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The Concept of gamification, metaverse & AI to develop hybrid learning systems inside education

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Abstract

The development of information technology has reached its peak, where AI has transformed and influenced many things, one of which is the world of education, especially universities. In this concept research, we will describe in a big picture how smart gamification, metaverse, and AI will influence and how to build this so that it can gradually change our teaching and learning patterns. Of course, this has been resolved in the book we published on Amazon. Therefore, if readers want to know and understand more deeply, they can read the book we created to apply it. The results of this concept research are formulas, frameworks, and the maturity level to be able to develop hybrid learning systems, which may be used to the way we teach, the way we give assignments, and the way we test, as well as other things related to business processes at the university. Therefore, we need to change what already exists so that it can be adapted to the situation and conditions of information technology development and the current globalization competition.

Keywords: *University, Smart gamification profiling, AI, Implementation, Concept*

1. Introduction

Gamification and Artificial Intelligence are two things that cannot be separated. Gamification can help make teaching and learning more enjoyable, while AI can increase efficiency. In researching this Concept, researchers found that there are still problems in the current learning process, namely a lack of student motivation in learning, teachers who have difficulty creating up-to-date learning materials, and educational processes that have not reached the level they should be to meet the requirements. Industrial needs and the development of globalization. In this research, we will create a framework to help implement gamification and AI into all lines of the educational process, especially at the university level. It must be paid attention to because this need is urgent and must be done immediately. We all remember the COVID-19 pandemic, which resulted in many things not running as they should. Therefore, this research will focus on developing hybrid learning systems to their peak. For more details, you can all read the books we have published on Amazon.com: (1) We Are What We Choose: Smart Startup Business Model, The Seven Stages of Smart Startup Profiling, (2) Social Media Profiling, (3) The Concept Of AI Ethics And Innovation Profiling. (4) The Concept Of Techno Family & Virtual Reality, (5) The Combination Of Gamification, Board Game, & Metaverse-AI, where these books will complement our insight into developing innovation and creativity in the world of education. Let's look at the circle below:

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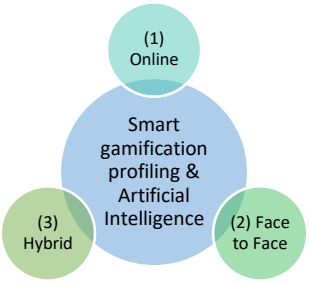

Figure 1. The Circle of smart gamification profiling, metaverse & AI

Figure 1 shows three essential intersections: online, face-to-face, and hybrid. We generally use these three strategies in all teaching and learning processes at the university level. We don't need to explain anymore; we will focus on how intelligent gamification profiling and AI can be applied to these three things so that our teaching and learning process is no longer tedious. We, of course, understand that there are problems that cannot be solved and problems that can be provided with solutions. Especially problems that cannot be solved leave! And never worry about things that cannot be resolved. We must focus on issues that can be provided with solutions and can be changed, even though it takes time. It will be explained in detail in the results and discussion section. Now, we go into several definitions from previously published research. Several studies say: (1) gamification can be used as a means of increasing student motivation in learning, so that the desired goals in learning outcomes will be achieved, (2) metaverse is one way to increase student competence, by using this, students will do a learning simulation that is right on target, (3) artificial intelligence can be used to help increase positive value for the teaching and learning process because it will really help lecturers and students in efficiency and effectiveness in increasing knowledge, (4) combining these three things will be able to improve competence and will be able to provide many positive things towards the development of competence for lecturers and students, (5) there are several things that may be controversial in the use of AI, but there are many positive benefits if we can see it from a different point of view, (6) using gamification in the learning process, not only increases motivation in learning, but will be able to provide positive enjoyment, so that students can learn through simple but enjoyable applications, (7) developing gamification applications does not waste time, this will shorten time so that lecturers and Students will be able to carry out the teaching and learning process in a more targeted manner.

The result of this research is a framework for hybrid learning systems 2024, which is one of the innovative ideas to be able to overcome the teaching and learning process at the university level so that if something like a pandemic happens again, problems in the teaching and learning process will be resolved quickly and precisely. This research must, of course, be developed further because it will require considerable effort to apply it, not only theory but it requires human resources ready to implement it. There are cultural influences that must be overcome to apply this Concept. Therefore, full support is needed to implement the 2024 hybrid learning systems framework in stages.

