2008).

Intelligence for some people is defined by the ability to accept and to manage something. But, is intelligence limited only to this definition? The article discusses intelligences according to some experts. The traditional perspective suggests that intelligence is closely related to IQ. Yet Swiss psychologist Jean Piaget casts doubt on this, pointing out that when children take IQ tests, mistakes occur, making data about the intelligence of the children taking the test inaccurate. Piaget states that "Intelligence/cognitive development is when the scheme is obtained about how someone perceives his environment in the stages of development, when someone obtains new ways in presenting information mentally"(Piaget, n.d.). Piaget never criticises theories of intelligence using IQ, but states his opinion that: "The IQ movement is blindly empirical. It is based simply on tests with some predictive power about success in school and, only marginally, on a theory of how the mind works" (Gardner, 2011). An IQ is empirical, and therefore

cannot be proved by a predictive test. Moreover, it addresses only success at school. Piaget's statement is quoted by Gardner, who defines intelligence as "a skill, with process of completeness, which is able to handle specific problem content in the world" (Gardner, 2008).

Gardner closely related to the theory of multiple intelligences (MI). To Gardner, all children are born with each talent of intelligence, so that we cannot say a child is intelligent from only one perspective of intelligence. Gardner introduces ideas about multiple intelligences in his book *Frames of Minds: The Theory of Multiple Intelligences*, proposing that there are seven intelligences (Gardner, 1988). Gardner refines his idea to eight intelligences in the third edition (Gardner, 2011). Those eight intelligences are:

Linguistic Intelligence (the ability to manage language); Musical Intelligence (the ability which is closely related to music, according to Gardner, this intelligence is the earliest intelligence seen in the process of children's development); Logical-Mathematical Intelligence (the intelligence which is related to logics and numbers); Spatial-Intelligence (the intelligence dealing with the sensitivity of someone to perceive visual spatial world); Bodily-Kinesthetic (the ability to control body movement and the proficiency in managing object); Interpersonal Intelligence (this intelligence is marked with the ability to absorb and to respond moods appropriately); Intrapersonal Intelligence (the ability to understand self-moods and the ability to differentiate emotion); Natural Intelligence (the ability to recognize members of species; to recognize the existence of other species, and to map the relationship among some species, both formally and informally) (Fadhli, 2016)

The above arguments explain the value of intelligence. When we want to formulate an intelligence, we must learn how to respect every intelligence owned by each human. Gardner provides requirements about something called an intelligence. To him, these requirements are essential in assuring that man's intelligence is original and useful for human civilisation. First, intelligence must be able to be symbolised (for example, mathematics has symbols, music has notation, kinaesthetics has symbols, etc.). Secondly, each intelligence has a progress history (unlike the IQ approach – which supposes that intelligence is absolutely fixed, has been fixed at birth and remains the same – MI holds that intelligence occurs in certain periods in childhood, has the potential to develop over the lifespan, and contains a unique pattern which slowly or rapidly reduces as people's ages increase. The earliest intelligence is music, followed by Logical-Mathematical Intelligence). Thirdly, each intelligence is vulnerable to defects due to damage or injury to certain parts of the brain. For example, someone with damage to the left of the frontal lobe will not be able to speak or write easily, but will not find problems in singing, drawing, or dancing. Someone whose right temporal lobes are damaged might find problems in music, but will find it easy to talk, read and write. Someone with a damaged right lobus oksipital might experience difficulties in recognising faces, and in imagining or observing visual details (Armstrong, 2000). Next, each intelligence is subject to circumstances based on cultural values; for example, the ability to ride a horse, or to practise archery.

This article discusses linguistic intelligences. As explained in the above paragraph, linguistic intelligence is closely related to the ability of a man to master language. The strongest reason for choosing linguistic intelligences in this discussion is that the intelligences formulated by Gardner are identical to aspects of development released by the Indonesian government in its content standard about achievement levels of children's development (Permendikbud, 2014). The government rules place these achievement levels in accordance with age and scope of development. There are six scopes of development, namely: (1) religious and moral values; (2) physical-motoric kinaesthetic; (3) cognitive; (4) language/linguistic; (5) social-emotional; and (6) art.

