



A Phenomenological Study of Teachers' Roles and Learners' Responses in Learner-Centered Classes Using Metaverse Technology

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Abstract

This paper examines learner-centered media English learning using metaverse-based facilitation through a phenomenological method, which is a type of qualitative research. A private university in Chungcheongbuk-do gave a Liberal Arts English class in Gather.town, one of the Metaverse platforms, and designed a learner-centered course through appropriate facilitation by the professor. This study conducted an in-depth analysis on the experience of students in this new classroom environment, the roles of professors, and the internal and external changes of students by using a phenomenological research method from Mustakas (1994). The results were as follows: first, students enjoyed and felt interested in the new learning; second, the professor played the role of a facilitator who promoted student participation and cooperation; third, the course made students internally motivated to learn actively; and fourth, students externally experienced learner-centered learning through interaction among themselves. Lastly, this study discussed the need for proper facilitation by the instructor for a metaverse-based English class. In conclusion, it was found that English classes using metaverse-based facilitation were interesting, enhancing collaboration, and motivating their learning. Therefore, learner-centered learning based on the metaverse will play a role and function in attracting students' spontaneous participation, cooperation, and learning motivation when appropriate facilitation is provided.

Keywords: metaverse, Gather.town, facilitation, learner-centered learning, phenomenology

Applicable levels: secondary, tertiary

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Received: July 3, 2023
Revised: August 13, 2023
Accepted: August 24, 2023

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I. INTRODUCTION

The question, “How can I teach better?” is perhaps the greatest challenge that all teachers face regardless of regions. In *Vergessene Zusammenhänge: Über Kultur und Erziehung*, a German pedagogical theorist, Mollenhauer (1983/2005), said that “Teacher’s today are living in an age of teachability” (p. 12). With the recent digital revolution and the accelerated development of the internet, professors are encountering college students called “Digital Natives,” a generation that has grown up in a digital environment since childhood. The digital natives use digital technology freely and they are skilled at consuming and producing digital contents. They also have been exposed to a variety of cultures and values, respect diversity, express their opinions naturally, and like to participate in activities directly. They are also known as “Instant Graffiti,” a term that refers to the generation that freely manipulates and utilizes personal IT devices to create instant graffiti. The digital natives also prefer to acquire information in a short period of time and make quick judgments and decisions. Considering this situation, it is necessary for professors to boldly break the existing traditional frame of thoughts and approach classes in a flexible and creative way to communicate with students. As students are nowadays digital natives, teaching methods that utilize such technology are even more necessary in the classroom. Among them, the technology-based teaching method that is attracting attention these days is utilizing the metaverse.

A metaverse is a fully immersive virtual world parallel to the physical world and it enables real-time interaction with digital objects through technologies such as virtual reality (VR) and augmented reality (AR). The term “metaverse” was first coined by Benjamin Vershbow, who was inspired by novels of *Snow Crash* by Neal Stephenson (1992) also predicted that metaverse will have a major impact on lives of people. Since 2000, metaverse has evolved into a term that refers to a virtual space combining artificial reality and blockchain technology. These days, development of technology enabled more realistic and interconnected metaverses, not just using a single platform, but through a network of interconnected virtual worlds accessible from a variety of devices, including computers, smartphones, and VR headsets. These metaverses allow people to socialize, play games, attend events, enjoy shopping, engage in business, and even learn in the interactive environments. With the increased use of contactless activities and digital media during the COVID-19 pandemic, the metaverse has become a new venue for education.

Gather.town is a browser-based platform that provides users with an immersive experience as a virtual space where people can create their own two-dimensional world and play there. Gather.town has gained popularity during COVID-19 period as one of the metaverse platform and it provided a way for people to interact in virtual spaces. In the early stage, Gather.town was used by researchers in fields such as psychology and neuroscience to create virtual experiments and study the behavior of participants in virtual environments. Nowadays, however, Gather.town is used for a variety of purposes, including virtual meetings, virtual offices, and virtual classrooms. It allows users to use their own avatars to navigate virtual spaces decorated with various objects and engage in conversations with other participants for face-to-face meetings and real-time project meetings. In Gather.town, instructors can provide an immersive learning environment and the students are able to interact and collaborate with their peers. These are the reasons why Gather.town is considered as a platform applicable to the learner-centered learning.

The learner-centered learning is a learning method that offers a personalized learning experience by considering of a learner’s learning style, level, interests, and needs. Duffy and Kirkley (2003) also said that the learner-centered learning is also based on self-directed learning, where learners can set their own learning goals and decide how and when they want to learn. Such a teaching method motivates the learners, encourages participation, and boosts learning achievements. The learner-centered learning also respects personal experiences and knowledge of learners, and it develops and proceeds learning activities based on interaction between learners and teachers. Thus, the learner-centered learning is one of the key elements of modern learning theory and methodology, and it is a teaching and learning method that will continue to be researched and applied in the classroom.

When using this metaverse platform for learner-centered education, facilitated by teachers with proper guidance, it brings many benefits to the English education field. Jessup (1990) defined that the facilitation is a process for instructors to facilitate and support the individual or group learning, problem-solving, decision-making, and participation, etc., and facilitators are required to design and facilitate group activities and facilitate group interactions by understanding the relationships, roles, authority, and perceptions within the group. In the facilitation process, participants share their knowledge, experiences, and ideas, and work together to solve problems and make decisions.

Especially in the metaverse platform-based learning, instructors need to use facilitation during the online course, since the students may stick to their own way of learning and lose the direction of learning. The recent facilitation studies are putting more emphasis on the experiences and emotions of participants. Kye (2022) developed a learner-centered teaching model by utilizing facilitation techniques in English classes. By exploring the existing literature and previous studies on learner-centered research, she defined learning elements and developed a draft model, including learner-centered elements that need to be included in a learner-centered class. The completed model was applied to an actual class to check the practicality, feasibility, and effectiveness of the model. The results showed positive effects on interest and confidence of students in English classes, listening and respectful attitudes, and the role of the facilitator when using the learner-centered teaching model using facilitation techniques.