2. Research Methodology

Figure 2 explains that in the first stage, we identified the problem and determined the methods for this research. The method we use comes from what we have created, namely the innovation profiling method. For more details about this method, you can see it on the website: https://a.co/d/16ngUno[1]. In this study, we will explain it directly so that readers can immediately get what is needed in this Concept. The following process is for us to conduct research from several sources so that we will have strong fundamentals to develop this research and strong arguments to explain

the research we have made. In the second process, we apply the innovation profiling method to the hybrid learning systems 2024 framework so that this framework will be able to produce a concept that has a solid basis for application. The final process is that we recommend several things that might be implemented in Indonesia. Still, these are concepts and ideas, so they need to be analyzed in depth so that they are based on the existing culture. The survey was conducted on 100 participants (including lecturers, students, and employees). The question is as follows:

(1) Has your university used gamification, metaverse, and AI as learning tools? (a) No; (b) Sometimes; (c) Hesitation in answering; (d) Using gamification and AI; (e) Using gamification, metaverse, and AI. (2) Universities should implement gamification, metaverse, and AI as the primary means of learning. (a) No, (b) Only in certain situations, (c) In implementing hybrid learning, it can be used, (d) use metaverse and AI, (e) use gamification and AI. (3) Does a university need to apply advanced technology to increase its competitiveness? (a) No need, (b) use what already exists, (c) need to use advanced technology, (d) Need to buy a system that can support this, (e) Need to collaborate with other universities to develop an advanced system. These survey questions or detailed answers can be seen on the website: https://a.co/d/6SxqKbk[2]

Figure 2. The process of research

3. Results and Discussions

3.1. Survey results

(1) Has your university used gamification, metaverse, and AI as learning tools?
(a) No (10)
(b) Sometimes (12)
(c) Hesitation in answering (10)
(d) Using gamification and AI (30)
(e) Using gamification, metaverse, and AI (38)

(2) Universities should implement gamification, metaverse, and AI as the primary means of learning.
(a) No (10)
(b) Only in certain situations (20)
(c) In implementing hybrid learning, it can be used (20)
(d) use metaverse and AI (20)
(e) use gamification and AI (30)

(3) Does a university need to apply advanced technology to increase its competitiveness?
(a) Not necessary (10)
(b) use what already exists (10)
(c) It is essential to use advanced technology (20)
(d) Need to buy a system that can support this (20)
(e) Need to collaborate with other universities to develop an advanced system (40)

3.2. Hybrid Learning Systems Framework 2024

Figure 3 explains the process of hybrid learning systems in several critical stages. In the initial stage, the big picture of the university learning system is a general overview, and innovation in the form of technology is added to implement this correctly. Choosing technology is an essential keyword in implementing this framework. In the second stage, universities determine which technology will be applied first in the teaching and learning process. The final stages include types a, b, and c, where the university focuses on implementing technology and begins to develop it consistently for five years, ten years, and fifteen years.

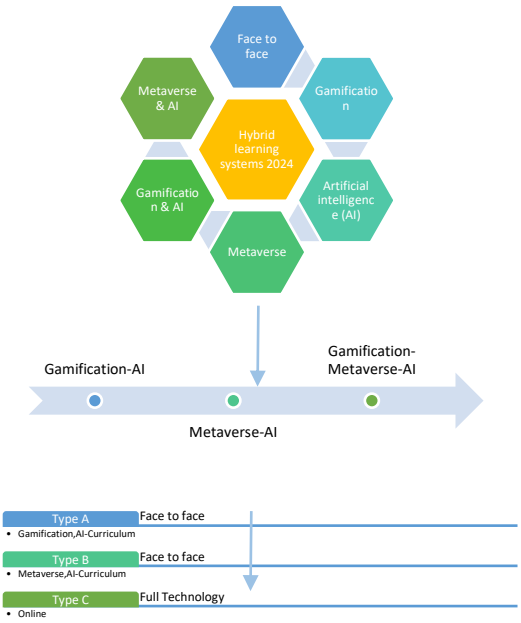

Figure 3. Framework for Hybrid Learning Systems 2024

3.3. Explanation, Application and Recommendations – Hybrid Learning Systems Framework 2024

The 2024 hybrid learning systems framework can be explained as follows: in the initial stages, there are critical stages that must be paid close attention to, namely university culture, organization, and human resources. It can be described as follows:

Figure 4. The first process of hybrid learning systems 2024

The first thing to pay attention to is culture. Why is culture so influential? It will significantly influence the application of gamification, metaverse, and AI concepts. Just imagine that if a university does not desire to advance in technological development and continues to maintain the old way of teaching and learning, this will become an obstacle. On the other hand, if a university has a culture of opening itself to technological advances, it will be different in advancing knowledge. Next is about organizations that can significantly influence implementing hybrid learning systems in 2024. If the organizational structure is flexible, it can develop to adopt the knowledge itself.

