RESEARCH ARTICLE

Learning Techniques Using Study With Me: Focus on Motivational Orientations, Learning Competency, and Digital Literacy

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ABSTRACT The 'Study with Me' learning technique is a new Z-generation online learning approach that has gained popularity. Still, there is a lack of understanding regarding the characteristics of its using learners. This study aimed to identify the characteristics of 'Study with Me' learners and investigate how their motivational orientations influence their learning situations (learning time, learning place), learning competencies, and digital literacy. A survey was conducted with 384 'Study with Me' learners, categorized into three groups based on their motivational orientations: goal-oriented, learner-oriented, and activity-oriented. The results showed that most learners were goal-oriented, and there were significant differences in learning competency and digital literacy among the three groups, with the learner-oriented group having the highest levels. Goal-oriented learners' learning time is the longest. This study confirmed the differential use patterns of 'Study with Me' according to learning motivation. These findings can inform the design of new learning approaches and support services to improve learners' outcomes using the 'Study with Me' learning technique.

INDEX TERMS Learning technique, motivational orientations, learning situation, learning competency, digital literacy.

I. INTRODUCTION

The popularity of online learning techniques, including YouTube and Social Network Sites (SNS), for educational purposes has increased significantly in recent years [1], [2]. YouTube offers a vast range of information and resources that are easily accessible and free of cost, making it a highly attractive platform for learners. In addition, many leading universities worldwide have made their lectures available on YouTube, further increasing the platform's credibility as a valuable learning resource [3].

The COVID-19 pandemic has also led to a surge in online learning and has provided learners with an opportunity to use YouTube as a self-learning management tool [1], [3]. The "Study with Me" trend on YouTube, in which YouTubers share their learning process with subscribers or viewers, has gained popularity as it offers an interactive and open environment for learners. The impact of these videos on learners' outcomes may not be fully explained by the existing cognitive science learning theory [4], which focuses on active processing through dual channels.

This study aims to investigate the differences in learning condition (learning time and place), learning competency and digital literacy among learners with different motivational orientations in "Study with Me". Motivational orientation is

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essential in determining learners' participation in online and offline learning communities [5], [6]. It can also influence learners' persistence in the learning process and their ability to overcome obstacles [7].

The "Study with Me" approach emphasizes learner autonomy, allowing learners to choose their learning strategies and process without restrictions or boundaries. However, learners with low autonomy may struggle to concentrate on the learning process, affecting their learning outcomes. This study aims to explore the participation patterns of learners with high autonomy in "Study with Me" based on their motivational orientation, which is embodied in goal orientation, learner orientation, and activity orientation [5], [7]. Moreover, using YouTube or SNS for learning is more akin to entertainment or social activities that relate to people, necessitating an examination of learners' motivational orientations [14].

Furthermore, this study identifies the characteristics of "Study with Me" learners based on their learning competency, which is the level of individual learning outcomes [8]. Learning competency can significantly influence learners' job performance and success [9]. This study aims to examine the learning capabilities of "Study with Me" learners based on their motivational orientations, as previous studies have reported differences in learning competencies depending on the type of motivational orientation [10].

Lastly, learners must possess a certain level of digital literacy to access "Study with Me" and actively participate in learning activities [11]. Digital literacy is the skills to access information and use digital devices effectively. However, learners' digital literacy levels may differ depending on various factors, such as gender, age, and education [12], [13].

This study aims to identify "Study with Me" learners' characteristics according to their motivational orientations and examine the differences in learning competency and digital literacy according to motivational orientations type. These findings may inform the development of learning techniques using "Study with Me" or the derivation of educational interventions and support plans that consider learners' characteristics in learning activities [11].