Experts vary on the question of linguistic intelligence. Gardner invokes "The ability to use language to convince other individuals of a course of action" (Gardner, 2011). Armstrong develops the theory about this MI in his book *Multiple Intelligences in the Classroom*, stating that intelligence is;

The capacity to use words effectively, whether orally (e.g., as a story-teller, orator, or politician) or in writing (e.g., as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language (Armstrong, 2000)

According to Armstrong, linguistic intelligence is an expertise in applying vocabularies effectively and efficiently. This statement is strengthened by McCoog in his journal article "Integrated Instruction: Multiple Intelligences and Technology" (2007). He states that linguistic intelligence is "characterized as students with excellent written and oral skills. They excel in the humanities and focus on careers in journalism and politics". Similarly, Leila states that this intelligence "involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals" (Vakili, 2013). Linguistic intelligence, also known by the term "wordsmart" – is an intelligence which can be used by someone to master vocabularies, to play, and to sing. In childhood, this intelligence is closely related to abilities in obtaining and managing information into vocabularies which are sometimes very imaginative, for example listening to other people speaking in the mother tongue or other languages, and understanding two orders given at the same time.

The use of gadgets in educating children, in some literatures, is in line with the development of MI revealed by Gardner, as suggested in research on the use of mobile devices in teaching mathematics. This research proves the use of smartphones in stimulating mathematical logic intelligence (Zaranis, Kalogiannakis, & Papadakis, 2013). Another research project proves that using smartphones offers an alternative in stimulating natural intelligence, as Gardner revealed. The use of ICT in learning can offer an alternative in bringing children closer to the natural world by applying a QR code to gather information and complete tasks (Kalogiannakis; Papadakis, 2017). The researches mentioned above prove the effectiveness of smartphones in stimulating intelligence. This is the basis for selecting the theme of this chapter: discussing the implementation of the Duolingo application in stimulating linguistic intelligence, as stated in the introduction. This research is based on a qualitative approach to explore facts and to extract data for analysis.

Duolingo is an Android, IOS and Windows phone-based application launched in November 2011 by Luis von Ahn and Severin Hacker. It has a rating of 4.7 out of 5, meaning that more than 90% of users have given a rating of 5 and choose this application to teach languages for children. Indonesia has become one of the users of Duolingo. Approximately 30% of its 92 million users are children aged five to six. Indonesia has only one language that must be mastered, namely Bahasa Indonesia, and the application has teaching features in the Indonesian language. This gives the application additional value. Research conducted by the authors in the past year indicates that parents' shifting pattern of educating with the help of smartphones is one thing that cannot be avoided. Parents born as digital immigrants will certainly experience a few obstacles when teaching their children in the native digital generation category; the results of this research can therefore become reference material for parents in educating their children, as well as providing an intermediary line between technological development and raising children according to their age.

THE USE OF SMARTPHONES IN INDONESIA

Issues, Controversies, Problems Using Smartphone in Indonesia

In everyday life, we often hear about technology, but many might be confused in describing what technology is. Maybe we just imagine that technology is something that is sophisticated, futuristic, or cool? This is not totally incorrect, but the definition of technology is actually very broad. According to the Indonesian Language Dictionary (*Kamus Besar Bahasa Indonesia*/KBBI), technology is all means to provide goods needed for the continuity and comfort of a human's life. Poerbahawadja Harahap states that the use of the word technology basically refers to a science that investigates the procedure in the field of engineering. Technology is a form of process that increases added value. This process can use certain products or produce new ones, and these latter products are not separated from existing products. Furthermore, it is also mentioned that technology is among the integral elements contained within a particular system (Miarso, 2007). Technology is a means of solving the fundamental problems of every human civilisation. Without the use of technology, many problems will not be solved properly and perfectly (Sardar, 1987). Thus, it can be concluded that technology is a process of increasing the value of an item into equipment used with science, based on the fundamental problems of human life. Technology itself first originates from simple objects around us which are designed to be used as tools. The making of a tool itself exists intentionally or unintentionally. A tool is expected to be capable of easing human activities. However, humans from time to time gain more knowledge from these simple tools, and with the knowledge obtained, tools become more complex and their performance improves.