Although there are different approaches to teaching English, a teaching method considering the time trends and tendencies of students should be a high priority. In this context, this study aims to examine the changes in perceptions of college students from a phenomenological perspective by applying learner-centered learning through metaverse-based facilitation to English classes. Recently, there have been metaverse-related and learner-centered studies, but there are few learner-centered phenomenological studies using metaverse-based facilitation, so there is a need for such studies. Previous studies have shown that learner-centered learning using metaverses can be an enjoyable learning experience where students can directly participate and overcome the constraints of space and time to engage in various simulations and exercises with their peers, but there are still technical limitations to provide full realism, which may limit accessibility for some students. In addition, it can be difficult to manage learners' attention span in a virtual world. This requires proper guidance from educators. Therefore, this study aims to explore how learners' external and internal responses change when proper facilitation from teachers is added to learner-centered learning using metaverses. The research questions are stated as follows.

1. What are the experiences of students in a new media English class?
2. What is the role of the professor as a facilitator in this class?
3. What are the internal changes of the students in this class?
4. What are the external changes of the students in this class?

II. LITERATURE REVIEW

1. Metaverse-Based Education

Although there are only few metaverse-related studies, some recent studies are applying metaverse to education as an alternative to online education in the COVID-19 era. These were mainly studies on how students organize and apply spatial design lessons on the metaverse platform, their advantages compared to distance learning, and how the movement of teacher and peer avatars in the metaverse space affects the realism of learning.

In this study, students had to design their own spaces on the metaverse platform. The next study was conducted by pre-service teachers in which they had to design a space in metaverse. Kim and Kim (2022) organized and applied a metaverse space design class in a liberal arts curriculum at a college to enhance the use of the metaverse platform for pre-service teachers. In this class, students were able to experience avatars, design their own spaces, connect whiteboards, board games, and videos for class, design their own spaces, and experience a spotlight zone for presentations. When the students were designing the space, they had to use the canvas to insert pictures beforehand because the object size could not be adjusted.

Here are some of the studies that have compared metaverse and remote learning and shown the benefits and effectiveness of metaverse learning. Jeon (2021) found that metaverse classes were used in distance learning to address the following disadvantages: lack of communication, decreased concentration, difficulty performing tasks, and instability of the learning system. She found that the use of metaverses to communicate with each other for team activities in remote classes had a better effect than using messengers or other general chats.

The following study investigates the perceptual differences and effects of interacting with the avatars of teachers and peers in a metaverse platform space on students. This is significant because the curriculum in this study involved

teacher facilitation and collaboration with peers. Yang and Ryu (2021) examined the effects of teacher movement and the presence of peer avatars on visual attention and learning presence in a metaverse-based classroom. They found that the presence of peer avatars resulted in higher spatial perception and social presence, as well as higher average gaze fixation duration. On the other hand, the movement of the teacher avatar had a significant effect on only spatial perception among the subfactors of learning presence. Based on these findings, it is possible to improve visual attention and learning presence by applying peer avatars in metaverse learning.

Also, there was a study that looked at the cognitive and emotional aspects of students utilizing Gather.town, one of the metaverse platforms. M. Y. Lee (2022) examined perceptions of learners by applying Gather.town and Spot to a medical class. To examine the effectiveness of metaverse technology utilization, she compared classes applied with Webex, a video conferencing program, and Gather.town. According to comparison results, there was no significant difference in cognitive presence between teaching presence and learning presence, but there was a significant difference in emotional and social realism, learning immersion, and interaction. These results have significance by showing how metaverse platform-based education offers more emotional and social presence to the students and increases learning immersion and interaction. These studies will provide insight into how the metaverse platform can be applied to learner-centered learning in the real world, how it affects learner perceptions and responses, and how teacher facilitation can make a difference compared to peer interaction in Gather.town.

2. Facilitation

1) Concept of Facilitation

Facilitation is the process of facilitating communication, cooperation, participation, problem solving, etc. within a group. This process promotes the participation and cooperation of group members, resolves disagreements and disharmony, and helps the group achieve its goals. Jessup (1990) describes facilitation as a leadership strategy that promotes interaction and creative outcomes. The main role of the leader is to facilitate learning activities of students, support them, and share knowledge and skills to achieve learning goals. Schearz (2002) stated that leaders in innovative organizations are those who act in accordance with a set of core values that are consistent with the concepts of voluntary participation, empowerment, cooperation, learning, and partnership.

Facilitation plays an important role in education, business, politics, and society, and is used for team building, decision-making, problem-solving, and creative ideas. Bens (2006) pointed out that there is an urgent need for facilitative leadership to create organizations that respond to environmental changes, and leaders who enable participation and cooperation. In addition, Daft (2015) claimed that modern leadership requires a shift from stability seekers to change managers, from controllers to facilitators, from competitors to cooperators, from diversity avoiders to diversity seekers, and from heroic leaders to ordinary leaders. Since an effective facilitation plays a huge role in optimizing group performance by utilizing the opinions and ideas of participants within a group and facilitating group interaction and cooperation, it is necessary to use facilitation in the metaverse education, where students may become disoriented or disengaged.

2) Previous Research on Facilitation

Facilitation is a technique or method that helps participants collaborate and communicate smoothly in group activities or meetings and has recently been applied in various fields such as English-speaking classes, design education, and design thinking classes. Establishing clear objectives, class roles and rules, conflict management, providing and utilizing visual tools, encouraging the creativity of participants, and boosting effective collaboration are examples of how facilitation is used in education. Kim and Hong (2018) investigated the effectiveness of facilitated discussion techniques in elementary English-speaking classes. In this study, they showed how to establish clear objectives, class roles and rules, conflict management in the classes. Total of 39 sixth-grade students were given a facilitation technique-based teaching method and the students showed significant improvement in speaking accuracy and fluency. The students also demonstrated some notable changes in the speaking patterns and emotional aspects. According to the post-survey results, students became more interested and confident in speaking English.