II. THEORETICAL BACKGROUND
A. STUDY WITH ME
'Study with Me' was first popularized in Korea and has since gained traction worldwide. It was even selected as one of the YouTube culture trends, and the number of video views with the keyword 'Study with Me' in 2020 increased by 54% compared to 2019 [1]. In these videos, the YouTuber shares their learning process and shows themselves studying, whether it be by flipping pages, taking notes, or working on a computer [1] (see Figure 1). While some 'Study with Me' videos feature the YouTuber speaking or showing their face, many videos are just hours-long streams of the YouTuber silently studying, often even hiding their faces [1], [3]. These videos vary in terms of face disclosure, learning environment, and background sound, but they commonly include
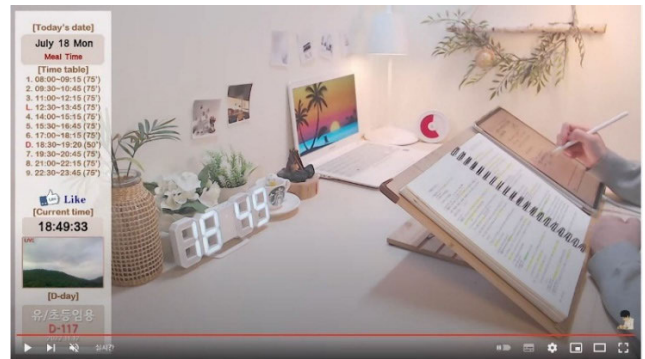

FIGURE 1. A screenshot of a study with me video Retrieved from https://www.youtube.com/watch?v=IkFHK7Hg8CY (2023.07.22).

a timer for time management, quietness and concentration for learning, and natural background sounds (e.g., typing, paper flipping, raindrops) [15]. In particular, the timer plays a role in the powerful learning management of Study with Me. Most of the contents are studied for about 40 minutes and have a break of about 20 minutes by applying the Pomodoro learning technique. YouTubers are repeating this 5-8 times a day, making it a long learning time.

'Study with Me' appeals to its interactivity, learning sustainability, and immediate connectivity and convenience. By sharing their learning process with others, learners can affect and support each other's learning, promoting a sense of community and growth [1], [3]. The emphasis on strong time management in 'Study with Me' videos also supports sustainable learning. Finally, learners can digitize and share their learning activities, subscribing to YouTube channels for continuous access to free information that can be used at anytime and anywhere.

B. MOTIVATIONAL ORIENTATION
Motivational orientation drives learners' interest in self-directed learning and provides "purposes and values of continuing education" [5], [16]. In this study, motivational orientation is defined as a reason or purpose for which learners participate in learning [5], [16], and it was related to the initial goal for participating in 'Study with Me'. It is divided into 3 types of learners: goal-oriented, activity-oriented, and learning-oriented [5], [16]. Their characteristics are summarized in Table 1. Goal-oriented learning aims to achieve learning goals and focuses on the process by which learners learn for a specific objective or purpose. Learning-oriented learning involves habitual activities conducted due to "the desire to know" and focuses on the process by which learners learn for learning as an end, enjoyment. Activity-oriented learning wants to establish friendships and romantic relationships with colleagues in the social aspects of learning and focuses on the process by which learners learn for social purposes and human contact [5], [7], [16].

Previous studies have reported different outcomes by the type of motivational orientation according to the learning

TABLE 1. Summarized characteristics of Houle's typology classifications (Bulluck, 2017, p. 14).

Orientation	Characteristics
Goal-oriented learning	Begins with the realization of a need or interest
	Not steadily or continuously involved in learning
	Not restricted to any activity, to one institution, or method of learning
	Need or interest appears to be satisfied by taking a course, joining a group, reading a book, or going on a trip
Learner-oriented learning	Joins groups or classes for educational reasons
	Has a constant goal rather than continuous
	An avid reader since childhood
	Selects serious programs on television
	Job selected for potential growth
	Trips planned out for what to see
	Desires to know
	Preoccupied with learning
	Learning is their way of having fun
	Self-concept that they are different from others
Activity-oriented learning	Participates socially to meet people and make friends
	Seeks to find a husband or wife, credit, escape problems, carry on traditions or meaningless activity
	Part of heritage
	May not say the truth about motives to learn
	Finds success in coursework and not a job

environment and context. Formanek et al. examined the learning achievement based on learning participation reasons and motivation of 3,701 learners who completed the 'Astronomy: Exploring Time and Space' of the Massive Open Online Course (MOOC) [9]. Self-determination and self-efficacy rather than age or career influenced motivational orientation, and learners with high learning achievement had higher learning motivation and self-determination. In particular, the reason for the learner's motivational orientation showed a significant relationship with course engagement. Overall, 37.2% of learners aimed to acquire qualifications and specifications on related topics rather than make friends or take the course according to the instructor's reputation. Online learning learners are related to goal-oriented or learner-oriented learners, meaning many learners attach meaning to achieving a goal or learning. Kim and Lim also found that learner-oriented and activity-oriented learning affected learning satisfaction in 90 learners [17]. On the other hand, in a study by Ko and Lee targeting 81 learners who participated in an SNS-based learning community, only activity-oriented learners predicted the intention of knowledge sharing [6].

