

METaverse: NEW WAYS STUDENTS WILL INTERACT IN FUTURE LEARNING

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ABSTRACT

This research aims to evaluate the use of metaverse in learning systems at universities, with a focus on the Gather Town platform. This research was conducted using interview techniques with 10 Bina Nusantara University students and analyzing data using the NVivo software. The results showed that students responded positively to the use of Gather Town in learning, considering that this platform provided a more interactive and enjoyable environment compared to traditional learning methods. However, students also stated that technical factors such as internet connection and device compatibility must be considered. In addition, several students stated that Gather Town should be used as an additional means of learning, not as the only means. From the results of this study, the use of metaverse can be an effective alternative in the learning system at universities. However, technical factors must be considered and used as an additional means. In addition, the results of this study also show that Gather Town has several features that are useful in learning, such as the breakout room feature, which allows students to interact with other students in a more focused manner, and the polling feature, which allows lecturers to evaluate students' understanding of the material being taught. Lecturers can also use the presentation feature to present material more interactively. This research suggests that universities can evaluate the potential of using Gather Town and other metaverses in their learning systems. Overall, the results of this study indicate that the use of Gather Town in the learning system at universities can increase the interactivity and quality of learning and be a good alternative to conventional learning.

Keywords: *Gather Town, Metaverse, Education, University, Perception*

1. INTRODUCTION

In today's digital era, technology is an important factor in the world of education. One technology that is gaining popularity in education is metaverse, which is a technology that creates a virtual environment that can be used for various purposes, such as collaboration, communication, and learning.

Technology is constantly evolving, and metaverse will slowly be present just like Instagram and Twitter are used daily. Especially for Gen-Z, who tend to choose a digital environment so that metaverse could turn education virtual [1].

In the results of Advisia's research with WIR Global in Figure 1, as many as 69.35% of respondents from Generation Z in the country said they were interested in the existence of the metaverse. As many as 39.24% of respondents from generation Z Indonesia also said they were enthusiastic about the metaverse. This enthusiastic emotion is one level higher than interest. Meanwhile,

there are 37.63% of respondents from Generation Z Indonesia who hope to use the metaverse. Hope is the highest emotion compared to other variables in this research.

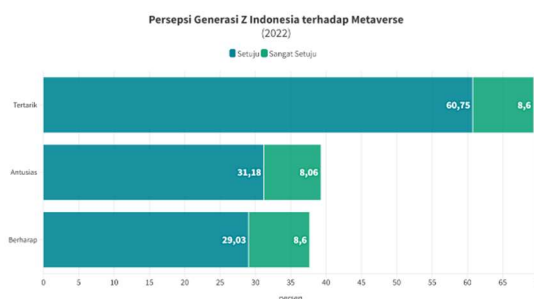


Figure 1: Indonesian Generation Z's Perception of the Metaverse

Not only showing positive emotions, the research results also note that 65.81% of respondents are willing to spend money on the metaverse. According to Advisia and WIR Global, this data indicates great potential for businesses to take advantage of the

metaverse to attract the younger generation. For the record, Advisia and WIR Global's research was conducted on 194 respondents aged 18-24 years. In detail, 64 respondents graduated from SMA/SMK, 69 were students, 5 graduated from D1/D2/D3, and 56 graduated from S1.

With the continuous development of technology, education must also follow these trends. As a technology that provides an imaginary world and virtual reality, the opportunities for the Metaverse to be used for education are enormous.

When the daily lives of young people, even small children, are already involved in the digital world, education is starting to shift, not completely using traditional methods. Metaverse can exist to help schools and universities to become an attractive platform for the younger generation [2]. One of the most popular metaverse platforms used today is Gather Town.

Gather Town is a platform used for online collaboration and communication activities, which can be used in various situations, including in the world of education. This platform can be used to create virtual spaces that can be used for various activities, such as meetings, discussions, and presentations. Apart from that, Gather Town can also be used to create interactive learning spaces, which students and lecturers can use to interact.

However, even though Gather Town is quite famous for use in education, more research needs to be conducted to find out students' perceptions of the application of the Gather Town metaverse in the learning system at universities. The novelty of this research is that it explores university students' perceptions regarding the use of Metaverse through Gather Town as a platform for learning. Metaverse is a relatively new concept in education, and there needs to be more research on its use and effectiveness in the classroom. This study is one of the first to investigate the use of Metaverse through Gather Town in the context of higher education. The research findings provide insights into university students' perceptions of using Metaverse for learning and the potential benefits it offers. The study also identifies the most significant factors that influence students' perceptions towards the use of metaverse, which can help universities and educators design and implement effective strategies for integrating metaverse in the classroom. Overall, this research contributes to the emerging field of metaverse in

education and provides a basis for further exploration and development.

