Exploring the effect of Learning Motivation type on Immersion According to the Non-Face-To-Face Teaching Method in the Major Classes for Preschool Teachers at Christian Universities*

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Abstract

This study verified the effect of learning motivation on immersion by non-face-to-face class method. For this purpose, 101 college students majoring in early childhood education were selected as research subjects. The average age of the study subjects was 22.6 years old, and 51 students took non-real-time non-face-to-face classes, and 50 students took real-time non-face-to-face classes. The study measured the level of immersion and the type of learning motivation after the non-face-to-face class was finished. The measured data were analyzed using descriptive statistical analysis and multiple regression analysis. As a result, in the results for all students, the performance approach goal had the most influence on immersion, and the mastery goal orientation had the next effect. Performance avoidance orientation had no effect. For students in non-face-to-face classes, performance approach goal orientation had an effect on immersion, and for students in real-time non-face-to-face classes, mastery goal orientation had an effect. The implications that can be obtained from the results of this study are as follows. First, non-real-time non-face-to-face classes should

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cover basic knowledge and skills so that there are no mistakes and failures. Second, non-real-time non-face-to-face classes should allow tasks with appropriate difficulty to be performed with a deadline. Third, real-time non-face-to-face classes should lower the fear of mistakes and failures.

Keywords

Non-face-to-face class, Post-coronavirus, Immersion, Learning motivation, Non-face-to-face class strategy

I. Introduction

Due to the prolonged COVID-19 outbreak, elementary, secondary education and university education are still facing a difficult situation. Due to the full-scale remote education operation, concerns about students' academic deficit and educational gap are continuously being raised. However, the COVID-19 crisis has made it possible to identify problems in the educational field, and it has also led to the improvement of the level of distance learning through various non-face-to-face teaching methods (Ministry of Education, 2020). Nevertheless, questions about the educational effect of non-face-to-face classes are still being raised (Kwon, 2020). In such a situation, it is judged that it is more necessary to discuss ways to operate non-face-to-face classes as effectively as possible rather than discuss the effects of non-face-to-face classes in a situation where the end of the COVID-19 situation is not guaranteed.

In such a situation, various studies on non-face-to-face classes have been conducted. First, there were studies to investigate
and improve the satisfaction and problems of remote classes due to COVID-19 (Al-Balas, Al-Balas, Jaber, et al., 2020; Bui, et al. 2020; Choi & Jen, 2020). There was also a study that performed FGI through a group of experts to find the most effective e-learning method (Alqahtani & Rajkhan, 2020; Do, 2020). There were opinions that distance learning was rather effective because students could save time through such a study, and there were opinions that the efficiency was lowered due to the lack of interaction with the instructor. Next, experts gathered opinions that blended learning, which uses ICT-based non-face-to-face real-time video classes and remote classes at the same time, is effective. In addition, the effect of non-face-to-face classes caused by Corona on students’ learning motivation was also investigated. As a result, it is reported that online non-face-to-face classes have a lower level of learning motivation than face-to-face classes (Kim, et al, 2020).

A number of various studies on classes have been conducted in relation to the COVID-19 pandemic. Through this, various teaching methods and strategies were also suggested (Cho, 2020; Park, & Lee, 2020; Dhawan, 2020; Kim & Na, 2021; Kang, 2021). However, it seems that very few studies have been conducted on learning motivation, which has a major influence on academic achievement. Learning motivation is evaluated as a variable with very high predictive power for academic achievement (Wood, 2004). In addition, it is through the influence of learning motivation that it affects academic achievement at a high level. Lee (2021)’s study reports that students’ academic achievement levels vary according to their level of immersion, and that they affect their interest level. It is judged that learning motivation and immersion are factors that have a major influence on academic achievement. Nevertheless, in order to
prepare for the post-corona era, it is judged very timely to examine the relationship between learning motivation and immersion in a non-face-to-face class situation. Accordingly, this study intends to derive the implications necessary for the operation and design of classes by examining the effect of the type of learning motivation on immersion according to the non-face-to-face class method.