The results of previous studies also predicted that learners would have different motivational orientations and processes for learning participation. Learning participation and behavior appear in various ways depending on motivational orientation. It is essential to understand the learner types of motivational orientation to examine the learning patterns of 'Study with Me.' Understanding learners' motivational orientation types can support learning solutions. To this end, it is necessary to observe the characteristics of 'Study with Me' learners and to derive generalized results based on motivational orientation.

C. LEARNING COMPETENCY

Competency is defined as "not only the traditional cognitive skills and knowledge (e.g., reading, writing, and calculating skills)" but also the personality variables "that are more generally useful in clusters of life outcomes" [18]. Competency is an internal trait that allows an individual to achieve excellent performance in a particular area [8]. This study defined learning competency as applying, analyzing, creating, and evaluating the knowledge acquired in the learning process beyond the remembering and understanding required for academic success.

This study, which dealt with the digital learning environment, used Kim and Jung's learning competency instrument developed based on Bloom's revised classification and digital classification [8]. Bloom's Taxonomy is a classification of educational learning objectives educators set for students. Kim and Jung [8] treated Bloom's Taxonomy as a learning outcome. The learner's learning competency was measured as a outcome of learning [8]. A hierarchical structure characterized early Bloom's taxonomy. The revised taxonomy had 3 significant changes: (a) the category of thinking ability was named as a verb form, (b) synthesis was deleted, and (c) order was rearranged: creating was placed as a higher cognitive domain than evaluating (see Table 2). Churches [19] also proposed a digital taxonomy by considering digital factors in Bloom's revised Taxonomy to explain the learning activity using information and communication technology [19]. The digital taxonomy does not presuppose a hierarchical order in the learning process.

TABLE 2. Bloom's taxonomy and revised digital taxonomy.

Original		Bloom's Revised Digital Taxonomy
High-order thinking skills		Digital Activities
Evaluation	→ Creating	Programming, Filming, animating, videocasting, podcasting, mixing and remixing, Directing and producing, Publishing
Synthesis	→ Evaluating	Blog/vlog commenting & reflecting, Posting, Moderating, Collaborating and networking, Testing (Alpha and Beta), Validating
Analysis	→ Analyzing	Mashing, Linking, Reverse-engineering, Cracking
Application	→ Applying	Running & Operating, Playing, Uploading & Sharing, Hacking, Editing
Comprehension	→ Understanding	Advanced searching, Boolean searching, Blog Journalling, Categorizing & Tagging, Commenting & Annotating, Subscribing
Knowledge	→ Remembering	Bullet Pointing, Highlighting, Bookmarking, Social networking, social bookmarking, Searching, Favoriting/Local bookmarking, Googling
Lower order thinking skills		

Adapted from Churches (2010) & Wilson (2016)

In general, learning outcomes, attitudes, preparation, and other learning factors differ according to the learner's learning competency level [10]. Therefore, it is necessary to

approach the learning support strategy differently according to the competency level of the learner. This study also examined differences in learning competency according to learners' motivational orientations and tried to differentiate learning support strategies accordingly.

D. DIGITAL LITERACY

Digital Literacy is an umbrella for several complex and integrated sub-disciplines or ''literacies'' comprised of skill, knowledge, ethics, and creative outputs in the digital network environment [20]. Early digital literacy is the ''ability to understand the information in the digital age'' [21]. Still, the concept has been expanded to include survival skills that every member of society must have [22].

The sub-disciplines of digital literacy are summarized in Table 3. ICT (Information & Communication Technology) literacy was used in the same sense as digital literacy [23]. However, in this study, digital literacy was defined as a high-level concept that encompasses the skill to collect, transmit, and utilize information and the ability to re-create content by freely utilizing technology. Therefore, we used the instrument of Ustundag et al. [24], which includes all sub-disciplines of digital literacy, considering the characteristics of 'Study with Me.'