The facilitation of visual tools is applied to the design education in the following case: Noh (2019) applied a learner-centered teaching method by applying facilitation techniques to design education and production. As a result, the learners were satisfied with the facilitation teaching method compared to the traditional learning method. In general, it was found that the facilitation teaching method increased participation of learners in learning and improved their learning satisfaction and concentration as the learners acquired the skills and knowledge they need for problem-solving.

Design thinking is a way for participants to collaboratively discover and visualize ideas for creative problem-solving and innovation. The facilitators utilize design thinking techniques to encourage the creativity of participants and boost effective collaboration. Park (2020) used facilitation strategies to promote discussion classes. He defined the concept of facilitation in class and used participatory decision-making methods in discussion classes. For this purpose, he proposed “cooperation,” “full participation,” “shared ownership,” “comprehensive solution,” and “mutual understanding.” He suggested the following strategies: creating a discussion environment, changing the format of participation, observing, and providing feedback, utilizing facilitation tools and techniques, transferring the responsibility of the facilitator, and mediating conflicts between participants.

In response to recent developments of digital technologies, there are more online platform and tool-based digital facilitation. The participants can work together and share their opinions, regardless of distance, by utilizing video conferencing tools, online collaboration platforms, and real-time communication tools.

3. Learner-Centered Learning

1) The Concept of Learner-Centered Learning

Learner-centered learning is a teaching methodology that aims to lower the learning contents and methods based on the interests and learning goals of learners. It supports the learners of practice participation, express knowledge, and resist against knowledge. The learner-centered learning is an educational approach that prioritizes student needs, interests, and abilities. This approach method aims to actively engage students in the learning process and improve their critical thinking, problem-solving, and decision-making skills. The impact of learner-centered learning on English speaking skills and emotional domain of college students may be considerable.

Duffy and Kirkley (2003) defined learners as active agents of their own learning as they are empowered to choose and control the curriculum according to their diverse interests and abilities. Ju and Kang (2011) also said that learner-centered learning promotes deeper learning and understanding through active participation in activities, empowering learners with autonomy, and making learners fulfill their responsibility and duties. In this regard, the learner-centered learning means that learners take the initiative in setting learning goals and learning in the learning process, unlike the existing one-sided teacher-centered education. Based on these previous studies, learner-centered learning may be seen as a process where learners actively participate in the entire learning process, including planning, implementation, and evaluation.

2) Previous Studies on Learner-Centered Learning

Learner-centered education is an educational method that considers the individual characteristics and needs of learners to maximize their learning experience and learning outcomes. There has been a wide range of previous research in this area, and the main types and directions of research are categorized into individualized learning, cooperative learning, learning styles, and learning technologies and tools.

There is a study addresses learner-centered learning in terms of learning technologies and tools. Kim's (2022) study recognized student resistance to learner-centered learning and explored ways to overcome it. He recognized resistance of students against the student-centered activities and sought solutions to overcome such a resistance. He conducted a survey to an undergraduate translation class to identify resistance of students and the reasons for it. According to analysis results, the students preferred instructor-centered class the most, and the reasons for their resistance to learner-centered instruction were lack of knowledge, effectiveness of lectures, preference for feedback, lack of trust in the effectiveness of participatory methods, fear of presentation, and resistance against assessment. Therefore, to

mitigate students' resistance to learner-centered learning, this study utilized one-on-one communication channels, allaying fears of assessment, and providing feedback through proper facilitation by the teacher.

Choi and Kim (2022) studied learner-centered learning phenomenologically and looked at the defining aspects of students. He analyzed the influence of learner-centered education to the global experiences of college students and perceptions of their communication competence as members of a global society, and relevant obstacles. The results showed the college students considered respect and consideration for others, multicultural coexistence, intercultural learning, and preparation for overseas employment as important factors. Meanwhile, the college students regarded self-centeredness and rejection, preconceived notions and prejudices, fear of new environments, differences in consciousness, lack of communication skills, and insufficient foreign language skills as obstacle factors.

Also, there is a study that addresses learner-centered education as the cooperative learning. Kang (2016) studied and analyzed the effects of learner-centered education to the definitional domain and English-speaking ability of the students by using learner-centered education for college students. According to results, it had a positive effect on definitive domains (confidence) of students, engagement, anxiety reduction, and participation. It also had a significant effect on their English-speaking ability.

Based on these findings, this study suggests that it is timely to utilize the metaverse platform for learner-centered learning to promote not only self-directed learning, but also respect and consideration for others, coexistence of different cultures, learning experiences, and cooperation with peers.

4. Research Concepts

This study targeted on the college students who took a media English course for one semester using a learner-centered learning method applied with facilitation. To find meanings of their internal and external experiences, this study divided the topics into four essential themes and twelve sub-themes based on the research questions.

TABLE 1
Subtopics and Essential Themes

Essential themes	Sub-themes
Media English class with metaverse-based facilitation	(1) Feelings about the new teaching method of media English (2) Interest in this teaching method (3) Class participation method of students
Roles of professors as a facilitator	(1) Role of the whole class (2) Role for each group (3) Role for each lesson
Internal change of students	(1) Feelings before taking a class (2) Feelings during the class (3) Feelings after the class
External change of students	(1) Status before taking the class (2) Changes during the course (3) Changes after taking the class

III. RESEARCH METHODS

1. Phenomenological Research Method by Moustakas and Research Procedure

Phenomenology is an approach and research method that seeks to understand and explain the nature of phenomena. In a phenomenological approach, the domain of inquiry is experience, and it is seen as an attempt to discover the reason underlying experience through the analysis of the structure of experience (Husserl, 1970). The term, phenomenon, originates from the Greek word "phaino," which means "to light up," "to place in a bright place," or "to show as it is" (Moustakas, 1994). Here, the bright spot is human consciousness, and the phenomenon is what constitutes the stream of consciousness and refers to human experience, not the existence of an object. The philosophical principles of phenomenology are found in the orientation of consciousness, intuition of the essence, suspension of judgment, and reduction (Creswell, 2004).