Organizations within universities must have clear job descriptions, which will influence the resulting level of performance. The influence of this performance will have long-term effects, where the results will have both good and bad effects[3],[4]. Therefore, the job descriptions for each person in the organization must be clear so they can work with focus and not have excessive multiple roles. Finally, regarding human resources, at this stage, human resources include lecturers and everyone who works at the university. Lecturers must be developed to the maximum point, where this competency is not only about their degree[5],[6]. For example, someone could have a doctor of philosophy degree but need a better work ethic, resulting in long-term effects on the university. It is the primary key to implementing hybrid learning systems in 2024 because no matter how great a system is, it will implement a system that runs poorly or even fails if there are no excellent human resources. Therefore, the initial acceptance of lecturers must be good, not just the process inside; it can be said that we maintain the input process, maintain the process, and maintain the output process. All three must be balanced and consistent to produce the desired achievements in the university's future targets[7],[8].

3.3.1. The Concept of curriculum change and artificial intelligence (AI)

Changes in the curriculum and the use of AI will affect the quality of the competence of lecturers and students. It can be described as follows:

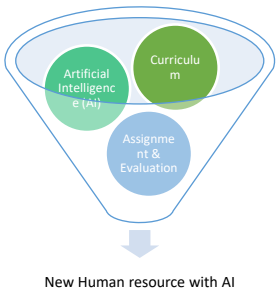

Figure 5. Curriculum and AI

Figure 5 explains that the use of AI in developing a curriculum is suitable, provided that the lecturers who use it must be indeed experts in their field. It means that when using AI to create or change a description of the curriculum using AI, the lecturer must be an expert in that field so that he can distinguish between appropriate and inappropriate information to be included in a curriculum description. Furthermore, if you add something using AI, the lecturer who does it must be a true expert in their field. This application in the curriculum can also be linked to the use of AI in the student learning process in completing assignments or other matters related to competency[9],[10].

Case example 1: Using AI for specific needs

AI can be used to help students with special needs, where this method will be effective and efficient so that students can be assisted in completing their assignments. But here, lecturers must keep going; they must continue to do several things, such as monitoring, checking, and providing understanding. However, students with special needs must have the same rights as other students but must receive special supervision to help them develop their competencies in the future[11],[12]. The positive benefits of AI for the existing curriculum lie in how AI can help resolve situations requiring special assistance.

Case example 2: Using AI to complete college assignments

Can AI be used to complete college assignments? Or other assignments given to students by lecturers? Before we debate this, let's look at it more positively. We can never prevent the progress of information technology wherever it is, and we will never be able to stop existing creativity because it is free and does not violate anyone's rights here.

Every person who has the power of creativity and innovation to create something, and it is beneficial for humans, this is certainly not a mistake. Imagine, if humans were not allowed to think about making this and that, the world would return to the stone age. Therefore, AI was developed and emerged as a problem solver. Now, we enter the context and content of education at the university level[13],[14],[15].

Assignments given by lecturers to students can be completed with AI, provided that the student still states that the source comes from AI, so that is enough to explain the source. But if you want to be more detailed, the lecturer can make a rule that says that if students use AI, they must still add several research sources that come from research, so they still have to make an effort to complete this. It means that a combination can be done to complete the task.

For example, if students receive a programming assignment when students use AI to complete it, they still have to be able to understand it. The lecturer can ask this during the presentation to confirm whether he understands. It is difficult to explain this section in detail because sometimes some things are difficult to explain in writing, but it is easier if described directly. But this is the essence of the explanation in this section.

For some cases, such as psychological and non-technical tasks, is it difficult to check whether this comes from AI? It depends on the lecturer who studies this. In essence, even though AI can be used to help us in many things, control remains with humans, so this is fine if AI is applied to help complete tasks and assist in other things.