Digital literacy, which is closely related to daily life, is different depending on various factors, e.g., the use of ICT [25], digital efficacy, job fit [12], career [13], learning performance, and effort expectations [26]. Therefore, 'Study with Me' learners who engage in digital-based learning by themselves want to check whether they have the characteristics of digital literacy according to their motivational orientation.

E. RESEARCH QUESTION

Our study investigated learners' character building through the 'Study with Me' to offer insights to educators and researchers into changing learning technique. The research questions are as follows.

1. What are the characteristics of the motivational orientations of 'Study with Me' learners?

2. How does 'Study with Me' learners' learning situation (learning time, learning place) depend on their motivational orientation?

3. How do 'Study with Me' learners' learning competency differ according to their motivational orientations?

4. How do 'Study with Me' learners' digital literacy differ according to their motivational orientations?

III. METHOD

A. PARTICIPANTS AND PROCEDURE

Online-based surveys assessing 'Study with Me' learners' learning situation, competency, and digital literacy were distributed and collected in 2022. The study participants were over 18 years old YouTube 'Study with Me' users in Korea who had graduated from high school. YouTube creator who operates 'Study with Me' content supported our survey.

TABLE 3. Sub-disciplines of digital literacy.

Sub-Discipline	Definition
Information Literacy	Finding and locating sources, analyzing and synthesizing the material, evaluating the credibility of the source, using and citing ethically and legally, focusing on topics and formulating research questions in an accurate, effective, and efficient manner (Eisenberg, Lowe, and Spitzer, in Meyer et al., 2008, p. 2)
Computer Literacy	An understanding of how to use computers and application software for practical purposes (Martin and Grudziecki, 2006)
Media Literacy	A series of communication competencies, including the ability to access, analyze, evaluate, and communicate information in a variety of forms, including print and non-print messages (Alliance for a Media Literate America, 2010)
Communication Literacy	Learners must be able to communicate effectively as individuals and work collaboratively in groups, using publishing technologies (word processor, database, spreadsheet, drawing tools...), the Internet, as well as other electronic and telecommunication tools (Winnepeg School Division, 2010)
Visual Literacy	The ability to 'read,' interpret, and understand the information presented in pictorial or graphic images; the ability to turn information of all types into pictures, graphics, or forms that help communicate the information; a group of competencies that allows humans to discriminate and interpret the visible action, objects, and/or symbols, natural or constructed, that they encounter in the environment (Stokes, 2002)
Technology Literacy	Computer skills and the ability to use computers and other technology to improve learning, productivity, and performance (U.S. Department of Education, 1996)

Adapted from Covello & Lei (2010). p.4.

The Hanshin University Institutional Review Board (IRB) of the researchers' university approved the study (2022-01-001), and before the commencement of the study, all participants returned signed informed consent forms, which specified the purpose of the study, the participants' roles in data collection, and the confidential and voluntary nature of the research.

Participants were recruited using convenience sampling methods. Three hundred eighty-four learners responded to the survey. The survey ended only after all questions were answered; therefore, we did not have any missing responses. Demographic characteristics are shown in Table 4. More females (303 responses, 78.9%) participated than males (79 responses, 20.6%). Most respondents belonged to the 25-29 (160 responses, 41.7%) age group, followed by 20-24 years old (155 responses, 40.4%) and over 30 years old (53 responses, 13.8%). Regarding the years of education, 52.6% were college graduates.

B. MEASURES

Two instruments (learning competency and digital literacy) were revised from various existing instruments and adapted to fit the current study. Table 5 presents the original measures, items implemented in this study, and Cronbach's alphas of

TABLE 4. Demographic characteristics.

Variables		Total	
		N	%
Gender	Male	79	20.6
	Female	303	78.9
	Etc.	2	.5
Ages	18-19	16	4.2
	20-24	155	40.4
	25-29	160	41.7
	Over 30	53	13.8
Education	Graduate or attend high school	31	8.1
	Attend college	124	32.3
	Graduate college	202	52.6
	Graduate or attend graduate school	27	7.0
	Total	384	100.0

TABLE 5. Measurement scales.