Among phenomenological analysis methods, this study utilized the analysis procedure by Moustakas (1994), which is known as a revised version of the Stevick-Colaizzi-Keen method. The phenomenological research method of Moustakas focuses more on description of research subject experiences rather than the interpretation by the researcher. Therefore, research method by Moustakas is suitable among various phenomenological research methods, to understand the external experiences of subjects and deeply embedded psychological parts. This study attempted an in-depth approach to the substance of phenomenon for the experiences of subjects in metaverse-based learner-centered learning applied with facilitation.

To accomplish this, this study conducted the research based on the phenomenological research method by Mustakas (1994). First, the researcher selects and develops a research topic in relation to the objectives of the study. The topic should be an area of interest that provides a deep understanding of the phenomenon. Second, the researcher selects suitable participants to take a part in the study. They should have experiences related to the research topic and be able to provide a variety of perspectives and experiences that match the research objectives. Third, the researcher conducts in-depth interviews with the research participants. This is a qualitative research method used to gain a deeper understanding of individual and personal experiences. The free conversational interview explores perspectives, experiences, and feelings of the participants. Fourth, the researcher analyzes the textual data from the interviews. This step involves systematic organization of data and identification of meaning units, which is a central theme or conceptual unit in a text. Fifth, the researcher analyzes and interprets the units of meaning. This step involves understanding the contents and meaning of the meaning units and relating them to the research themes. It explores the similarities, differences, patterns, etc., of the meaning units and build a conceptual framework. Sixth, the researcher generates general categories or themes based on the units of meaning. This means to discover concepts that provide a broader understanding and generalization of the phenomenon. Finally, the researcher checks and reviews the generated general categories. This step ensures that the concepts match the research theme and checks validity and reflection of data. This is an important step to secure the reliability and validity of the research findings.

2. Sampling Method and Participant Selection

For a sampling method, this study used a homogeneous sampling method to target the students who take Media English course and share similar characteristics. This method is often used to select cases with similar backgrounds and experiences to conduct group interviews with people related to a particular theme. In qualitative research, the “appropriateness” of the participants and the “sufficiency” of the data about the phenomenon under study need to be met. In phenomenological research, the concept of “inclusivity” is more important than statistical sample size (Cresswell, 2004). Inclusivity refers to various perspectives and experiences of phenomenon by research participants. To achieve inclusivity, it is necessary to secure the participants of different backgrounds and experiences.

To meet the “appropriateness” criterion of this study, students who had experienced learner-centered learning through facilitated learning based on the metaverse in their Media English class were selected for in-depth interviews according to the theme and purpose of this study. In addition, in-depth interviews were conducted with the research participants to ensure the sufficiency of the data. If the first interview did not yield enough data, a second interview was conducted to collect enough data for the study. In addition, students from various majors were secured as participants to ensure the inclusiveness of the data.

The participants in this study are students taking liberal arts English classes at J University in Chungbuk. A total of 15 students taking Media English course were selected from a variety of majors and grades. The characteristics of the participants are shown in Table 2 below.

TABLE 2
Research Participants

Number	Name	Sex	Grade	Age	Major
1	A	Female	1	21	Biomedical Laboratory Science
2	B	Female	1	20	Police Administration
3	C	Female	1	22	Health Administration
4	D	Female	2	24	Health Administration
5	E	Female	2	23	Sports Guidance

6	F	Female	2	23	Nursing
7	G	Female	2	22	Aerospace and Mechanical Engineering
8	H	Male	3	21	Nursing
9	I	Male	3	20	Food and Pharmacy
10	J	Male	3	20	Biomedical Laboratory Science
11	K	Male	3	21	Sports Guidance
12	L	Male	4	22	Theater Studies
13	M	Male	4	23	Theater Studies
14	N	Male	4	24	Biomedical Laboratory Science
15	O	Male	4	20	Food and Pharmacy

3. Data Collection and Ethical Considerations

For a phenomenological analysis on meaning of media English class and internal and external changes of students based on the experiences and statements of college students that experienced metaverse-based learner-centered learning applied with facilitation, the data was collected as follows:

To collect data for this study, in-depth one-on-one interviews were conducted over a one-week period from March to June 2022 after the end of classes, with each interview lasting between forty minutes and one hour, and the location of the interview was a coffee shop on campus where participants could feel comfortable. The interviews also took an open and unstructured format to prevent the researcher from inducing the answers. After completing the interviews, participants were offered mobile cultural vouchers in exchange for their participation in the study. The interviews were recorded with the participants' written informed consent, and the recordings were transcribed by the researcher and used for analysis in the form of a document file. After completing the interviews, the researcher summarized the transcripts and provided them to the participants for feedback to ensure that the intended content was adequately conveyed.

To ensure the reliability and validity, this study received advice from three PhDs on the consistency, applicability, and neutrality of the research results and interpretation. This study also attempted to secure the intersubjectivity of factual values from the research participants. In addition, since qualitative research requires ethical consideration of research participants as their personal thoughts and experiences may be exposed, the researcher explained the purpose of the study, the methodology, the voluntariness of the participation in the study, their right to withdraw from the study, anonymization to maintain confidentiality, and the handling of recordings after the research, and obtained their signatures on the consent form before the interview.

The specific procedures and data collection methods for this study were as follows. Interview transcripts were coded by a data analysis program for conducting qualitative research, such as NVivo 10 in-depth interview content analysis.

The transcripts were coded by using NVivo 10, a data analysis program for qualitative research, and received member checking and peer debriefing to verify the reliability and validity of the study. The member checking involves having the researcher double-check the analysis of the initial raw data from the interviews with the participants to ensure that the researcher has captured their thoughts and meanings (Koch & Harrington, 1985). The participant checking is done during the research process because it is more reliable during the analysis process than as a post-hoc test at the end of the analysis.