Therefore, it is necessary to research to determine student perceptions of applying the Gather Town metaverse in the learning system at universities. To get the results of the analysis, the author will use grounded theory research methods and conduct interviews with 10 students at Binus University aged 18 to 24 years majoring in information systems who have used the Gather Town platform to get perceptions about the application of the metaverse using Gather Town to the education system. In the case of this study, some limitations may include relatively small sample size, potential biases in participant selection, and the use of self-reported data.

1.1 Research Problem

As an important part of a study, the formulation of the problem is a very important starting point for determining the direction and objectives of the research. The right formulation of the problem will help researchers to focus their minds and direct research in the right direction. Therefore, the formulation of the problem that the author uses is "What is the student's perception of using Metaverse using Gather Town for the learning system?"

1.2 Scope Limitation

The scope limitations in writing this research are as follows:

- 1) The metaverse application being analyzed is Gather Town.
- 2) Researchers will use Grounded Theory as qualitative research method.
- 3) Researchers will explore the sources of the interview results which will be processed using the NVivo application.
- 4) The interview candidates are ten students at Binus University aged 18-24 years majoring in information systems who have used the Gather Town platform.

2. LITERATURE REVIEW

2.1 Metaverse

Metaverse, first introduced in Neal Stephenson's 1992 speculative fiction novel "Snow Crash", is defined as a large virtual environment [3]. The concept of a metaverse is also present in the novel and film "Ready Player One." define metaverse as a virtual environment, also known as Multiuser Virtual Environments (MUVE) that has a

format derived from Massive Multiplayer Online Role-Playing Games (MMORPGs) and allows users to meet with avatars in 3D video games by combining virtual reality, augmented reality, and the internet. This allows users to experience a highly realistic virtual environment using Metaverse and its supporting technology [4]. This technology can be applied to video games and other forms of entertainment [5]. Many aspects of life can benefit from Metaverse technology, with education being a particular focus in this article.

In the context of Mixed Reality (MR), it can bridge social media connectivity with the unique capabilities of immersive VR and AR technology. If the interactions between them are creatively released, it promises to change many sectors of life, including education. New Meta-education models, online distance education supported by Metaverse, may emerge to enable new formal and informal learning experiences with 2D or 3D online virtual campus concepts [6]. Learning online in Metaverse will be able to push the limits of social connections and informal learning. The physical presence in the classroom will no longer be a special educational experience. Telepresence, avatar body language and facial expression compatibility will make virtual meetings as effective as direct meetings. In addition, social MR in Metaverse can enable active blended pedagogy to foster deeper and more sustainable knowledge [7]. More importantly, it can be a democratization factor in education, allowing participation from all over the world on an equal footing, no longer bound by geographical boundaries [8].

2.2 Gather Town

Gather Town is a platform that combines video calling with 2D maps, allowing users to walk around and talk to other people in a virtual setting. In an educational context, Gather Town can be used as an alternative to enhancing the remote or online learning experience.

Several studies have shown that Gather Town can increase student participation in virtual classes [6-8]. The features such as a virtual room called "Space" that can be created according to class needs and chat and document sharing features, Gather Town can be used to increase social interaction and collaboration between students.

In addition, Gather Town can also be used to increase student learning motivation. Using Gather Town can provide a more fun and enjoyable

learning experience for students [8] because of features such as attractive 2D maps and avatars that can be used to interact with other students.

In a learning context, Gather Town can be used to enable students to collaborate on fun projects and allow students to interact with subject matter more fun and effectively [4].

Here is how to use Gather Town for virtual meetings:

- 1) Open the site <https://gather.town/>.
- 2) Then, select "Launch Gather" to start the virtual meeting.
- 3) Select "Create new room". Then a page will appear to fill in the name of the Space that was created along with the password. After that, select the map that is already available.
- 4) Next, it will ask to create an avatar in an 8-bit line. Fill in the name and choose the hairstyle and costume to wear.
- 5) Also, check the camera, microphone, and speakers to ensure they can be used. Then, press "Join the Gathering".
- 6) Finally, we are in a virtual space like old school video games, as shown in Figure 1. Press the "Participant" option to invite friends and select "Invite". Copy the link and share it with your friends or colleagues.
- 7) Select the "Build" hammer icon to add an item and press "Open object picker."
- 8)

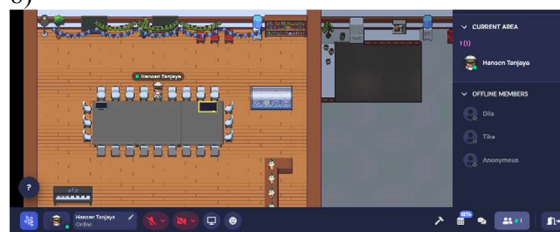


Figure 2: Gather Town

2.3 Advantages and Disadvantages of Gather Town

Pros of Gather Town for Education:

- 1) Providing a virtual space that can be used as a virtual campus, thus facilitating distance learning [6].
- 2) Allows for more dynamic and fun interactions compared to standard video calls, such as Zoom or Google Meet. [5]
- 3) Allows users to share documents and collaborate in real time through the Google Docs feature. [8]

- 4) Enabling a more immersive and fun learning experience by combining 8-bit visuals and 2D maps [4].