Variables	Source	Sub Element	Items	Reliability	
				Original	Current
Learning competency	Kim & Jung (2020)	Remember & understanding	9	.81	.81
		Applying & analyzing	10	.91	.88
		Creating and evaluating	8	.85	.89
Digital literacy	Ustundag et al. (2017)		10	.86	.90
		Total 37 items			

modified scales. The questionnaire utilized a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

For learning competency, the instrument of Kim and Jung [8] was divided into remembering & understanding (e.g., I know what the most critical point of learning is.), applying & analyzing (e.g., When I have difficulties in learning, I can find various solutions), and creating & evaluating (e.g., I use my knowledge to produce creative learning outcomes.) [8]. This instrument comprised 27 questions. Remember & understanding comprised 9 items, with a KMO value of .852 and Bartlett's sphericity value of 874.54 ($p = .00$). Cronbach's α was .81 for the original measure and .81 for the modified version used in this study. Applying & analyzing comprised ten questions, with a KMO value of .919 and Bartlett's sphericity value of 1,449.81 ($p = .00$). Cronbach's α was .91 for the original tool and .88 for the version used in this study. Creating & evaluating contained ten items, with a KMO value of .92 and Bartlett sphericity value of 1,234.07 ($p = .00$). Cronbach's α was .85 for the original tool and .89 for the version in this study.

Digital literacy was measured using Ustundag et al.'s instrument [24]. This 10-items (e.g., I know about a lot of different technologies.) instrument contains a single factor. KMO value was .930, and Bartlett's sphericity value was 1,997.78 ($p = .00$). Cronbach's α was .86 for the original scale and .90 for the version used in this study.

One question assessed motivational orientation and learning situation (learning time, learning place). The motivational orientation question was, 'What motivates you to participate in 'Study with Me'?' The learning time question was, 'How many hours a day do you study?' The learning time question was, 'Is your study place flexible or fixed?'

C. STATISTICAL ANALYSIS

The collected data were analyzed in the following order. First, Cronbach's α was obtained to verify the reliability of each measurement scale. Second, frequency analysis was conducted to confirm the learner types according to motivational orientations. Third, cross-analysis was conducted

based on the socio-demographic characteristics and the learning situation to understand each type's characteristics. Fourth, one-way ANOVA and Scheffe tests were used to assess the differences between learning competency and digital literacy in motivational orientations. All data analysis was performed in SPSS; the significance level was .05.

IV. RESULTS

A. DEMOGRAPHIC CHARACTERISTICS ACCORDING TO MOTIVATIONAL ORIENTATIONS

The proportions for each motivational orientation type are shown in Table 6. Overall, 63.5% of 'Study with Me' learners were a goal-oriented group, studying for an exam, career, certification, and the like. Furthermore, 20.3% of 'Study with Me' learners belonged to a learner-orientated group. Lastly, 16.1% of 'Study with Me' learners belonged to an activity-oriented group that recognized social relationships as meaningful.

TABLE 6. Demographic characteristics according to motivational orientations.

Variables		Goal		Learner		Activity		Total		χ^2
		N	%	N	%	N	%	N	%	
Gender	Male	44	18.0	23	29.5	12	19.4	79	20.6	
	Female	200	82.0	54	69.2	49	79.0	303	78.9	5.05
	Etc.			1	1.3	1	1.6	2	.5	
Ages	18-19	13	5.3			3	4.8	16	4.2	
	20-24	100	41.0	36	46.2	19	30.6	155	40.4	12.56
	25-29	104	42.6	31	39.7	25	40.3	160	41.7	
	Over 30	27	11.1	11	14.1	15	24.2	53	13.8	
Education	High school	23	9.4	2	2.6	6	9.7	31	8.1	
	Attend college	81	33.2	29	37.2	14	22.6	124	32.3	
	Graduate college	128	52.5	38	48.7	36	58.1	202	52.6	11.13
	Graduate school	12	4.9	9	11.5	6	9.7	27	7.0	
Total		244	100	78	100	62	100	384	100	

*$p < .05$

We examined the characteristics of each motivational orientation type according to demographics using cross-analysis (see Table 6). The difference ($p > .05$) in the characteristics of each motivational orientation type according to demographics was non-significant. Regarding gender, 82.0% of females

were in the goal-orientated group, which is more than the average of 78.9%. In the learner-oriented group, 60.3% were males, more than the average of 20.6%. Activity-oriented group shows a distribution similar to the mean distribution. Regarding motivational orientations according to age, 42.6% of the goal-oriented group was in the mid to late 20s. In addition, learners in their 30s and older were widely distributed in the activity-oriented group, and those in their early 20s were widely distributed in the learner-oriented group. The activity-oriented group contained mostly college graduates. Undergraduate and graduate students were mostly in the learner-oriented group, but only a few high school graduates were in the learner-oriented group.