II. Theoretical background

1. Non-face-to-face class

Non-face-to-face classes are used in a different concept from traditional distance classes, online classes, and e-learning. In particular, it is appropriate to understand non-face-to-face classes as a new concept that emerged due to the corona pandemic. The Ministry of Education (2020) suggested that non-face-to-face classes are “a concept that encompasses both simultaneous classes through real-time video classes and non-concurrent classes through video class materials based on the spatial and temporal characteristics of classes.” In conclusion, it would be appropriate to understand non-face-to-face classes as classes in which learners and instructors are operated separately in a physical space (Cho, 2020). In this case, temporal separation is not considered (Lee, 2018). It is defined as a non-face-to-face class even if the class is operated simultaneously through the real-time video system, and as a non-face-to-face class even if the class is operated asynchronously through a remote class video (Cho, 2020). In other words, if the
Instructor and the learner are spatially separated, it can be defined as a non-face-to-face class. However, it can be said that the non-face-to-face classes that emerged due to the corona pandemic are different from the existing concept of distance education in that they utilize Edutech with various digital technologies to maximize the effectiveness and efficiency of classes. It can be said that the characteristics of non-face-to-face classes are to maximize the interaction between the instructor and the learner by using various edutechs, and to increase the effectiveness of teaching and learning by enhancing the sense of social reality.

In such non-face-to-face classes, the roles of learners and instructors have changed significantly (Oh, 2020). In traditional classroom instruction, the instructor played the role of guiding the learner by suggesting the learning goal, planning and operating the course and schedule, and controlling the learning speed. Instructor-centered teaching and learning took place. However, in non-face-to-face classes, the instructor presents the learning goals, plans and operates the course and schedule, but participation in learning depends purely on the will and effort of the learner, and in some cases, the learner can freely control the speed of learning, became (Alqahtani & Rajkhan, 2020). Accordingly, the non-face-to-face class shifted the role and importance of the instructor to the student. At the same time, the problem of social presence, which had not been greatly emphasized in the classroom, appeared. In classroom instruction, the sense of social presence is perceived at a high level because the instructor and the learner are together in the same time and space. However, in non-face-to-face classes, teachers and learners are often spatially and temporally separated, resulting in a low sense of social presence, and a low
sense of social presence hinders learning motivation and immersion (Park & Seong, 2020). Due to these problems, continuous questions have been expressed about the effectiveness of non-face-to-face classes, and concerns about low-quality non-face-to-face classes persist. Therefore, it is judged that it is necessary to find a way to minimize the negative impact on learning motivation and immersion level that appears in non-face-to-face classes.

2. The relationship between immersion and learning motivation

The relationship between learning motivation and immersion is complementary and has a positive influence. This is because of the similarity between immersion and learning motivation. First, immersion refers to a state in which one is deeply immersed in a specific action, activity, or thought and is unaware of even a change in time. Csikszentmihalyi (1975) first presented the definition of immersion. In the case of immersion, he defined it as a psychological state in which a person shows preoccupation with a specific action at a higher level than the motive, and concentrates enough to forget about one’s existence and the actual situation. In other words, immersion focuses on specific behaviors and activities. And the concentration goes to a deeper level and eventually goes beyond the concentration to the point where it gets pushed. Therefore, when students are immersed in learning, they do not dwell on the good or bad of academic achievement, and they study without any special reward. And even if you fail, immersion doesn’t give up in frustration, you study until the end, and eventually you achieve achievement. Therefore, immersion
is a very important factor influencing academic achievement (Gyllenpalm, 2018).

