# Development of Gamification Based Supplementary Listening Materials to Improve Students' High Order Thinking Skills

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## ABSTRACT

This research aims to develop supplementary listening materials using gamification in the Listening Class. There is one research problem asked, what does a set if supplementary listening materials using gamification for listening class in english education program look like? The purpose of this research is to produces a gamification listening comprehension based of technology E-module. The subject of this research were students of English language Programme in Universitas negeri Malang. The approach in this development adopts the ADDIE. With the idea put on this research subject can experience an increase in listening skills

*Keywords: HOTS, gamification, listening materials.*

## 1. INTRODUCTION

In the current times, today's technology can be effortlessly accessed by everyone. Human life starting from the work place and other activities need computers and other technologies that accelerate the process of ongoing activities. This generation needs someone to have new competencies. This is essential in order to get through strong competition in the 21st century, which is very different from 20 or 30 years ago[1]. These competencies are way of thinking (way of thinking), way of working (how to act), tools for working (awareness in developing life and career) and skills for living in the world (skills to adapt to a new world such as technology or network) [2].

To use techonolgy and to educate or to be educated need sort of combination between technology and how to educate. Technology based learning (TBL) in the early 21st century is "transforming the way people learn at a time when two powerful trends converge." Those two powerful trends are "the rapid acceleration of technological change and the demands that this change places on education and workforce training" according to Social Policy Research Associates (SPRA, n.d.). So, in a more challenging learning condition in the 21st century, each and every student needs to master and to be prepared with technology skills in order to enable them to have a good critical thinking notwithstanding of different racial, cultural backgrounds, and religious. Higher Order Thinking Skill (HOTS) is a thinking skill high level that involve critical, creative, analytical thinking to information and data in solving problems [3]. Higher order thinking is a type of thinking which attempt to search questions about existing knowledge of unspecified issues clearly. To fulfil the goal of mastering high order thinking, integrating technology into the curriculum is an approach that enables students to meet more meaningful, successful and interactive learning processes besides simplify their understanding [4].

Learning in the 21st century, educators display technology to build fun atmosphere in class to student can learn. Learning with technology demand fast and personal response for students' assignments, inspire student to get involve in the learning activities, and improve students' motivation to learn by using learning media and various teaching method. The education 4.0 paradigm allows students to place their own model and pace of learning. Two fundamental characteristics of education 4.0 is the personalization and flexibility [5]. In this sense, adaptive learning systems play a fundamental role in the education 4.0 paradigm [6]. One of the technological base learning found in the recent years is gamification. Gamification includes the adoption of game mechanics and

dynamics to engage people, solve problems and improve the learning process [7].

Gamification is normally used for marketing, e-commerce, ecological test, and health. Gamification is supposed as a new method to attract student motivation and engagement. However, there are also some studies which need to be noticed. "Gamification can become exploitation ware" with fake rather than genuine incentives" for the sake if motivate students to get involved in the learning process [8]. Producing game for learning is not easy, but gamified learning is "a simpler yet still efficient" [9]. Logically is that making serious game requires many resources and costs than gamification.

Game elements are the key in making gamification. Gamification requier the use of elements generally found in games, such as narrative, feedback, rewards system, conflict, cooperation, competition, clear objectives and rules, levels, trial and error, fun, interaction, interactivity, among others, in other activities that are not directly associated with games [10]. There are lots of game elements which are found by many researchers [11]. There are ten elements of great games. There are "self-presentation with avatars; threedimensional environment; narrative context; feedback; reputations, ranks, and levels; market places and economies; competition under rules that are explicit and enforced; teams; parallel communication systems that can be easily configured; time pressure" according to [12], with these elements researcher tends to build fun, interactive and motivated gamified content.

Learning a foreign language is not an easy or enjoyable task, and most students struggle with it. It must be proficient in writing, reading, speaking, and listening. According to Hayakawa et al. [13], when learning a new language, the most difficult complex terms are usually the easiest to forget. As a result, in order to learn a second language more effectively, it is critical to connect the words to the real world.