B. LEARNING SITUATIONS ACCORDING TO THE MOTIVATIONAL ORIENTATIONS

Table 7 summarize the specific learning situation for each motivational orientation type. We examined learning time and place characteristics according to motivational orientations. The difference in type according to learning time was significant ($\chi^2 = 43.85$, $p < .05$). About 50% of goal-and activity-oriented learners studied 5-8 hours daily. Learning time was evenly distributed in the learner-oriented group, and most learners (25.6%) studied for 2-3 hours. Most 'Study with Me' learners also learned in a fixed place. This difference in type according to learning place was non-significant ($\chi^2 = 2.49$, $p > .05$). Compared to the goal-oriented and activity-oriented groups, the learner-oriented group used the learning place flexibly. Specifically, the characteristics of each group according to demographics were examined. Females were more goal-oriented while men were more learner-oriented.

TABLE 7. Learning situations according to motivational orientations.

Variables		Goal		Learner		Activity		Total		χ^2
		N	%	N	%	N	%	N	%	
Hours in a day	-1	9	3.7	11	14.1	1	1.6	21	5.5	43.85*
	1-2	33	13.5	15	19.2	5	8.1	53	13.8	
	2-3	25	10.2	20	25.6	11	17.7	56	14.6	
	3-5	47	19.3	15	19.2	8	12.9	70	18.2	
	5-8	117	48.0	15	19.2	31	50.0	163	42.4	
	8-	13	5.3	2	2.6	6	9.7	21	5.5	
Place	Fixed	170	69.7	47	60.3	43	69.4	260	67.7	2.49
	Flexible	74	30.3	31	39.7	19	30.6	124	32.3	
Total		244	100.0	78	100.0	62	100.0	384	100.0	

*$p < .05$

C. LEARNING COMPETENCY AND DIGITAL LITERACY ACCORDING TO MOTIVATIONAL ORIENTATIONS

The difference between learners in motivational orientations was confirmed (see Table 8).

First, all differences in total learning competency, remember & understanding, applying & analyzing ($p < .05$) were

TABLE 8. Estimation results of invariance.

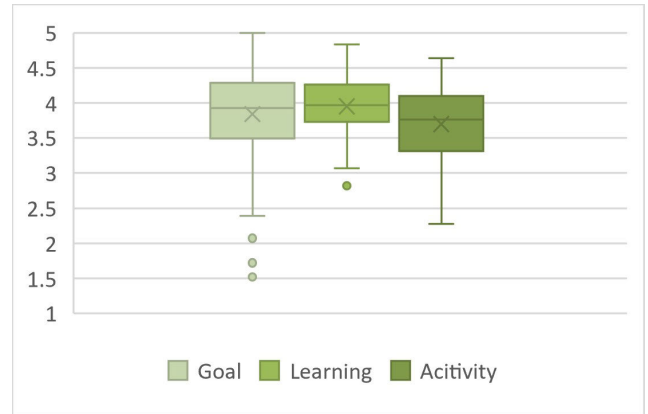|	Goal (a)	Learner (b)	Activity (c)	Total	F	Scheffe
LC	3.84	3.95	3.70	3.84	3.54*	c< a, b
R & U	4.14	4.15	3.96	4.11	3.53*	c < b
A & A	3.59	3.79	3.44	3.61	3.64*	c < b
C & E	3.79	3.93	3.69	3.80	2.39	
DL	3.47	3.73	3.54	3.54	3.32*	a < b