Disadvantages of Gather Town for Education:

- 1) This platform is still relatively new and not as popular as Zoom or Google Meet, so it may still be less well-known to the public [3].
- 2) Requires adequate hardware and internet network to enjoy the features provided optimally [9].
- 3) Not all features needed by educational users are available, such as assessment and report features [8].

2.4 Grounded Theory

The Grounded Theory (GT) is a qualitative research methodology rooted in constructivism or a scientific paradigm that attempts to construct or reconstruct a theory of facts that occur in the field based on empirical data. The theory construction or reconstruction is obtained through inductive analysis of a data set based on field observations.

The grounded theory allows researchers to find a conceptual framework that describes scenarios. Each GT approach has three essential elements that must be met, including sensitive theoretical coding, namely developing theoretical concepts from data that explain the phenomenon being studied. The second element is theoretical sampling, which determines who is interviewed and what is observed next to form a theory. This was done by starting the analysis for the first time by conducting the interview. Furthermore, the GT approach needs to compare the phenomenon and the context studied to strengthen the theory formed.

So Grounded Theory is a qualitative method aimed at generating or developing a theory or concept that comes from reality and explains existing events by assessing the effects of social behavior on the phenomenon under study.

Qualitative research using the grounded theory method starts from data to achieve a theory and not starting from theory or to test a theory, so in grounded theory research, it is necessary to have various procedures or steps that are systematic and well planned.

Qualitative research procedures using the grounded theory method consist of several stages, namely:

- 1) The problem formulation stage

- 2) The stage of using theoretical studies (if necessary),
- 3) Data collection and sampling stage,
- 4) Data analysis phase, and
- 5) The stage of concluding or writing a report.

However, the five stages of grounded theory research coincide. Researchers observe, collect, and organize data and form theories from data simultaneously. One of the crucial techniques in grounded theory research is the process of constant comparison in which each data is compared with all other data one by one. Data can be collected through interviews, observation, recording, or a combination of these methods. The quality of grounded theory research is largely determined by these steps, which are carried out properly, correctly, and disciplined [9].

2.5 Previous Research

The first research is [11]. In this study, the authors evaluate the use of Gather Town in harmonized online language learning. This research was conducted using a case study at a university in Spain with the subject being students of English as a second language. The results of this study indicate that Gather Town can increase social interaction and student involvement in learning, as well as enable students to practice language effectively.

The second research is [12]. In this study, the authors evaluate the existing literature on using Gather Town in higher education. This research covers several aspects, such as social interaction, collaborative learning, and distance learning. The results of this study indicate that Gather Town can increase social interaction and student involvement in learning and allows students to learn collaboratively in a fun virtual environment [12].

The third research is [6]. In this study, the authors evaluate that metaverse has excellent potential in the world of education by introducing a new distance learning concept, Meta-education, supported by Metaverse technology. This meta-education offers a more interactive and enjoyable formal and informal learning experience through an online 2D or 3D virtual campus. In addition, Metaverse can push the boundaries of social connection and informal learning by providing telepresence features, avatar body language, and matching facial expressions. However, this journal also mentions that several obstacles must be overcome in implementing Metaverse in education, such as privacy and security issues, limited access,

and the problem of different learning curves between users.

The fourth research is [13]. In this study, the authors evaluate Metaverse technology, especially in the context of video games such as Roblox and Minecraft, has great potential for use in education, socialization, and work. However, this journal also highlights risks from using this technology, referred to as "simulacra," namely content that is made to resemble the real world but is not real. Therefore, critical thinking is needed in evaluating and applying Metaverse technology in the context of education and outreach.

The fifth research is [14]. In this study, the authors evaluate that making augmented reality learning media with Metaverse can increase teacher competence at SMKN 1 Labang Bangkalan. This research found that teachers who attended training on making augmented reality learning media with Metaverse showed an increase in information and communication technology (ICT) competence, creativity, and learning skills. In addition, the teachers also stated that the augmented reality learning media with Metaverse can increase students' interest in learning and improve student learning outcomes.

The sixth research is [15]. In this study, the authors evaluate that using Metaverse in education can improve effective communication in Convergence subjects. This research shows that using Metaverse, students can communicate effectively and have a more interactive and enjoyable learning experience. In addition, this research also shows that Metaverse can be used to increase student engagement in class and improve the quality of learning. However, this research also shows some obstacles in implementing Metaverse in education, such as technology limitations and privacy issues.