Immersion, which has a positive effect on academic achievement, is influenced by various factors. Among them, learning motivation and influence are greatly influenced. This is due to the characteristics of learning motivation. Among learning motivations, self-efficacy and self-determination are factors related to students' not fearing failure, allowing them to take on challenges, and not giving up until the end (Milner, Templin, & Czerniak, 2011). In addition, among the achievement goal-oriented learning motivation types, the mastery goal-oriented type has the characteristics of being immersed in the learning activity itself, like the characteristics of immersion, and making an effort to achieve until the end without fear of failure. Accordingly, previous studies report that learning motivation has a positive effect on immersion. In other words, it can be interpreted that students with high learning motivation are immersed at a higher level in the learning situation. In addition, it can be judged that learners with mastery goal orientation can more easily enter the state of immersion (Wanga, et al. 2008). However, in previous studies, it was reported that the influence of learning motivation on immersion varies according to the difficulty of the task. It was found that the higher the task difficulty, the lower the influence of learning motivation on immersion (Lee, 2021). In view of these results, even in non-face-to-face classes, the influence of learning motives on immersion may be different in the class method that students perceive the difficulty to be high. Therefore, I think it is necessary to check the effect of learning motivation on immersion according to non-face-to-face class methods with different levels of difficulty. If we examine the difference in the effect of
learning motivation on immersion according to the non-face-to-face class method, it will be a new implication for class composition. Therefore, this study aims to verify the difference in the effect of learning motivation on immersion according to the non-face-to-face teaching method.

III. Research method

1. Inspection tool

A test tool was selected to measure the variables related to commitment. Each inspection tool is as follows.

1) Immersion

For immersion, we used the adult learning immersion scale developed by Kim, Tak, and Lee (2010). Immersion consists of 6 sub-factors and 20 items. All items are on a 5-point Likert scale, and the higher the measured score, the higher the characteristic of the sub-factor is interpreted. Details are shown in (Table 1).

<table>
<thead>
<tr>
<th>sub-factor</th>
<th>example question</th>
<th>number of questions</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear goals</td>
<td>• When I study, I set clear goals.</td>
<td>3</td>
<td>.80</td>
</tr>
<tr>
<td>focus on task</td>
<td>• When I study, I don’t think about anything else.</td>
<td>3</td>
<td>.81</td>
</tr>
<tr>
<td>sense of control</td>
<td>• When I study, I can do whatever I want.</td>
<td>3</td>
<td>.84</td>
</tr>
<tr>
<td>loss of</td>
<td>• When I study, I tend to concentrate</td>
<td>3</td>
<td>.77</td>
</tr>
</tbody>
</table>
For learning motivation types, we used A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and his colleagues (1991). Among the MSLQs, achievement goal orientation measurement items were used to measure the type of learning motivation. The type of learning motivation (achievement goal orientation) consists of 3 sub-factors, and 17 items. All items are on a 5-point Likert scale, and the higher the measured score, the higher the characteristic of the sub-factor is interpreted. Details are shown in Table 2.

Table 2: Contents of Learning Motivation Type Measuring Tool

<table>
<thead>
<tr>
<th>sub-factor</th>
<th>example question</th>
<th>number of questions</th>
<th>Cronbach's α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Approach Goal Orientation</td>
<td>• I work hard because I can show that I am smart through non-face-to-face classes.</td>
<td>6</td>
<td>.84</td>
</tr>
<tr>
<td>Mastery goal orientation</td>
<td>• I like being able to learn new things through non-face-to-face classes.</td>
<td>5</td>
<td>.82</td>
</tr>
<tr>
<td>performance avoidance goal orientation</td>
<td>• The reason I do not actively participate in non-face-to-face classes is because I am afraid of my incompetence.</td>
<td>6</td>
<td>.78</td>
</tr>
<tr>
<td>all</td>
<td></td>
<td>17</td>
<td>.83</td>
</tr>
</tbody>
</table>
2. Research procedures and non-face-to-face teaching methods

1) Research procedure
In order to explore the effect of learning motivation type on immersion according to the non-face-to-face class method, the study was conducted with the following procedure. In the two early childhood education major classes, one class operated non-face-to-face classes using remote class videos, and the other class operated non-face-to-face classes using real-time video conferencing system to operate real-time remote classes. After the 6-week class was operated, the type of immersion and learning motivation was measured using a measuring tool. For the survey for measurement, data were collected using an online questionnaire. Statistical analysis was performed on the collected data, and the analysis results were prepared in a report.