Education using technology should employ both elements hand in hand. However, this research indicates that many parents use technology without having an objective. For example, they allowed their children to watch YouTube in order to keep their children silent, without filtering out what information/content their children see. There are also parents busy with their jobs who neglect their responsibility to educate their children by allowing them to use gadgets all the time. This certainly has negative impacts on the development of their children, especially in social-emotional growth, as evidenced by research by Laili (2017) in Surabaya, Indonesia. This suggested that an excessive use of gadgets can have a negative impact on children's emotional-social development. These results are in line with research conducted by Suhana (2018), who states that the impact of uncontrolled use of gadgets can be to hamper children's emotional-social development. He provides advice on using gadgets, with good examples, on time duration, and on accompanying children playing with gadgets.

However, the results of other research showed positive effects in using gadgets. This is based on the rationale that it is not technology that prevents humans from surviving, but it is humans who hinder their lives adversely when using technology. Research in Kalimantan, Indonesia, by Frahasini (Frahasini, Marhaeni, Astuti, & Atmaja, 2018) explores the use of gadgets at various levels for children. The results showed that the use of this technology is intended for entertainment, aiming to reduce boredom by providing activities. The researchers point out the importance of parents' assistance in using gadgets, so that the direction and purpose of their use can be better controlled and monitored. In line with Frahasini, Laini (Alif & Lara, 2018) provides arguments about the results of research on the use of gadgets for children. Alif reveals that there is a positive relationship in the use of gadgets for positive purposes when parents accompany their children while they play with gadgets.

This research, using an expo facto approach, showed that, overall, the level of prosocial behaviour in low gadget usage (A2) is higher than in high gadget usage (A1); there is an interaction between the use of gadgets with parental involvement on child's prosocial behaviour; there is a difference in behavioural level prosocial use of low gadget (A2) parental involvement high (B1) higher than high prosocial use behaviour (A1) high parental involvement (B1), there is a difference in behaviour level prosocous low use gadget (A2) high parental involvement (B1) higher than prosocial behaviour of low gadget usage (A2) low parental involvement (B1) (Laini, 2018).

Problems are created with a solution. The explanation above shows the condition of the use of gadgets that occurs in Indonesia. This problem lies behind the authors' desire to conduct research on how parents use gadgets for positive purposes. The authors began conducting research in 2018, against the background of the problems the authors have described above. In accordance with the theme of the book, "Mobile Learning Application in Early Childhood Education", this chapter presents the results of the research that the author conducted into the use of mobile learning based applications in Indonesia. The authors chose the Duolingo application because it is a free application, widely used by parents in teaching language. Language here refers to the linguistic intelligence revealed by Gardner, such as the ability to understand, to recognise letters, to have vocabularies, and to communicate.