The seventh research is [16]. In this study, the authors evaluate that Metaverse is a large and complex virtual environment that combines virtual reality, augmented reality, virtual reality, and the internet. This journal also presents a classification of the Metaverse components and their applications in various fields and highlights the challenges that must be faced in developing the Metaverse. This study suggests that the Metaverse has great potential to change various sectors of life, including education, entertainment, communications, and business, but still requires further research to address existing

constraints such as privacy, security, and compatibility.

The eighth research is [3]. In this study, the authors evaluate the metaverse is a very important phenomenon in teaching digital arts. The authors point out that Metaverse can be used to increase students' competency in digital arts through fun and interactive learning experiences. In addition, Metaverse can also be used to improve student collaboration and communication in class. However, the authors also suggest that to increase the effectiveness of teaching digital art using Metaverse, it is necessary to plan and develop the right curriculum and adequate technological support.

The ninth research is [4]. In this study, the authors evaluate that using the virtual world as a learning resource can provide opportunities for students to study independently and improve learning outcomes. In addition, the virtual world can also be used as a means for effective collaboration and communication. However, this journal also mentions several things that need to be considered in using the virtual world as a learning resource, such as technological limitations, limited funds, and teachers' lack of understanding about virtual worlds.

The tenth research is [17]. In this study, the authors evaluate that Game-based learning with Artificial Intelligence (AI) technology and Immersive Technologies such as Virtual Reality (VR) and Augmented Reality (AR) offers the potential to increase motivation, have a fun learning experience, and better mastery of concepts compared to traditional learning methods. This research also highlights the importance of the proper design of games and AI technologies in achieving effective learning outcomes.

3. RESEARCH METHOD

3.1 Method

Here The following are the steps carried out by the researcher to analyze students' perceptions of the use of the metaverse using the Grounded Theory method:

1) Problem Formulation Stage

The Problem Formulation Stage is the first stage carried out by researchers in conducting this research. At this stage, the researcher identifies the problem of the phenomena that occur. From the existing problems it is then formulated into the

problem formulation, which will be examined in this study. After finding the formulation of the problem, the researcher also determines the purpose and benefits of this study.

2) The stage of using theoretical studies

This stage can also be referred to as a literature study or literature review. After completing the first stage, the researcher studies theories relevant to research through books, articles, and previous research, which will be used as a reference for research.

3) Data collection and sampling stage

After conducting a literature study, the researcher begins to determine questions or statements that are in accordance with the formulation of the problem. First, questions or statements will use the interview method. Then, it will be tested at the data processing and analysis stage. After making statements and questions for interviews, the researchers conducted online interviews using Zoom to selected candidates students were. After conducting the interviews, the researcher will receive or get feedback on the results of the interviews that have been conducted, and then the data will be collected for processing.

4) Data analysis stage

After the data is received and collected, the researcher will analyze the data in order to get results in the form of a Word Cloud and be able to conclude this research. This data analysis is assisted by using NVivo software.

5) The stage of concluding or writing a report

After the data analysis was completed, the results for this study were found by describing the findings in interviews in the form of a word cloud. Making conclusions and suggestions is the final stage carried out in this study. At this stage, the authors conclude and provide suggestions or recommendations for universities and lecturers.

3.2 Data Collection

The research method in this study is to use qualitative methods. Data collection techniques are a strategic rarity in a study because the primary purpose of this technique is to obtain the perception of education organizers regarding the metaverse system. Therefore, researchers used literature study techniques and interviewed ten students at Bina Nusantara University.

Before jumping into the interview, researchers will conduct a literature study from 10 journals regarding applying the metaverse system to learning at the University as a model for making questions for analysis. After that, the researcher will start collecting data for qualitative analysis.

After that, the interview will be conducted with an online meeting with respondents via Zoom meeting and recording the results of the conversation about the questions that have been asked before.

3.3 Interview Questions

Researchers ask questions regarding the user experience after using the metaverse.

1. Where are you currently studying?
2. What major did you take in college?
3. What conference platform is used when studying online?
4. Do you enjoy the process of learning to use the platform?
5. Do you know what the metaverse is?
6. Have you ever used the metaverse to learn?
7. Have you ever used a metaverse platform called Gather Town?
8. How long have you known Gather Town?
9. What is your purpose for using Gather Town?
10. How long have you been using Gather Town?
11. What do you like about Gather Town?
12. What do you feel after using Gather Town? Why?
13. Is it suitable if Gather Town is used as a learning platform in college? Why?
14. What are the advantages of using Gather Town as a college learning platform?
15. What are the downsides to using Gather Town as a college-study platform?
16. Are you still going to use Gather Town in the future? Why?
17. What advice can you give on using Gather Town for the learning system?