*$p < .05$

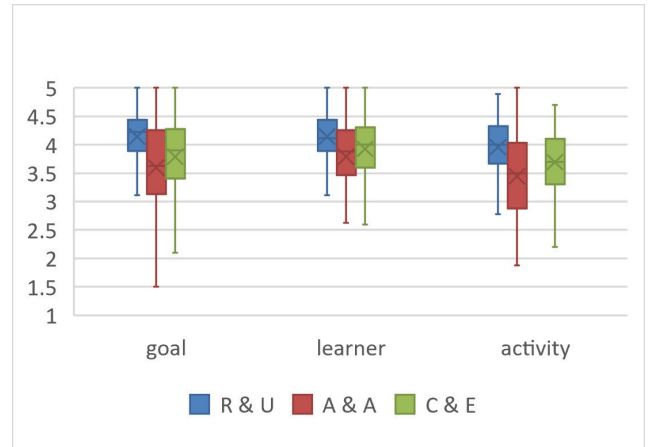**FIGURE 2.** Comparison of learning competency.

FIGURE 3. Comparison of sub-learning competency R & U: Remember & Understanding, A & A: Applying & Analyzing, C & E: Creating and Evaluating.

significant except for creating and evaluating ($p > .05$) see Figure 2).

The average of remembering & understanding was lower in the learner-oriented, goal-oriented, and activity-oriented groups (see Figure 3). Scheffe results showed that it was significantly lower in the activity-oriented group compared to the other two groups. The average of applying & analyzing and total learning competency decreased in the order of learner orientation, goal orientation, and activity orientation.
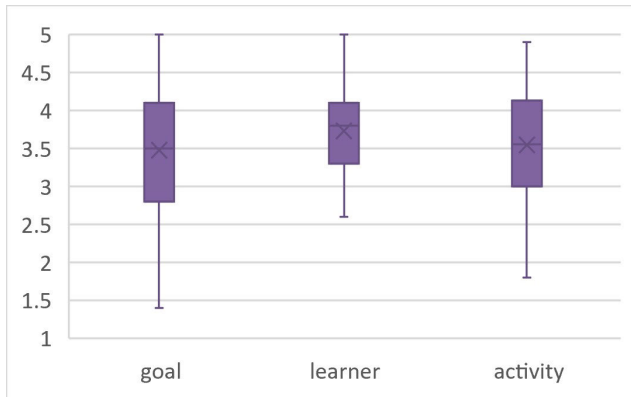
FIGURE 4. Comparison of digital literacy.

Scheffe results show that it was significantly lower in the activity-oriented group than in the learner-oriented group.

Finally, the difference between the types in digital literacy was significant ($p < .05$) (see Figure 4). Learner-oriented group scored the highest on recognition of digital literacy, significantly higher than the goal-oriented groups.

V. CONCLUSION AND DISCUSSION

The present study aimed to identify and understand the characteristics of "Study with Me" learners, a novel learning technique that has gained popularity in recent years. The results revealed that participants could be classified into three motivational orientation groups: goal-oriented, learner-oriented, and activity-oriented, based on their demographic, learning situation, learning competency, and digital literacy. The findings suggest that different learning support strategies should be employed based on these groups.

First, the motivational orientations of 'Study with Me' learners were studied. Most participants were in the goal-oriented group, followed by the learner-oriented and activity-oriented groups. The groups did not differ by age, gender, or educational background. However, the difference in learning time was significant. Learners in the goal-oriented group have distinct goals for learning, such as preparation for a job, senior civil service exam, and professional certification. Most learners studied for more than 5 hours, and 52.5% were university graduates looking for a job. The problem of youth employment difficulties in Korea is protracted. As of 2020, the youth employment rate of university graduates was 75.2%, the 31st among 37 OECD countries [27]. They used 'Study with Me' to achieve their goals in this situation.

Learners in the learner-oriented group used 'Study with Me' to improve their learning. Learners in this group learn for the sake of learning to explore the knowledge and participate in classes currently enrolled in a university or graduate school. Most learner-oriented learners studied 2-3 hours a day. They were willing to continuously use 'Study with Me' for learning.

Learners in an activity-oriented group, which focuses on doing activities with others, found the meaning of relationships with others in an isolated learning environment cut off from fellow learners after COVID-19. Most of them were also preparing to find a job. However, interaction with others was more important in their learning than achieving goals. They studied for more than five hours while watching other people learn without losing concentration while feeling secure. The conversation with the YouTuber and other learners in the live chat window was meaningful to them, increasing their motivation.