Teachers must use innovative teaching methods to engage resilient students in the classroom. If people want to be a part of a culture, they must learn a new language [14]. Furthermore, it has been demonstrated that learning a new language improves human multitasking abilities because the language a person speaks shapes the way they think.

Teaching and learning become more collaborative and enjoyable when game-based elements are used. The goal of incorporating the gamification concept into education is to increase learner motivation and engagement. The primary goal of gamification should be to motivate the learner to make a desired behavioral change. Gatautis et al. [15], gamification is primarily used to direct user behavior.

Gamification is a new term that emerged in 2008 as a computer software based on online gaming. After 2010, the term gamification gained popularity and attention, referring to the idea of integrating social aspects and rewards of games into software. [16] define gamification as a mindset shift and the use of gaming rules to increase student engagement and problem solving.

Gamification has enormous recognition from academia to study its occurrence, such as designers, developers, psychologists, and human- computer interaction experts. Gamified design elements have a significant role in driving customers' expectations to meet their requirements [17]. Gamification is significant since it employs game elements to empower productivity and increase engagement and motivation [18].

## 2. LITERATURE REVIEW

### 2.1 Development Model

The development model used in this study is the ADDIE development model according to Branch. The ADDIE model is a development model oriented towards making teaching materials in a complex learning process. The ADDIE Branch model is used because it has clear steps at each stage and is recommended in the development of teaching materials. This model uses 5 stages of development, namely:

a.  Analyze (analysis)
b.  Design (design / design)
c.  Develop (development)
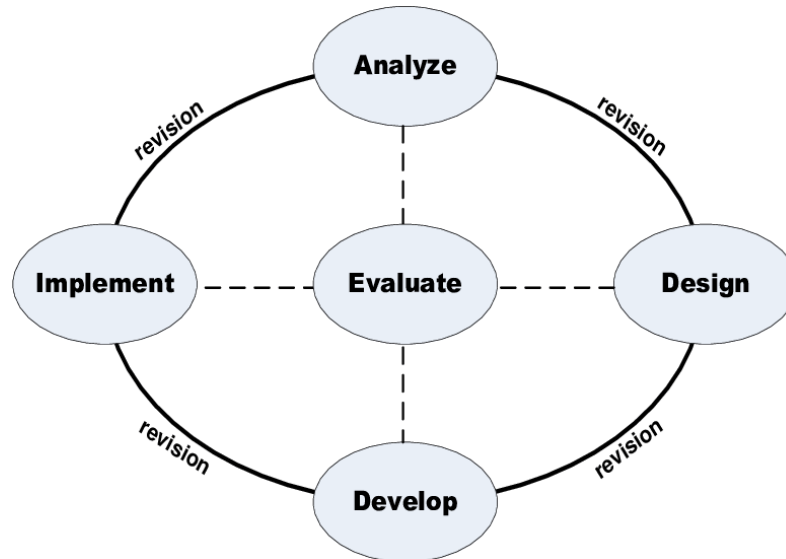d.  Implement (implementation/execution)
e.  Evaluate (evaluate/feedback).

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**Figure 1** ADDIE Model [19]

## 2.2. Gamification

Gamification make use of game mechanics or elements in non–game settings by using applications to motivate learners and engage learner's achievement [20]. It supply the motivation for learners to investigate, solve problems, do activities and apply to real–world situations. Learners could get the learning motivation by getting rewards, points, achievements badges and levels. Namely, the learners are encouraged to concentrate on their studies and increase their motivation through using the gamification, the process of game in the education context. Robson et al. [21] proposed the framework of gamification design, as illustrated in Figure 2.
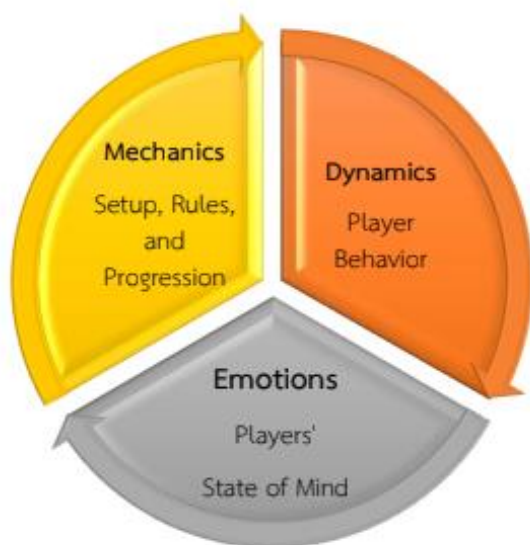