3.4 Data Analysis

Recorded data obtained from the interview will be analyzed so that the raw data can be processed so that it becomes meaningful data, easy to understand, and conclusions can be drawn in accordance with the goals and problems of this study. NVivo software will be used in this study to assist researchers in analyzing data.

The recording results will then be transcribed to text so that NVivo can process it. The results will be uploaded, and the researcher will sort out the words that show the respondent's perception of the metaverse system. After the word is ready to be

processed, the researcher will choose to use the Word Cloud feature from NVivo to output the Word Cloud output, which is an image that shows words that often appear during the transcript of the interview text.

4. RESULTS AND DISCUSSION

4.1 Interviewee profile

The authors use ten interviewees who are active students at Bina Nusantara University, Faculty of Information Systems, who have used Gather Town to conduct learning activities aged 18-24 years as interviewee candidates. The authors took data from candidates with interviews directly using Zoom. From the interview results, all the majority have known the Gather Town metaverse for 1 year and they also use it for an average duration of 3 hours.

4.2 NVivo Processing

The interview results will be processed using NVivo by transcribing the interview results using Google Live Transcribe & Notification into a Txt file and finally uploaded to NVivo, as shown in Figure 2.

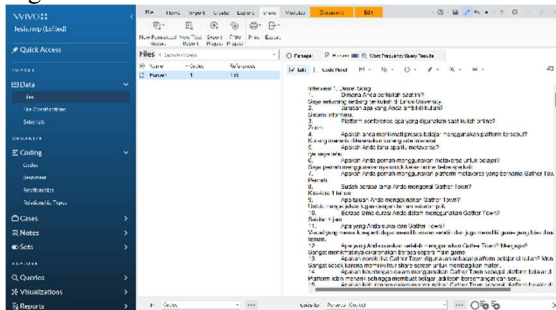


Figure 3: Import File in NVivo

Next, create a code with the name "Perception," as shown in Figure 3 as a keyword to be researched and then I analyze all the candidate words that are included in the perception, then take the base word and add it to the code.

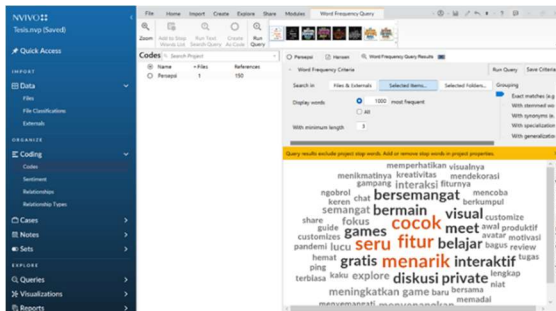


Figure 4: Visualization of Code Result

After that, the code can produce visualizations like a Word Cloud, as shown in Figure 4.



Figure 5: Word Cloud

4.3 Discussion

4.3.1 Analysis Result

The authors use ten interviewees who are active students; from the results of interviews and NVivo analysis that have been carried out; the authors took a few words that are indicators of perception and found that there are 14 largest perception indicators felt by respondents, namely:

1) Pull

"Interesting" can be used in the educational context held in Gather Town to illustrate how the platform can provide participants an attractive and engaging learning experience.

Gather Town provides various features that allow speakers to make educational sessions more interactive and fun, such as virtual objects that can be manipulated, backgrounds that can be customized, or virtual areas that can be accessed after completing certain tasks. The diversity of these features makes the educational sessions in Gather Town more exciting and fun. In addition, participants can gather and interact virtually, making learning more interactive and fun.

2) Fun

The word "fun" can be used in the context of the education held in Gather Town to describe how the platform can provide participants a fun and refreshing learning experience.

Gather Town allows speakers to create more interactive and fun educational sessions with features such as virtual objects that can be manipulated, backgrounds that can be customized, or virtual areas that can be accessed after completing specific tasks.

This will create fun and exciting study sessions. In addition, there are social interactions that can be done in Gather Town, such as discussion groups and activities to work together, making educational sessions more exciting and interactive.

3) Feature

The word "feature" can be used in the educational context held in Gather Town to describe the various tools and functions available on this platform to make educational sessions more interactive, practical, and fun for participants.

Some of the features available in Gather Town for education are:

- Creation of manipulable virtual objects such as images, text, and video
- Custom background to beautify the appearance of the virtual room.
- Virtual areas that can be accessed after completing specific tasks.
- Discussion groups, cooperative activities, and private areas for participants.
- Video calls, chat, and presentation features for interaction with attendees

With various features available, Gather Town allows presenters to arrange educational sessions that are more interactive, fun, and effective for participants.

4) Appropriate

The word "suitable" can be used in the context of education held in Gather Town to describe how the platform is appropriate or suitable for use in various learning situations and conditions.