3.3.2. The Concept of curriculum change and gamification

Now, we enter a deeper context and content, namely the next stage of implementing hybrid learning systems in 2024. If we applied AI in the first stage, we now use gamification. Some courses can exploit this, maybe even all courses; the key is to what extent this will be used in whole, in part, or only in some cases. For example, customer relationship management courses. This course teaches us how to use technology to increase customer loyalty and related technological advances in CRM. However, we can conduct simulations to provide an in-depth understanding of the CRM course. We can create a buying and selling simulation or a transaction using gamification. It is just entered into the game, then developed into a certain point if the student succeeds in completing this well, and next, whoever is the highest will be displayed on the leaderboard so that each student can know. It is a straightforward example and very easy to implement; even creating this type of gamification is not tricky. Another example, such as programming, gamification can be made to increase motivation in learning programming so that motivation in learning programming and if successful in completing it, students will get specific points[16],[17].

In completing assignments, lecturers can give students to complete a particular game about supply chain management. After completing this, the lecturer will give you specific points as an assignment grade. It is more practical, rather than providing complicated assignments, to apply this gamification only in certain situations and conditions with certain limitations, which must maintain the quality of learning and increase competence. An example of this can be seen in the book we recommended at the beginning.

Figure 6. Gamification & Education

Figure 6 explains that gamification can be used in the world of education, and here, we can see that many things can become more effective and efficient. Therefore, universities, in this case, can determine which courses can be gamified and can start to implement it gradually. It will be beneficial in times such as a pandemic, so gamification is the right solution to overcome problems in the teaching and learning process that is right on target.

3.3.3. Concept of curriculum change and metaverse

Figure 7 is an excellent example of applying gamification and metaverse, as can be seen in the picture there is use of meta. The question is, will this make education costs more expensive? The answer can be yes or no, depending on the course and how it is applied.

For example, when studying marketing courses, we need a more profound understanding of this subject. Therefore, we use virtual reality to understand marketing. When VR is used, students will gain a deeper understanding because they will conduct simulations directly. Lecturers can enter the required data and present case studies so that when students use VR, they will face unique situations that must be able to provide solutions. Here, using VR to increase competence will be beneficial and improve other things to meet globalization[18],[19].

Figure 7. Metaverse & Education

3.3.4. Recommendations for step-by-step treatment in the long term of 5 years

Now, we are entering the final stage of explaining the 2024 hybrid learning systems framework; the stages are as follows:

Stage 1: universities must review their curriculum to see whether it is genuinely appropriate and whether the content of each course can face the development of globalization, especially in the field of technology, and meet the needs of industry in the future

Stage 2: after carrying out an in-depth analysis of the curriculum, significant changes are made by choosing one of the ways - (1) changing the entire curriculum, (2) changing part of the curriculum, or (3) changing just a few to suit needs. Of course, these three methods are not just about choosing one but can be combined so that they can be implemented according to the needs that each department or faculty believes are good for the university's future growth.

Stage 3: After determining the method from the three methods presented, the next step is to decide which courses will use AI, gamification, and metaverse. Contrasting this, a special team will be formed to create it according to the difficulty level and level of need.

Stage 4: Applying AI to courses; this is the first step to overcoming assignment problems and other things. Each faculty makes clear rules regarding the limitations of using AI to complete lecturers' assignments and what limitations lecturers must have. Carry out testing on students and then immediately correct them if there are still deficiencies. It can be used in that course if you reach the 70 percent limit. After that, it will be refined slowly.

Stage 5: after using AI, the next step is to apply gamification to several courses. It will be completed by a team of lecturers led directly by each course coordinator with human resources capable of creating this gamification. In one semester, this gamification project must be completed in several courses. Just like stage 4, if you have reached 70 percent, apply it to the course[20].
Stage 6: After applying AI and gamification, the next step is to put VR into several courses. Like the gamification project, this VR project is only used for a few unique courses. Like stage 5, use it for that course if you have reached 70 percent.
Stage 7 is the final and finalization stage; after implementing AI, gamification, and metaverse, the online system will be fully implemented. If there is a pandemic problem, several courses are ready to be implemented to meet the standards of the teaching and learning process at the university level[21],[22].

4. Conclusion

After carrying out analysis and explanation, the conclusions that the need to implement the latest technology into the curriculum or several courses must be implemented immediately because this will help create hybrid learning systems in 2024 that are stable and can be run effectively and efficiently. The application of AI, gamification, and metaverse is essential so universities can face the current era of globalization and change. So they can create a system that can be run in various situations. Significant changes are needed to face these changes because if we continue to maintain the old way of teaching and learning at the university level, we will not be able to create a system that is permanent and able to face all situations

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