The peer review is a process that allows researchers to be more objective in their data analysis and to validate the validity of their hypotheses through peer criticism and questioning (Patton, 2015). This process was carried out by selecting reliable researchers who can observe the same results from different perspectives and verify them.

4. Data Collection Procedure

The class was divided into four parts: reading about a specific topic in advance, watching related TED video, post-reading, and discussion of the video contents, and reading comprehension checks. There were total of two-hour long class twice a week for 15 weeks. The first three parts of class used Gather.town, and the last part used remote class with instructor. The textbook was *21st Century Reading 1: Creative Thinking and Reading With TED Talks* (Longshaw & Blass, 2015). It covers with core academic language skills and incorporates 21st century themes and skills such as

global awareness, information literacy, and critical thinking. Each unit of *21st Century Reading* has three parts: reading about a 21st century topics such as social robots and viral videos in Lesson A, learning more about the topic by viewing an authentic TED Talk in Lesson B, and exploring the topic further by completing a collaborative research project.

The first lesson was a face-to-face class where the instructor explained how to use Gather.town, how to run a class, how to set up an avatar, and how to decorate the classroom, and the students were divided into six teams, with four team members each. In addition to understanding and educating the entire student body on the overall function of the metaverse, the roles of students, group leaders, and professors (see Appendix). The professor also gave them the opportunity to familiarize themselves with the metaverse platform through simple hands-on exercises. To this end, the professor held a separate meeting with the group representatives to give them basic practical skills and advice on what they should do and taught them how to contact the professor to solve problems during the class.

In the second lesson, students actively entered Gather.town with their team members, selected their avatars, decorated their classrooms, and got used to the metaverse environment. Every odd-numbered hour, students entered a discussion space of Gather.town with their team members for pre-reading. Every even-numbered hour, the students worked on post-reading and discussed about TED video. In this process, the professor provided an environment for students to discuss and shared their thoughts and opinions with each other, and helped students find ways to learn on their own as can be shown in the image of Figure 1. In addition, the professor's main role was to facilitate the overall activities in the learning process and to share and support the knowledge and skills related to learning.

FIGURE 1
The Organizer for Gather.town Classrooms and Group Activities



In the last session, the students checked their reading comprehension with instructor via Zoom. The instructor used Google Classroom before each class to encourage students to participate as much as possible and was present during class as a facilitator. To ensure proper facilitation, the professor served as a guide for an overview of metaverse features, an advisor for appropriate interventions and troubleshooting to keep the class running smoothly, and a facilitator for learning activities.

IV. RESULTS

1. Statement of Situational Structure by Research Participants

The results of analysis on experiences and meanings of college students who engaged in learner-centered learning through metaverse-based facilitation are shown in Table 3. The experiences of the research participants were derived into a concept framework of four general categories and 12 subcomponents and were presented as a situational structure integrated by analyzing the differences and similarities experienced by individuals in the learning process of the research participants.

TABLE 3

Main Components of Learner-Centered Learning Experience Through Metaverse-Based Facilitation		
Research questions	General categories of concept framework	Subcategories in meaning units
Media English class with metaverse-based facilitation	Class with new type of fun and interest	(1) Joy of becoming main characters (2) Joy of sharing emotions freely (3) Slowly changing emotions from fear to excitement with newness
Roles of professors as a facilitator	Facilitator encouraging participation and cooperation of students	(1) Roles as a guide (2) Advisor for adequate intervention and problem-solving (3) Facilitative supporter
Internal change of students	Teaching method for learning motivation	(1) Shared sense of ownership (2) Exploring classroom in a virtual space (3) Be amazed at the variety of communication features
External change of students	Learner-centered learning based on interaction of students and professors	(1) Our own hideout (2) My own lecture room (3) Together and separately

2. Results of General Categories and Subcategories in Meaning Units

1) Class With New Type of Fun and Interest

(1) Joy of Becoming Main Characters

Students enjoyed creating and customizing their own avatars. It seems that students enjoyed making and decorating their own avatars because they are used to expressing their personal tastes directly. They also enjoyed the new experience of participating in the class with their avatars and talking to others without going to the class. As the media English course is an English course, students may not be used to speaking English or have a fear of making mistakes. The avatar-based conversation helped students enjoy the class more.

Decorating my own avatar, being able to move from place to place on my own, and talking to people next to me made me feel like I was the main character in this space. I really enjoyed decorating my own avatar. It was like how I named my doll, dressed it up, and put hair decorations on it when I was young. I named my avatar, chose hair styles I like, and dressed it up with clothes and accessories. Even though I am a college student now, I still enjoyed it a lot. (Research Participant 3)

(2) Joy of Sharing Emotions Freely

In metaverse platform, Gather.town, it allows the users to move their avatar up, down, left, and right using the cursor and students use the avatar and cursor to explore the virtual space during class. When a user enters the virtual space, he or she can find a list of participants on the left side and click on the bubble on the left to see the chat. There are three ways to chat: “Nearby” option only sends messages to people nearby; “Everyone” option sends messages to everyone in the room; and “Specific” option sends messages to specific people. The user can use the arrows (↑, ↓, ←, →) or W, S, A, D (up, down, left, right) to move around and use “Follow” function to help someone who are lost. In addition, there are emojis that help user express various emotions, such as waving, hearts, firecrackers, thumbs up, question marks, and raising hands, from the numbers 1 to 6, so the users can express their emotions and read emotions of others more easily. This is something that is difficult for students to do in a face-to-face class, and in a virtual class, they can only raise their hands in a simple way, so it was very exciting for them.