**Figure 2** MDA Framework [22]

Three components which are the keys to triumphant gamification are mechanics, dynamics and emotions. Firstly, mechanics consist of the designed aspects of the gamified system, including goals, rules, contexts, boundaries, and types of interactions. Additionally, three types of mechanics are proposed in the MDE framework. Setup mechanics refer to the context of the experience. Rule mechanics refers to the goals, allowable actions and constraints. And progression mechanics refer to the rewards and reinforcements that are used to influence players' behavior. Secondly, dynamics relate to the actions of the player which may approach a game with different strategies and may react to game mechanics in different ways. Finally, emotions are regarded as the most important component, highlighting the emotional experiences in motivating the players' behavior.

## 2.3. Higher Order Thinking Skills

Higher Order Thinking Skills are defined as higher-order thinking skills, which are the top-level cognitive skills possessed by students in learning. The level of thinking skills or cognitive skills is seen and classified according to Bloom's Taxonomy theory. Bloom's taxonomy consists of remembering, understanding, applying, analyzing, evaluating, and creating. Based on Bloom's Taxonomy, what is included in the Higher Order Thinking Skills are the top three levels of cognitive abilities, namely analyzing, evaluating, and creating [23]. The levels in Bloom's Taxonomy before that, were referred to as lower-order thinking skills, as shown at Figure 3.
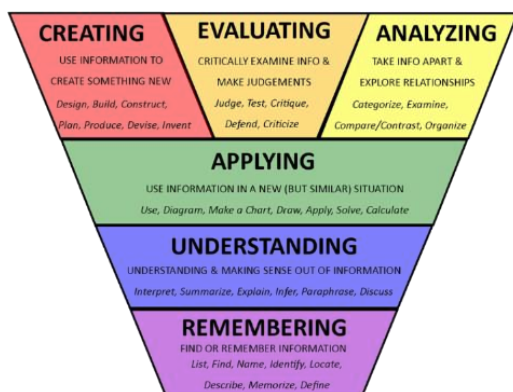
**Figure 3** Taxonomy Bloom [24]

The application of the principle of Higher Order Thinking Skills in learning (HOTS Learning) is considered so relevant to be applied today. In 21st century learning, there are challenges for students, one of which is the need to achieve creative thinking and problem solving skills. Higher Order Thinking Skills can accommodate the achievement of some of these 21st century skills. It is also explained in [25] that one aspect or category that can be achieved by the application of Higher Order Thinking Skills is problem solving, creative thinking, critical thinking, logical reasoning, etc. The achievements of these aspects or categories are in line with the skills needed by students in this 21st century era, which include Critical Thinking, Creativity, Collaboration, Communication (4C). The 21st century skills are shown at Figure 4.
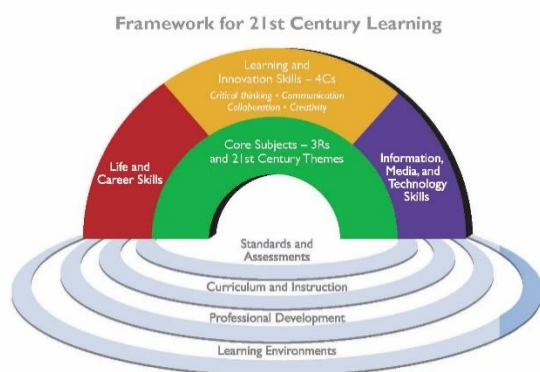