2) Non-face-to-face class method
The non-face-to-face teaching method was operated in two ways. The first method is a non-real-time remote class, and pre-produced class videos are loaded into the LMS (Learning Management System) so that students can take classes within a set period. Also, according to the guidelines of the Ministry of Education, the classes were made for more than 25 minutes, and additional learning activities were organized and performed. The period for taking the distance learning video is 7 days based on the class day.

The second method is a real-time remote class, in which students were allowed to access a real-time video conferencing system (ZOOM) at a set class time. Students have to access the
real-time video conferencing system at a set time, and the in-
structor checks students’ attendance and conducts real-time
non-face-to-face lectures. If you enter 15 minutes after class
starts, you will be considered tardy, and if you do not log in,
you will be considered absent. Real-time non-face-to-face lec-
tures were conducted in the same form as face-to-face lec-
tures, with the only difference being that only the classroom
environment was a real-time video conferencing system.

3. Research subjects and data analysis

1) Research subject
The subjects for this study were 101 college students major-
ing in early childhood education. The average age is 22.6 years
old, 48 third graders and 53 fourth graders. 51 students took
non-face-to-face classes in real time, and 50 students took re-
al-time non-face-to-face classes. The distribution of specific
research subjects is shown in <Table 3>.

<Table 3> Research subjects

<table>
<thead>
<tr>
<th>Division</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-real-time non-face-to-face class</td>
<td>26</td>
<td>25</td>
<td>51</td>
</tr>
<tr>
<td>Real-time non-face-to-face class</td>
<td>22</td>
<td>28</td>
<td>50</td>
</tr>
<tr>
<td>Sum</td>
<td>48</td>
<td>53</td>
<td>101</td>
</tr>
</tbody>
</table>

2) Data analysis
The data collected for this study were analyzed as follows.
First, the data were analyzed using descriptive statistical analy-
sis to verify the normal distribution of the collected data. Second,
in order to explore the effect of learning motive type on im-
mersion, immersion was set as a dependent variable, learning motive types were used as independent variables, and only variables with statistically significant influence were analyzed using a stepwise selection method during multiple regression analysis. Third, in order to examine the effect of the non-face-to-face class method, students who participated in the non-face-to-face class and those who participated in the real-time class were divided and analyzed using the stepwise selection method among multiple regression analysis.

IV. Results

1. Descriptive statistical analysis result

To verify the normal distribution of the measured variables, descriptive statistical analysis was performed. As a result, skewness was .224-.868. Next, the kurtosis was -.877-.872. Since neither skewness nor kurtosis exceed the absolute value of 2, it was verified that a normal distribution of the collected data was assumed. Accordingly, the following analysis procedure was performed.

(Table 4) Descriptive statistical analysis result

<table>
<thead>
<tr>
<th>Division</th>
<th>N</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immersion</td>
<td>101</td>
<td>3.15</td>
<td>.61</td>
<td>.225</td>
<td>-.052</td>
</tr>
<tr>
<td>Learning Motivation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Approach Goal</td>
<td>101</td>
<td>3.83</td>
<td>.42</td>
<td>.460</td>
<td>.872</td>
</tr>
<tr>
<td>Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole group</td>
<td>101</td>
<td>4.06</td>
<td>.67</td>
<td>.468</td>
<td>.631</td>
</tr>
</tbody>
</table>
Multiple regression analysis was performed to verify the effect of the type of learning motivation according to the non-face-to-face class. First, the effect of learning motivation type
on immersion was verified for all students regardless of class. Next, the effect of the learning motive type on immersion was verified by classifying the non-face-to-face class group. Finally, the effect of the learning motive type on immersion was verified by classifying the real-time non-face-to-face class group.