Instead of sitting still throughout the lecture, I could move as I want to look around the new space. When I got invited to enter a metaverse space, I could see who was nearby, and I could chat with nearby people by using speech bubbles, which was convenient. I also enjoyed helping friends who got lost and I also could move arrow cursor or the alphabet cursor to move around. It also had emoji below the screen so that I could share my feelings with other students. (Research Participant 11)

(3) Slowly Changing Emotions From Fear To Excitement With Newness

For the Media English class in the metaverse-based virtual space, the first session included orientation on basic manuals of Gather.town, such as logging in, avatar customization, directions, communication with others, and decoration and utilization of objects. However, students often went to the wrong group meeting room or got lost because it was their first time in such a class, or because they wanted to enjoy the freedom. To solve this problem, the students were shared information on main functions of metaverse platform, starting from the third session. Over the sessions, the students made fewer mistakes and became more interested in the new teaching method.

As the leader of the group, I had to share video screen and lead the discussion, but some students went to different rooms or accidentally visited wrong rooms. These were the difficulties I experienced as a team leader. Still, it was refreshing to watch TED videos and discuss about them in a virtual space. (Research Participant 8)

2) Role of the Professor as a Facilitator

(1) Roles as a Guide

Gather.town has some great features. For example, a user can move around the avatar to talk to anyone he or she wants. However, the students may lose direction without knowing what to do, when they are given freedom and authority without clear standards or guidelines. So, the first session of the metaverse platform-based class provided detailed guidelines on functions of Gather.town and explained the roles of group leaders and professors. The students also had a chance to get used to the metaverse platform in simple exercises.

Since it was my first experience with metaverse platform-based media English class, I was curious about it. At the same time, I was worried a lot because I heard that it was a student-centered class in groups rather than a one-sided lecture by the professor. Feeling curious and worried, I asked myself, “what if I cannot find the lecture room in the virtual space?” and “is it possible to proceed the class on our own?” In the first session, the professor explained the features of metaverse in details and gave us simple exercises, which helped me a lot in the actual class. (Research Participant 1)

(2) Advisor for Adequate Intervention and Problem-Solving

To design a learner-centered learning based on the metaverse platform, it was necessary to make all students understand the metaverse, provide the group leaders with leadership education, and utilize proper facilitation. To do so, group leaders separately organized meetings to learn practical skills and hear advice. They were also told to contact the professor for any problem during the class. The three group leaders seemed a bit anxious before the class, but they gradually recovered confidence and led the class well with sense of responsibility.

I first felt sense of responsibility and burden because I had to show the TED videos and lead the discussion as the group leader. Then, the professor organized a separate meeting with the group leaders and gave us practical skills and advice on what the group leaders should do. In addition, when we had problems in the class, we sent a message to the professor for help, and the professor gave us solutions. When we finished watching the videos, we actively discussed about the videos, just like the discussion we had with the professor. We also got confident for successfully finishing the new type of class on our own. (Research Participant 5)

(3) Facilitative Supporter

Professors play an important role in helping students learn and grow on their own. However, this requires the professors to fulfill their roles as facilitators in the learning process. Facilitation is the process of facilitating conversation and interaction between learners and helping them achieve their goals. In this process, the professors provide an environment where students discuss and share their thoughts and opinions with each other, and helps students find ways to learn on their own. In addition, the main role of professors is to facilitate the overall activities

in the learning process and to share and support the knowledge and skills related to learning.

It felt like we were with the professor together or separately. Our professor was like Aladdin in Aladdin and the Magic Lamp, who was all around us in the virtual space of the metaverse platform and only appeared when we needed him. Our fear and curiosity of new learning turned into class participation and cooperation among groups. We made a whiteboard in the virtual space for brainstorming, put up a video link to watch TED videos, and watched us our avatars debating. It felt like I was the main character in this new space. (Research Participant 2)

3) Teaching Method for Learning Motivation

(1) Shared Sense of Ownership

In a traditional offline class, the instructor stands at the front of the room and the students sit side-by-side in rows facing the whiteboard. In the online class, such as Zoom and Google Meet, the students turn on the screen and may turn their cameras and microphones on and off. Still, they could not move around freely. As a result, online class allowed only passive participation and students could talk only in the allotted time. In this atmosphere, students would do something else, turn off their cameras, or even turn the cameras off and go somewhere else. However, in this lesson, the students had to actively participate in the virtual space on their own, so they naturally took ownership of the lesson.

When I took online classes due to COVID-19, I mostly used Zoom or Google Meet. The professor would invite students to Zoom or Google Meet and all participants must face each other's face in one direction, and I also had to stare at my face. So, I felt tired during the online classes. But in this class, we went to the virtual space by ourselves and interacted with each other in different ways, which gave us a sense of ownership. (Research Participant 13)

(2) Exploring Classroom in a Virtual Space

The metaverse platform is characterized by the freedom to move around the virtual space using avatars. In this class, however, the students were divided into three groups and had to find directions to their group rooms for group activities. Even though the students learned how to use and move around the Gather.town in the first session, the students seemed a bit confused in the first session when finding their classroom and adapting to the new environment. Still, they were able to move up, down, left, and right directly with the keyboard directional keys or W, S, A and D. When it was too crowded to move around, the students used "G" key to become invisible and move to where they wanted to go. When the students got students, they found their team leader based on what they learned about the Gather.town features in advance. The students who found the ways to their lecture room on their own showed more active learning attitude during the class.

When I first entered the metaverse platform, I was a little confused because there were so many avatars, and I could not find my group room. However, as the professor gave me an orientation and a simple exercise on how to use metaverse before class, I was able to find my group team leader from the list of people, right-click, and click "locate on map" to find where the team leader is. You can also click "Follow" button to move to the team leader automatically. Finding our team room was like a treasure hunting and it was really an exciting experience. It felt completely different from taking class and dozing off at the same lecture rooms. (Research Participant 7)

(3) Be Amazed at the Variety of Communication Features

Starting a conversation in multiple ways may be a little confusing experience for professors and students. In the learner-centered learning, however, the students are the leaders of the lecture and students need to talk actively, unlike the lectures led only by the professors. Therefore, the three ways of chatting in the metaverse platform may be the adequate means for the learner-centered learning. Although the professor explained various features of metaverse

platform and how to be used it in the first session, the students were confused and showed somewhat passive attitude in the first week. The students sent messages to nearby people and specific people but did not send messages to all people. In addition, the emojis on the bottom included six emotions (handwaving, heart, congratulation, the best, question, raise hand) and students clicked "Edit" button to customize their own emojis. Those features motivated students to participate in the class as the free and independent person, instead of sitting still and passively throughout the fixed lecture time.