**Figure 4** 21st Century Skills [26]

Higher Order Thinking Skills in learning can be achieved by applying learning strategies that are appropriate to the aspects in it. The learning strategy chosen in order to achieve Higher Order Thinking Skills should be a strategy that is also in line with the characteristics of learning in the 21st century. The application of learning strategies is adapted to the learning objectives that have been set. Not all learning materials are in accordance with the aspects of Higher Order Thinking Skill. For that, it is necessary to study

the coherence between aspects of Higher Order Thinking Skill, learning strategies, and learning objectives. If these three aspects go hand in hand and in accordance with each other, then Higher Order Thinking Skill can be achieved and the achievement can improve the quality of learning that takes place [27].

## 3. RESULT AND DISCUSSION

Huang and Soman [28], who stated that even though gamification is not directly associated with knowledge and skills, it affects student's behavior, commitment and motivation, which can lead to enhancement of knowledge and skills afterwards. Gamification leads to a more effective fun and motivate student to learn. It developed students high order thingking skills through applied gamified learning.

Gamification as learning strategies solved high order thingking skills that involve problem solving, creative thingking, critical thingking, creative thingking, logical reasoning,ect, the use of gamification givean effect to the student's motivation, psychology and behavior outcome to Hamari et al [29]. In improving student high order thingking skill gamification is one of the solution to provide strategic gamified learning. Moreover, by utilizing the conventional teaching method to enhance the students' mastery, the educators uses gamified learning methods so that the students be able to develop themselves and stimulate interaction among students because it applies a student-centred learning. Gamified learning method also provide something challenging and fun for the students to do. The students are motivated to find out more deeply on the form, use and meaning of each learned.

On the other hand, teaching listening skills English using gamified learning method improve the students' mastery on tenses as the teachers uses the materials in a more convinient and challenging lecturing style by which the students listen to, watch, and do exercises given by their teachers. Students can learn by their own pace and answer by their own understandeng that HOTS goals which mastering high order thinking, integrating technology into the curriculum is an approach that enables students to meet more meaningful, successful and interactive learning processes besides simplify their understanding. In the range of cognitive skills, high-order thinking skill includes analyzing , evaluating , and creating [30], wich gamifed learning becomes the solution to have students engage in high order thingking skill.

With the help of advanced technology studetns are able to access throu internet and teachers gives thematerials also from the internet. Gamified learning uses technology wich given advantage for the teachers to work from home and controls to online learning.

Teaching online is the goal to technology base learning that students develop their communication, criticalthinking, collaboration, creativity, problem solving andtechnology skills required for 21st-century learning [31].

Taking points on the benefits and beyond the challenges concerning of technology base learning to iprove students high oreder thinking skills throu gamified supplementary english listening skills, it can be said the implementation of gamification focusing on high order thinking skill exposes the contribution of the method to the improvement of students' listening ability. Therefore, to maximize the implementation of gamified learning in the classroom, English teachers should have adequate knowledge and understanding on the procedure of gamification strategy. The teacher also needs to makesure that the students have the same understanding about how to apply gaified learning in the classroom or in online classroom to complete the process of learning successfully. With the challenge arises on the stage of monitor the students and the progress of learning with gamified materials they start to build high order thingking skill.

## 4. CONCLUSION

From the result and discussion, the researcher can conclude that the main idea in implementing gamification based learning to improve high order thingking skill in listening materials uses technology base learning that occurs in nowdays, gamification strategy aims to complete the objectives of higher order thingking skill where students complete the understanding of analyzing, evaluating, and creating. Having gamified learning strategy in an EFL classroom, students are able to enhance their knowledge in a fun and easy to accsess. It is highly recommended to be implemented in an English classroom to make the teaching and learning process more fun, interesting and anjoyable which makes the students more engaged into the teaching and learning process.

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