1) Validation of influence of learning motivation type on immersion for all students

Multiple regression analysis was performed to verify the effect of learning motivation type on immersion for all students. The results are as follow. First, for multiple regression analysis, three basic premises must be satisfied. First, the correlation between independent variables should not be large, and it is verified when the partial correlation coefficient does not exceed 1. Second, multicollinearity should not exist. The closer the tolerance limit (VIF) is to 10, the more multicollinearity is judged to exist. Third, the independence of the residuals must be secured. The independence of the residuals is judged by the Durbin-Watson coefficient, and when the coefficient is greater than 1.54, it can be assumed to have the independence of the residuals. Therefore, the basic premise was verified for multiple regression, and as a result, the partial correlation coefficient was .335, which was less than 1, the tolerance limit was 1.166, which was less than 10, and the Durbin-Watson coefficient was 1.792. Therefore, multiple regression analysis was performed. As a result, it was found that the performance approach goal type had 14% of explanatory power and had the greatest influence statically on immersion, and the mastery goal type had 4.4% of explanatory power and had a positive influence on it. Finally, it was found that the performance avoidance target type had no statistically significant effect.
2) Validation of the effect of learning motivation type on immersion in non-real-time non-face-to-face class students

Multiple regression analysis was performed to verify the effect of learning motivation type on immersion in non-real-time non-face-to-face class students. The results are as follows. As a result of multiple regression basic premise verification, the partial correlation coefficient was .424, which was less than 1, the tolerance limit was 1.000, which was less than 10, and the Durbin-Watson coefficient was 1.641. Therefore, multiple regression analysis was performed. As a result, it was found that the performance approach goal type had an explanatory power of 18% and had the greatest influence statically on commitment.

V. Conclusion and Suggestions
This study was conducted to explore the extent to which the type of learning motivation affects immersion by the method of non-face-to-face class. For this purpose, the effect of learning motivation type on immersion was analyzed for all students, and non-real-time non-face-to-face classes and real-time non-face-to-face classes were analyzed separately. As a result, in the analysis of all students, it was found that among the types of learning motivation, the performance approach goal type and the mastery goal type had a positive effect on immersion. In particular, it was found that the performance approach goal type had more influence than the mastery goal type. Also, it was found that the performance avoidance target type had no statistically significant effect. Such a result can be evaluated as a result similar to the research result that the performance approach goal type and the mastery goal type have a positive effect on the academic situation or academic achievement. Next, it was found that only the performance approach goal type among the learning motivation types had a positive effect on immersion in the non-real-time non-face-to-face class method. Such a result can be judged to be due to the characteristics of the performance approach goal type to show one's excellence in class situations. Because the performance approach goal type has a goal to show that they are academically superior and superior to other students, it can be judged that they are immersed in non-real-time non-face-to-face classes. Next, it was found that only the mastery goal type among the learning motivation types had a positive effect on immersion in the real-time non-face-to-face class method. Such a result can be evaluated as being expressed by the characteristics of the mastery goal type, which has a tendency to challenge and master new things without fear of failure or mis-
takes in class situations. The reason that the effect of the performance approach goal type and the performance avoidance goal type did not appear in the real-time non-face-to-face class can be judged to be because both types are afraid of making mistakes. The performance avoidance goal type avoids performance itself because of fear of mistakes and failures, and the performance approach goal type has a tendency to hesitate to perform unless there is certainty that it will succeed. Therefore, real-time non-face-to-face classes are immediately revealed when they make a mistake, making them hesitant to perform, which can be evaluated as affecting immersion. However, it can be inferred that the level of immersion in the real-time non-face-to-face class is high because the mastery goal type attempts various performances for the purpose of mastery without fear of mistakes and failures.