Overall, 70% of 'Study with Me' learners learned in a fixed place despite differences between groups with different motivational orientations in learning time. Previous research before COVID-19 revealed that the more learners learn in various or flexible learning places, the higher the distance learning outcomes [28]. After COVID-19, when online education became common, learning in fixed places and times seemed to improve learning outcomes compared to learning in the environment anytime, anywhere. Learning in a fixed learning place created strong motivation and positively affected concentration and learning outcomes [29]. In other words, most 'Study with Me' learners showed that learning in a fixed place was linked to the high environmental management aspect of self-regulated learning [12]. Therefore, 'Study with Me' positively affects learning outcomes through high learning management.

Second, learning competency differed across motivational orientations. All competency differences were significant except for creating and evaluating high-level learning competencies. Learner-oriented learners scored the highest on all components of learning competency, followed by goal-oriented and activity-oriented learners. This difference means that learning support strategies should be approached differently according to the motivational orientations of learners. Goal-orientated learners should be continuously reminded of their goals, supported in their learning, and visually show that they are contributing to achieving their goals. Some 'Study with Me' YouTubers applied a screen design strategy that counted the time to exam dates to remind them of their goals. Martín-del Pozo and Rascón-Estébanez confirmed the importance of remembering and understanding in exams [30]. Learning experts can suggest ways to help them with their memory and comprehension skills. The content of 'Study with Me' must reflect the interests of the learner-orientation types with high learning competency. Because they are interested in the learning technique, it is necessary to diversify the white noise or provide the real YouTuber's learning technique, like highlighting, linking, and writing notes on the 'Study with Me' contents. This research also supports previous findings suggesting that activity orientation did not substantially affect learning outcomes [31]. The results of this research emphasize the importance of learning outcomes for activity-oriented learners.

In addition, the hierarchical taxonomy is a cognitively high-level concept focused on remembering & understanding, applying & analyzing, and creating & evaluating. All group participants in this study scored lower on

applying & analyzing than on creating & evaluating. Like the existing empirical studies [32], which showed lower application & analysis than creating & evaluating, 'Study with Me' learners were higher on creating & evaluating. 'Study with Me' learners who value long-time learning and have high autonomy were higher on creating and evaluating learning competency than other learners, as they were open to investigating new learning techniques. Strategies are needed to strengthen their insufficient application & analysis. 'Study with Me' can provide learning techniques, including elements that foster applying & analyzing new learning techniques or an educational program.

Third, digital literacy differed significantly according to motivational orientations. Digital literacy decreased across groups in the order of learner orientation, activity orientation, and goal orientation. Different learning support strategies should be provided based on types of digital use, as the groups using various digital devices has higher digital literacy other groups. Learner-oriented learners actively seek ways to make their learning effective. Their digital literacy is high because they use various digital technologies to create learning support elements. Therefore it is necessary to provide them with various digital tools to maintain high learning motivation using digital literacy. Activity-oriented learners need to learn to use digital media to communicate with others more effectively. Learners who want to enhance their interaction with others, share with others, and be more active can use a YouTube online platform to strengthen motivation together 'Study with Me'. This content can use various techniques (e.g., time and place management) to promote digital literacy. Finally, goal-oriented learners demonstrated that digital media could be effectively applied to learning. Goal-orientated learners who gave up in the middle of learning with 'Study with Me' felt performance anxiety with new learning techniques. Therefore, it is necessary to verify and visually illustrate the learning achievement following participation in the 'Study with Me'.

This study attempted to understand 'Study with Me,' a new learning technique that emerged with the spread of digital technology. 'Study with Me' is a learning technique developed by the learners, unlike the existing learning techniques suggested by experts. Educational experts need to increase their understanding of 'Study with Me'. Further empirical studies are required to clarify the reasons for studying using 'Study with Me' and identify learners who could benefit from this technique.

Based on the results of this study, further research should assess the relationship between using 'Study with Me' and actual learning outcomes. This study was conducted with 'Study with Me' learners in Korea. This learning technique was introduced in Korea and spread to learners worldwide. Therefore, future studies could also assess how learners from various cultures utilize the 'Study with Me' contents. In particular, we will be able to address how 'Study with Me' empirically helps learners learn in terms of performance.

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