Gather Town has features suitable for use in a variety of learning situations and conditions, such as:

- Remote learning as it allows attendees to gather and interact in a virtual room remotely.
- Learning on a large scale because it can accommodate a relatively large number of participants.
- Learn with an interactive and fun method because it has various features, such as virtual objects that can be manipulated, discussion groups, and virtual areas.
- Learn by simulation or game methods, as it allows the creation of virtual objects that can be used for simulation.

Overall, Gather Town is suitable for use in various learning situations and conditions because it

has sufficient features to provide participants a practical and enjoyable learning experience.

5) Visual

The word "visual" can be used in the educational context held in Gather Town to describe how the platform provides functional visual facilities to make educational sessions more interactive and practical for participants.

Gather Town provides visual features that are useful for speakers, such as creating virtual objects (such as images, text, and videos) that can be manipulated and used for presentations, and custom backgrounds to beautify the appearance of virtual rooms. These virtual areas can be accessed after completing specific tasks. In addition, Gather Town also has a video call feature that can be used for visual presentations and interactions with participants in real time.

With various visual features available, Gather Town allows presenters to arrange educational sessions that are more interactive, fun, and effective for participants. This also makes it easier for participants to understand the concept or idea presented because it can be supported by visuals that make it easier to remember.

6) Meet

The word "meet" can be used in the context of education held in Gather Town to describe how this platform can be used to host meetings or classes virtually.

Gather Town allows participants to gather and interact in a virtual room, allowing them to host meetings or classes remotely. Presenters can use features such as video calls, chat, and virtual areas to host interactive and practical educational sessions. These features also allow participants to communicate and work together effectively, thus making for a more enjoyable learning experience.

Overall, Gather Town provides adequate facilities to host meetings or classes virtually interactively and effectively, allowing participants to interact and learn remotely.

7) Learn

The word "learn" can be used in the context of education held in Gather Town to describe how this platform can be used to organize practical and fun learning activities for participants.

Gather Town provides various useful features to make educational sessions more interactive and fun, such as virtual objects that can be manipulated, backgrounds that can be customized, virtual areas that can be accessed after completing certain tasks, discussion groups, and collaborative activities. These features can be used to create interactive and fun learning tasks, thus making the learning process more effective.

In addition, Gather Town also allows participants to gather and interact virtually, increasing social interaction and making the learning experience more enjoyable. With all the provided features, Gather Town can be used to host effective and enjoyable learning activities for the participants.

8) Interactive

The word "interactive" can be used in the context of education held in Gather Town to describe how the platform can provide participants with a dynamic and interactive learning experience.

Gather Town provides various features that allow speakers to create more interactive educational sessions, such as creating virtual objects that can be manipulated, backgrounds that can be customized, virtual areas that can be accessed after completing specific tasks, discussion groups, and collaborative activities. These features can be used to create interactive and fun learning tasks, thus making the learning process more dynamic and interactive.

In addition, Gather Town also allows participants to gather and interact virtually, such as through video calls, chats, and discussions in groups, which can increase social interaction and make the learning experience more interactive. Gather Town also provides features allowing participants to move and interact with the virtual environment and objects available in the virtual room, creating a more dynamic and interactive learning experience. With these interactive features, Gather Town can organize practical and interactive learning activities for participants, increase active participation and improve the learning process.

9) Discussion

The word "discussion" can be used in the educational context held in Gather Town to describe how this platform can be used to host interactive and practical discussion activities for participants.

Gather Town provides a discussion group feature that allows participants to interact and discuss in real time in a group of several people. This feature can be used

to organize interactive and fun discussion activities, thus making the learning process more effective. Presenters can also use this feature to host in-class discussions or seminars with participants from various locations.

In addition, Gather Town also provides a video call feature that allows participants to have real-time discussions with speakers or other participants visually, which can improve interaction and communication between participants to make the learning experience more interactive and effective. This feature can also be used to organize group discussion activities that are carried out live.

Overall, Gather Town has sufficient features to organize interactive and practical discussion activities for the participants. The discussion features available on this platform can be used to increase participant engagement in learning, facilitate interaction between participants and presenters, and make the learning process more dynamic and enjoyable.

10) Motivation

The word "motivation" can be used in the context of education held in Gather Town to describe how this platform can be used to increase participants' learning motivation.

Gather Town provides features that can be used to increase participants' learning motivation, such as:

- Virtual areas can be accessed after completing specific tasks, which can be used as rewards to increase participants' learning motivation.
- Features such as manipulable virtual objects, discussion groups, and collaborative activities can create interactive and fun learning experiences, increasing participants' learning motivation.
- Video call, chat, and presentation features are available, which can be used to interact with speakers and other participants, increasing participants' learning motivation.

Overall, Gather Town has features that can be used to increase participants' learning motivation.

11) Adequate

The word "adequate" can be used in the context of education held in Gather Town to describe how the platform has enough facilities and features to organize educational activities properly and effectively.