Considering the results of this study, it is judged that the following should be considered when designing non-face-to-face remote classes in the future. First, you need to take full advantage of the advantage that non-real-time non-face-to-face classes lower the level of fear of mistakes and failures. One of the reasons students do not actively engage in class is the fear of mistakes and failure. Therefore, in the case of high difficulty classes, non-real-time, non-face-to-face classes are operated for basic knowledge and skills, providing students with opportunities to learn sufficiently without fear of mistakes and failures, and improve mastery of learning content and deep learning. In this case, it is judged that student achievement can be promoted if conducted through face-to-face classes or real-time non-face-to-face classes.

Second, non-real-time non-face-to-face classes have the advantage of having a low level of fear of mistakes and failures,
but also have the disadvantage of low incentives to challenge and try adventurously. In order to improve this, a lesson strategy should be prepared. For example, it is judged that it is necessary to come up with a strategy to share tasks with a level of difficulty appropriate to the learners' level with a deadline, or to have learners perform a common task by interacting at the same time.

Third, the level of fear of mistakes and failures that students may have in real-time non-face-to-face classes should be lowered. When operating a real-time non-face-to-face class, if the students are asked to perform various tasks, the students inevitably have a fear of mistakes and failures. Therefore, when asking students to perform a specific performance in real-time non-face-to-face class, using various interactive tools to supplement their performance so that their performance is not directly revealed in real-time non-face-to-face class situations, the level of fear of mistakes and failure can be reduced. It is considered possible for example, if the task is performed without being directly exposed to the instructor by using the small group meeting function, or by using various interactive tools using the edutech function, the task is operated so that the students' performance is not directly heard. It is judged that it can lead to immersion in class by reducing the level of students' fear.

Finally, the implications of this study are as follows. Through the results of this study, it was found that the type of learning motivation that affects immersion varies according to the non-face-to-face teaching method. In particular, the types of learning motives affected by non-implementation classes and real-time classes were different, and students' motivational attitudes could be found. When designing non-face-to-face
classes in the future, it is judged that more effective classes can be made if students' motivational attitudes are taken into account in order to increase their level of immersion.
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국문 요약

기독교 대학의 예비유아교사 전공수업에서
비대면수업 방식에 따라 학습동기 유형이
몰입에 미치는 영향 탐색*

이은철(백석대학교/조교수)

본 연구는 비대면 수업 방식에 의해 몰입에 대한 학습동기의 영향을 검증하였습니다. 이를 위해서 유아교육을 전공하고 있는 101명의 대학생을 연구대상으로 선정하였습니다. 연구대상의 평균 연령은 22.6세이며, 비실시간 비대면 수업을 수강한 학생은 51명이며, 실시간 비대면 수업을 수강한 학생은 50명입니다. 연구는 비대면 수업이 종료된 이후에 몰입 수준과 학습동기 유형을 측정하였습니다. 측정된 자료는 기술통계분석과 다중회귀분석을 사용하여 분석하였습니다. 그 결과, 전체 학생을 대상으로 한 결과는 몰입에 대해 수행접근목표가 가장 많은 영향을 주었고, 숙달목표지향이 다음으로 영향을 주었다. 수행회피지향은 영향을 주지 못했다. 비실시간 비대면 수업 학생들은 수행접근목표지향이 몰입에 영향을 주었고, 실시간 비대면 수업 학생들은 숙달목표지향이 영향을 주었다. 본 연구 결과를 통해서 얻을 수 있는 시사점은 다음과 같다. 첫째, 비실시간 비대면 수업은 실수와 실패가 없도록 기초적인 지식과 기능에 대한 내용을 다루어야 한다. 둘째, 비실시간 비대면 수업은 적절한 난이도를 가지고 있는 과제들을 마감 시간을 두고 수행하도록 해야 한다. 셋째, 실시간 비대면 수업은 실수와 실패에 대한 두려움을 낮추어야 한다.

주제어

비대면 수업, 포스트 코로나, 몰입, 학습동기, 비대면 수업 전략

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