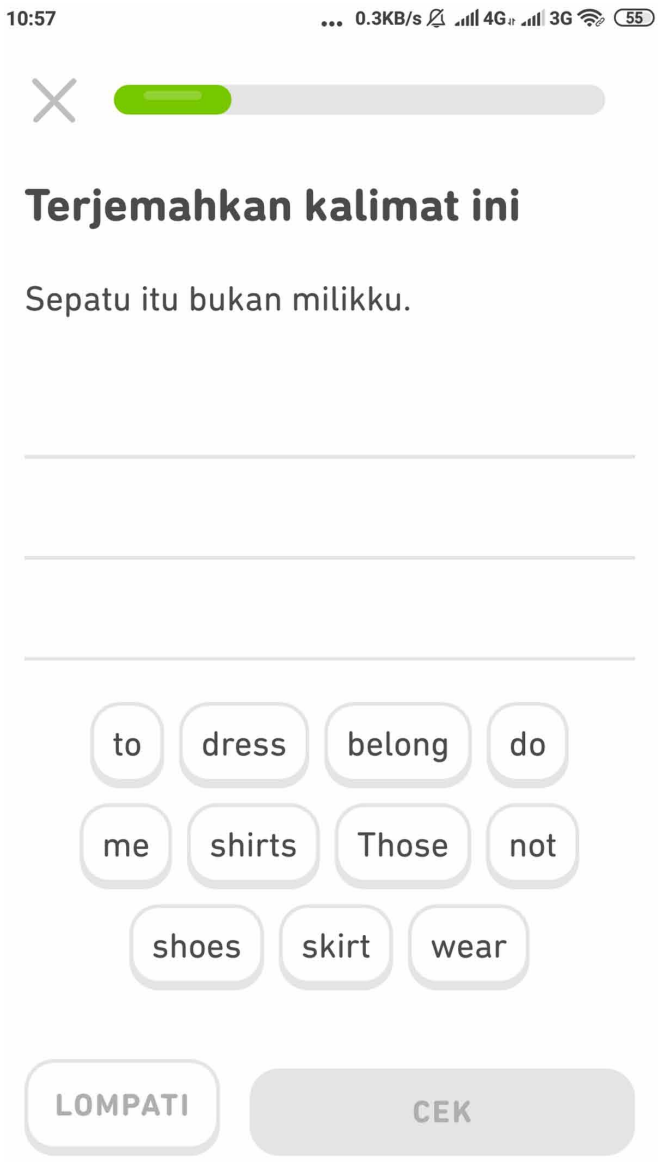
The Use of the Duolingo Application, Between Expectations and Reality

Duolingo is an application platform with a highly interactive display, and uses an owl icon as a symbol of knowledge. With this application, we can train our children to read, listen, and write by playing games (gamification). This application can be used in formal situations such as classroom learning, as well as in daily activities (non-formal) that are usually carried out by children. Duolingo has more than 120 million users worldwide, and more than one million users in Indonesia. There are more than 21 languages to learn, using the same features, from introductory games to tests. Applications that can be used on IOS, Android, and Windows phones are conceived so that users can continue to improve their language skills anytime and anywhere.

Duolingo learning is designed like a game, so it is interesting and easy to absorb. Duolingo won Google Play's Best of the Best 2013 award from Google because the gamification technique used is very effective in making many people acquire new knowledge. The gamification technique used by Duolingo makes it easy and fun to use. Even though Duolingo is designed for learning foreign languages, it does not have to be serious in doing so. Duolingo is included in the education application category, but the application is like playing games. We can use it casually, without pressure, and it has proved to be more effective in being accepted and absorbed by children because of its flexibility – the user can take four language courses at once without having to complete a single language chosen previously. In addition, level and reward systems in this application are very effective in creating motivation for learning a language. Users of Duolingo learn new languages through techniques including repetition, audibly speaking, and conversation; this is how this application teaches children to remember a language. First, the author will hear the voice of the Duolingo operator intoning a word in a previously chosen language, complete with the meaning of that word. After that, the user is trained to always remember what the mentioned word means through questions given. The initial appearance of the Duolingo application can be seen from the following Figure 1:

Figure 1 above shows the initial appearance when we have chosen to learn English for Indonesian people. The simple initial display makes this application very easy to use. This application can also

Figure 1. Display of Duolingo in Indonesian language



provide an initial assessment of our abilities, so in the following game, it can automatically measure our initial comprehension of language, and content later displayed will be in accordance with our initial understanding. This application also gives stages in mastering a language to make it easier for users to know and understand language sequentially; the aim is that knowledge acquired is not fragmented. Duolingo presents an interface that is very simple, as we can see in figure 2 below:

Figure 2 shows the activity after carrying out the initial understanding test. The image shows the initial abilities of the user in the Duolingo application. The application automatically detects the abilities of the user, and immediately assigns exercises accordingly. The Duolingo application is one of the favourite applications in language learning in Indonesia. It makes it easy for parents teaching children to recognise

Figure 2. Display after initial test

letters or words, to string together sentences and even to record children's linguistic activities, such as communicating using certain languages. Figure 2 illustrates the use of the Duolingo application, showing how a child uses it with the help of his parents. According to the results of interviews, the duration of using the application was established by agreement with parents; the child mentioned the use of the application with a limit of two hours per day. The authors also conducted interviews with the child's parents, ensuring that the child's answers corresponded with those of the parents. Discussions with parents also showed that the use of this application must be sanctioned by parents, with a maximum duration of use of two hours.

The results of a case study conducted by the authors on the use of applications for children showed that children find it easy to use this application, when they are accompanied by their parents. Secondly, the use of applications for learning, according to parents, should be maximised. The discussion with the parents showed that when they cooperate in their child's education, they can more easily control that child's growth. In this context, parents believe that using the Duolingo application can help them to teach correct vocabularies, especially when teaching foreign languages to their children.

SOLUTIONS AND RECOMMENDATIONS

This chapter discusses the use of the Duolingo application in practice in the context of linguistic intelligence through the gamification method. The large number of findings makes the authors aware of various ways to arrange solutions and recommendations. As already discussed, the use of technology has positive and negative sides. Our ability to rationalise this phenomenon should lead us to the best solution in the use of technology for our children. Readers are faced with the problems of combining the use of technology with the development and growth of their children. Important suggestions can offer a solution to this problem of providing applications for children. The authors suggest several problem-solving solutions in taking advantage of the gadget, referring to humanist and constructive approaches, as in the following:

1. Give good examples of how children use gadgets (duration of use, when to use, and with whom they can use),
2. Accompany your children when they are playing with gadgets,
3. Give a positive response when your children ask about something they are doing when playing with their gadget,
4. Limit the use of gadgets by turning on child-friendly modes (such as restrictions on YouTube content, application restrictions with freeze facilities),
5. Train your children to take charge of the gadgets they use, so that they know about charging when the battery runs out, cleaning their gadgets, and putting them in the proper place.

FUTURE RESEARCH DIRECTIONS

Background research studies have weaknesses, such as a limited number of respondents, and the population could be justified. However, this research could provide an in-depth picture of the phenomenon being studied. This chapter discusses thoroughly the basis for choosing a research approach, the results of research and recommendations on the use of the Duolingo application for children's linguistic intelligence. It is necessary to develop research on how to apply this application in formal classrooms; the effect is expected to be more generalisable to formal classes, making the research a contribution to science, and a reference to readers.

CONCLUSION

Duolingo is one of the favourite learning applications in Indonesia. Its massive use offers an alternative way of teaching children to master a language. This chapter starts from the background to the conclusion – that the authors coherently present data and facts about the use of mobile learning applications for children. Considerable debate has occurred about the use of gadgets for children. Those who disagree with it argue that too-early exposure to gadgets disrupts children's growth and development, whereas those who support mobile learning applications argue that gadgets help parents to teach their children. Gamification becomes one of the mediators of this debate. It offers a way of learning without reducing our interactions with others. Gamification methods can be used easily. Children learn while playing and parents can interact while they play. From the research into gamification performed by parents through the Duolingo application, it can become an adhesive tool for social-emotional relationships. Parents can be positively involved when children use their gadgets, and children feel comfortable because they use the Duolingo application with their parents' help.

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KEY TERMS AND DEFINITON

Duolingo: Duolingo is an application based on the Android platform which helps children to master other languages by practising speaking, reading, listening, and writing through play.

Gamification: Using game-based mechanics, aesthetics, and game-thinking to engage people, motivate action, promote learning, and solve problems.