Gather Town provides a variety of features that are sufficient to be used in education, such as:

- Creation of manipulable virtual objects such as images, text, and video
- Custom background to beautify the appearance of the virtual room.
- Virtual areas that can be accessed after completing specific tasks.
- Discussion groups, cooperative activities, and private areas for participants.
- Video calls, chat, and presentation features for interaction with attendees.

With various features available and accessible, Gather Town is sufficient to be used in education to organize interactive, practical, and fun learning activities for participants.

12) Games

The word "games" can be used in the context of education held in Gather Town to describe how this platform can be used to make learning sessions more interactive and fun by using learning methods like games.

Speakers can use features such as virtual objects that can be manipulated, backgrounds that can be customized, or virtual areas that can be accessed after completing specific tasks, all of which can be used to create learning tasks like games. In addition, participants can be challenged to complete these tasks in a specific time or in a certain way, improving interaction and creating a more dynamic and enjoyable learning experience.

In addition, Gather Town can also be used to provide simulation games that are used as learning methods, such as business simulations or environmental simulations, which allow participants to learn in a fun and interactive way.

13) Excited

Gather Town is a web platform that allows users to gather and interact in a virtual room. The word "excited" can be used in this context to describe the mood or motivation level of the participants in the educational sessions held in Gather Town. For example, participants can come to the session in a spirited mood and ready to learn, or the presenter can try to boost the participants' enthusiasm during the session by using fun and interactive presentation techniques.

14) Play

Gather Town can be used in an educational context to provide participants an interactive and fun learning environment. The word "play" can be used in this context to describe how educational sessions in Gather Town can be designed to provide a more dynamic and less monotonous learning experience.

For example, presenters can use features such as clickable or drag-and-drop virtual objects to create interactive learning tasks or provide virtual areas that can be accessed only after completing specific tasks. Participants can also gather and work together in virtual groups, improving social interaction, making learning more fun and effective.

4.3.2 Input Analysis

From the interview results, respondents provided input for using Gather Town in the form of: Input for students:

- 1) Prepare the required devices: Students must ensure that the devices used meet the technical requirements of Gather Town, such as a stable and fast enough internet connection, devices compatible with the Gather Town application, etc.
- 2) Be active: Students must be active in class by participating in discussions, answering questions, and participating in activities given by the lecturer.
- 3) Please provide the required equipment: Students must ensure they have the required equipment, such as paper and pens for taking notes, books or slides needed in class, etc.
- 4) Remember to turn on the camera: Students must turn on the camera and ensure the lecturer and classmates can see them during class.
- 5) Make notes: Students must make notes of the material provided by the lecturer and evaluate the learning outcomes after class.
- 6) Do not be late: Students must respect the schedule set by the lecturer and attend class on time.
- 7) Maintaining privacy: Students must ensure that their privacy is maintained when using Gather Town, such as not sharing personal information with others on the platform.
- 8) Use the available features: Students must use the features available in Gather Town, such as breakout rooms, polls, and presentations, to make learning more interactive and improve their understanding.
- 9) Active in discussions: Students must be active in discussions and interact with lecturers and friends during class.

- 10) Responsible: Students must be responsible for the assignments the lecturer gives and do them on time.
 - 11) Communicating with lecturers: Students must always communicate with lecturers if they have problems or questions about class or learning.
 - 12) It is recommended to try Gather Town first so students can be more familiar with the application and can adjust well during learning.
 - 13) Use Gather Town as an additional tool for learning as one of many tools. Students must continue to pursue deeper understanding by reading books or other sources, doing assignments, and practicing with questions or examples given by lecturers.
 - 14) Open a discussion area at the Gather Town so that students can share knowledge and discuss it with their friends after class.
 - 15) Be Professional. Students must behave professionally when using Gather Town, such as dressing neatly, respecting others, and maintaining polite communication.
- participation and provide adequate feedback to motivate students to learn.
 - 6) Use the available features: Lecturers must use the features available in Gather Town, such as breakout rooms, presentations, and polls, to make learning interactive and increase student engagement.
 - 7) Maintain privacy: Lecturers must ensure that students' privacy is maintained when using Gather Town, for example, by avoiding taking screenshots without permission.
 - 8) Evaluation of learning outcomes: Lecturers must evaluate the learning outcomes achieved through learning using Gather Town and compile reports on evaluation results to improve future learning quality.
 - 9) It is recommended to test first if the lecturer has never used Gather Town before so that the lecturer can be more familiar with the application.
 - 10) Integrate with other systems: Lecturers can use Gather Town as a component in a broader learning system, integrating it with other applications such as LMS (Learning Management System) or assignment collection applications. In this way, lecturers can make learning more effective and efficient.
 - 11) Ensure sufficient internet infrastructure: Because Gather Town requires a sufficient internet connection to be used properly, lecturers must ensure that the internet infrastructure at school or university is sufficient for use in class.
 - 12) Remember that Gather Town is a tool that can be used to make learning more interactive and exciting. However, lecturers must ensure that the technology is used wisely and does not neglect other aspects of learning, such as social interaction, practicum, or assignments that can increase student competency.