The class atmosphere felt more natural as we could turn the cameras and microphones whenever we want and use speech bubbles to talk to the specific students. I was also excited to see that there are three ways to chat. You can send a message to people nearby (nearby), send a message to everyone in the room (everyone), and send a message to a specific person (DM). At first, I was a little surprised by these new features, but I quickly got used to it. It was also interesting to see that when you click on the numbers 1-6, you get emoticons to express different emotions. Now, we can laugh, talk, and feel energetic atmosphere in class. (Research Participant 9)

4) Learner-Centered Learning Based on Interaction of Students and Professors

(1) Our Own Hideout

The metaverse platform also has a "Private Area" option, where the users communicate with people in a specific location. This basically means that users in the same space cannot talk over the microphone when they are too far or do not step on the same private area tiles. The users can create private tiles by setting ID in numbers around the table. Such a tile effect is an important feature in Gather.town, as it allows avatars to walk through walls if they are not covered with tiles that prevent them from passing through. It also makes it easier for groups to work together without getting interrupted by other groups. The students gathered for their group meeting, watched a TED video through their group leader, and discussed the topic. Students created their own learning atmosphere by watching videos and meeting in small groups in a virtual space.

The group meeting offered a private setting option, and our group could participate in the class without getting disturbed by other groups. It felt like gathering at our own hideout without adults. We also shared screens to watch TED videos and discuss about the topics. (Research Participant 6)

(2) My Own Lecture Room

For the team activity, students must watch a TED video and discuss their thoughts. To do so, it is necessary to place objects and embed effects to the objects. First, click the object hammer icon in the bottom left corner to pop up "Build" and "Erase" menu next to it. Then, click the "Open object picker" button to pop up a list of objects. Select an object and click the left button to place it. Use "Object interactions" menu on the right to embed a website address to the object, click to pop up image or video, click to pop up memos, and more. These features allowed learners to customize their own learning environment and learn in their own space, such as brainstorming, watching videos, and discussing.

I loved how we can make our own space and take a class in the space we want. I also used various objects to focus better during the class. In addition to chatting, I also enjoyed brainstorming with whiteboards and uploaded videos. (Research Participant 10)

(3) Together and Separately

In the metaverse-based class, the students create lecture rooms and take classes with team members in a separated space. In other classes, the conversation is limited to frameworks set by the schools and professors. In the metaverse-based class, however, students learn on their own and debate in their own group room, without presence of professor. The interviewee claimed that such a freedom may result in negligence and overlooking. Still, the interviewee also pointed out that the metaverse-based class may become a good learning environment where the students who are motivated in learning can share feedbacks and discuss with others.

Although we were physically separated, it felt like we were together in this metaverse space. We made our own spaces and took class without getting interrupted by others. When we needed our professor, we could always call the professor to ask questions. However, some students seemed not interested in the metaverse class just like how they were in the offline class. They are not always interested in learning, and they might remain as bystanders without getting noticed by the professor. Still, I think metaverse-based class is better for the students who are interested and motivated in the class. In the metaverse class, the students become the center of learning, get helps from professors whenever they need, and cooperate and debate freely with other students. (Research Participant 12)

V. CONCLUSION AND RECOMMENDATIONS

This study aimed to find out the inner and outer meanings and essence of students' experiences in the learner-centered learning using metaverse-based facilitation through phenomenological methods. The interpretation and discussion of the findings from the in-depth interviews with the research participants are as follows.

First, the experience of the research participants in the new media English class brought them joy and excitement of new experience. According to analysis results, metaverse matches the tendency of MZ generations, who are strongly individualistic and desire respect for their own tastes and styles. Generation MZ is a neologism that encompasses Millennials, born in the early 1980s to early 2000s, and Gen Z, born in the mid-1990s to early 2000s, when the internet became widespread, and are digitally savvy and interested in public issues due to the financial crisis or pandemic at the time they entered the workforce. The MZ generations prefer individual happiness over group and sharing over ownership. They also choose items with social value or special message based on their taste than price, to express their beliefs. For college students with such tastes, the virtual metaverse space provides a place where students express themselves through an object called an avatar, move wherever they want in the virtual space, and communicate freely with others. In such a space, however, students may feel both freedom and fear, so they need proper guidance and guidelines from the teachers.

Second, the roles of the professors were not to lead or teach the class, but to guide and support the students to talk, interact, and engage with each other to improve their performance. The teachers play a critical role in helping students learn and grow, and facilitation is the process of facilitating conversation and interaction between participants and supporting them to achieve their goals. In this process, the professors were able to provide an environment for students to share and discuss their learning experiences and guide them to find their own ways of learning. Furthermore, as a facilitator, the teachers could act as an advisor for the appropriate interventions and problem-solving necessary for students to achieve the goals they set. This allowed students to take ownership of their own growth and increased their sense of responsibility for their learning.

Third, the research participants showed internal changes by participating in the class with active learning motivations. In conventional offline classes or online classes, students somehow felt tired or isolated because they had to face only certain direction. On the other hand, the metaverse space allowed the students to feel psychological freedom and pleasure by entering their own virtual space and using their avatars as they like. In addition to the freedom of spatial movement, there were many ways to communicate and express emotions in this space, allowing them to actively communicate with people around them or with a specific person. These features motivated students to participate in the class with more active learning.

Fourth, the external changes in the participants' learning of media English through the metaverse-based facilitation shared numbers of common features. In the metaverse-based class, the students became active learners by taking class in the virtual space they created, instead of a pre-made classroom space. The students also enjoyed group meeting by creating the space with various objects and using private setting option. Still, there were also some students who attended in the form of negligence and apathy in their own space. It shows that such a teaching method may be more effective when it is systematically conducted with appropriate facilitation by the professor according to the active tendency and learning goals of the learners.