Using Gather Town as a learning tool can make learning more interactive and fun, but it must be remembered that students must stay focused on learning and pursuing deeper understanding. Students must use this technology wisely and coordinate with lecturers for optimal learning results.

Input for lecturers

- 1) Learn the features of Gather Town: Lecturers must learn the features offered by Gather Town, such as creating virtual rooms, manipulating virtual objects, and how to manage group discussions before using them in class.
- 2) Create a detailed lesson plan: Before starting class, the lecturer must prepare a detailed lesson plan and determine the learning objectives.
- 3) Ensure students are ready: Lecturers must ensure that students have prepared the necessary devices and downloaded the Gather Town application before class starts.
- 4) Create a fun atmosphere: Lecturers must create a fun and interactive atmosphere in a class by using various features of Gather Town, such as virtual objects, backgrounds, and accessible virtual environments.
- 5) Maintain communication with students: Lecturers must ensure good communication with students by providing contacts that can be contacted if students have questions or difficulties. Lecturers must also monitor student

5. CONCLUSION AND SUGGESTIONS

5.1 Conclusion

Based on research findings regarding students' perceptions of using Metaverse using Gather Town for learning systems, most students have positive perceptions of using this technology.

In this study, there were 14 perception indicators felt by respondents, namely "Interesting", "Exciting", "Features", "Suitable", "Visual", "Meet", "Learning", "Interactive", "Discussion", "Motivation", "Adequate", "Games", "Enthusiastic", and "Playing".

In general, all these indicators received a positive response from students, which shows that the use of Metaverse using Gather Town has the potential to improve the quality of the university learning system.

Students perceive using Metaverse as an enjoyable, fun, and motivating learning experience. They also consider the features offered to be adequate and suitable for learning, as well as providing opportunities for interaction and discussion with classmates and teachers. In addition, students also like the game and visual features provided, which make learning more fun and interesting.

5.2 Suggestion

Based on the results of this study, it is suggested that universities are more serious about studying the use of Metaverse technology, using Gather Town as a more interactive and exciting learning platform for students. The use of this technology can increase student motivation and participation in learning, as well as improve the quality and effectiveness of learning at universities.

5.3 Future Research

In the case of this study, some limitations may include relatively small sample size, potential biases in participant selection, and the use of self-reported data.

To address these limitations, future research could consider using more significant and diverse sample sizes and random sampling techniques to reduce biases. It may also be useful to include objective measures of learning outcomes to supplement self-reported data.

In terms of future research, conducting a longitudinal study to track changes in students' perceptions of Metaverse over time may be interesting. Additionally, future research could explore the use of Metaverse in different educational contexts, such as K-12 or vocational education, to determine its effectiveness across different levels of education. Finally, future research could investigate the role of Metaverse in promoting collaboration and social interaction among students in online learning environments.

5.4 Comparative Analysis

To perform a comparative analysis of this research with other similar studies, it is important to consider the strengths and weaknesses of the current study. Some potential PMIs for this study are:

- 1) Plus
 - The use of Gather Town for educational purposes is still a relatively new concept, and this study provides valuable insights into how students perceive this technology in a learning environment.
 - The study provides specific insights into students' perceptions of using Metaverse technology, which can help educators understand the benefits and challenges of using this technology for educational purposes.
 - The study highlights the potential of Metaverse technology for creating engaging and interactive learning environments that can enhance student motivation and learning outcomes.
 - The findings suggest that Metaverse technology has the potential to be a useful tool for educators in designing and delivering online courses.
 - The study provides recommendations for educators and institutions interested in using Metaverse technology in their teaching, which can help them effectively incorporate this technology into their courses.
 - The study's use of 14 indicators of perception to measure students' attitudes toward Gather Town provides a comprehensive overview of the platform's effectiveness for educational purposes.
- 2) Minus
 - The study is based on a small sample size of university students, such as potential biases in the sample.
 - The study's findings are based on self-reported perceptions rather than more objective measures of learning outcomes, which could be a potential area for improvement.
 - The study does not compare directly with other platforms or technologies used in Metaverse-based education.
- 3) Interesting
 - The study found that the most positively perceived indicators of Gather Town were its visual and interactive features, which highlight the importance of engaging and immersive learning environments.
 - The study found that students' perceived level of motivation and enjoyment was significantly higher in Gather Town than in traditional classroom settings, suggesting that Metaverse-based education has the potential as a more

attractive and enjoyable alternative to traditional methods.

- The study's use of Gather Town for educational purposes could serve as a model for future research on the platform's potential for educational use, especially as Metaverse-based education continues to grow in popularity.

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