Based on the discussion and interpretation of the results of this study, the following suggestions and implications are made. There are advantages and disadvantages of using metaverse-based facilitations to teach English to college

students. The first advantage is that metaverse and Gather.town provide an environment that is similar to the real world and provides situations in which English must be used in practice. By communicating and interacting in English in a virtual space, students can improve their real-world English language skills. This reflects the findings of Byun (2023), who stated that the planning of storytelling in the metaverse is the structure of the platform that maximizes experiential storytelling.

Secondly, both the metaverse and Gather.town emphasize visual elements and interaction. Students can visually learn new words, grammar, cultural aspects, etc. through various simulations, virtual experiences, etc. in the virtual space. This can be very engaging and motivating to learn English.

On the other hand, the limitations of using metaverse-based facilitations in college English classes can be as follows. First, there are certain technical requirements for using a metaverse. Students need to familiarize themselves with the platform and how it works, and they need to be equipped with devices and an internet connection. Some students may struggle with the technical requirements and accessibility limitations. This is consistent with the findings of Bae et al. (2022), who reported that participants in an English speaking training program were “interested” in the implementation of the metaverse, and that learning about the metaverse, such as watching videos and using avatars, allowed them to become more immersed in the training program, but it would be important to provide specific guidelines on how to operate and make errors.

Second, virtual facilitation may have different limitations on interaction and feedback than face-to-face situations. For example, it may be difficult to point out pronunciation or intonation in real time, or to fully reproduce non-verbal cues. This can make it difficult to provide appropriate feedback and assessment for students' development. Considering the difficulty of interaction and feedback between instructors and students in most metaverse-based education, S. H. Lee (2022) suggests that contactless coding education can provide feedback by allowing instructors and students to share and view coding screens in a three-dimensional virtual space, and instructors can directly correct students' source code through remote control.

Considering the above advantages and disadvantages, university students' English classes using metaverse-based facilitation should be organized appropriately by comprehensively considering educational goals, learners' needs, and technical ease. In the future, when using metaverse-based facilitation to teach English to college students, professors should fully fulfill their role as facilitators, providing students with prior education and active support for the new teaching method. In addition, learner-centered learning based on metaverse will play a role and function in eliciting students' spontaneous participation, cooperation and interaction, and performance when appropriate facilitation is provided according to learners' disposition and situation.

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APPENDIX

Description of Gather.town Functions

1. What is Gather.town?

Gather.town is a video conferencing platform with metaverse elements. People in Gather.town can turn on their cameras and microphones and communicate with each other only when they want to. There are three main features of Gather.town.

1) Fluid (free flowing) video chat

You can video chat in a natural environment, just as you would if you were walking around and talking to people (something that other video conferencing platforms lack!).

2) Utilize a variety of objects

In addition to chatting, you can utilize various objects such as whiteboards, TVs, games, and more for brainstorming or icebreaking.

3) Customization

With just a few clicks, you can customize your space to look like a workspace, party venue, rooftop, or whatever you want.

4) One more thing: it's available right on the web, no downloads required, so anyone can join without signing up if they have an invitation or a Gather.town address.

2. How to use Gather.town

Rather than tell you how to create and run a space in Gather.town, we're going to show you how to get involved and utilize the features to get the most out of Gather.town.

1) Starting Gather.town

Type the address you want to enter your internet address bar. You don't need to be a member of Gather.town to use the Gather space, you just need to customize your avatar, set a name that appears above it, and you're ready to go. If you don't have your avatar set up correctly, don't worry. Just tap the center of the screen to redesign your avatar and change your name.

2) Screen Settings

On the left, you'll see a list of people who are currently in the Gather.town space. Click on the bubble on the left to see the chat.

Three ways to chat

① Nearby: Send a message only to people who are nearby.

② Everyone: Send a message to everyone in the space

③ Specific: Send a message (DM) to a specific person.

3) Control Methods

① You can easily move your avatar with the keyboard arrow keys. By default, you can't pass through other avatars. If you can't because there are too many people, try pressing the 'G' key. You will become invisible and can move around as you wish.

② Press the 'X' key to access objects planted inside. When you're near an object, it will be colored yellow, and you can press X to see its contents. Feel free to use the whiteboard, Tetris game, etc. provided by Gather.town.

③ Spartan Coding Club Gather.town has hidden things like Easter eggs (hidden messages or features). Don't just pass by the objects in the space as decorations, press X to reveal them. You might be greeted with a fun message like the one in the image above!

④ By pressing the number keys 1 through 6, you can also express various emotions with emoticons. Here's an image of the oath I took during the OT for my college pyrotechnics class, and everyone is reverently taking the oath with a hand emoji!

⑤ Finally, pressing the 'Z' key will make a cute little heart pop and dance above your avatar's head. Let's all dance and have fun in Gather.town.

4) How to video chat

Do you want to video chat with people like Zoom? Go near the avatar of the person you want to talk to. They'll automatically turn on their camera and microphone so you can talk to them. Of course, you can also turn the audio and screen on and off. You can also change the mode to adjust.

① Available Mode: Your microphone and camera will always be on, even if you tap other tabs.

② Work Mode: If you go to another tab, your microphone and camera will be turned off. But you're still connected to people.

③ Busy Mode: If you go to another tab, your microphone and camera will be turned off, and you won't be able to connect with people when they come near you. In this case, you can receive notifications when they ring you.

5) Find people

Can't you find someone because there are too many people or Gather.town is too big? Find them in the people list and right-click on them. 'Locate on Map' will show you their location, and 'Follow' will automatically move your avatar in front of them. Don't waste time wandering around uncomfortably!

Now that you know how to use Gather.town, you can interact with people in Gather.town with cute avatars, video chat only when you want to, and make your communication much more lighthearted. It's a gamification twist on video chat that's sure to be a lot of fun.