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Perceptions of Classroom Interactions and Students' Thriving in Hybrid and Blended Learning: A Multi-Group Analysis

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Abstract

This study aims to uncover the relationship between the quality of class interaction in learning activities and student thriving in the two methods (hybrid and blended) used in the past year. Using a sample of 112 students selected through a purposive approach, data were collected using a questionnaire at the end of the semester in 2021/2022. Partial least square structural equation modeling (PLS-SEM) with multi-group analysis (MGA) was applied to test the model. The study's results provide empirical support regarding the relationship between classroom interaction quality and student perceived thrive (vitality and learning) in both learning modes. Finally, a comparison of the effects based on MGA identified that the quality of classroom interaction was more effective on vitality than blended learning compared to hybrid learning. While regarding perceived learning, the dominant effect of classroom interaction is more effective in blended learning mode.

Keywords: blended learning, classroom interaction, hybrid learning, pedagogy, thriving at class

A. Introduction

After the social restriction regulations were withdrawn at the end of 2022, various countries, including Indonesia, have allowed people to do outdoor activities. In the business sector, offices have reopened so that the rate of movement of people on city streets is again busy. In the education sector, various schools have reopened so that learning activities return to normal. However, especially in tertiary institutions, hybrid or blended learning is implemented by combining online and face-to-face methods. This combination is considered appropriate during the transitional period, including maintaining student engagement in post-pandemic learning activities (Singh et al., 2021).

Blended learning and hybrid are two different methods, where blended leads to learning activities that use online and traditional methods alternately. At the same time, the hybrid model is a learning model that uses the face-to-face and online phases simultaneously so that there are students who can choose or be divided to take conventional and online classes. In other words, hybrid conducts face-to-face sessions accompanied by online resources. In particular, these two instructional methods have been widely used post-pandemic (Al-Amin et al., 2021; Al-Fodeh et al., 2021; McGrath et al., 2021; Singh et al., 2021; Tahir et al., 2022).

Apart from the recent studies that have focused on post-pandemic hybrid and blended learning, several areas for improvement still concern this study. First, most previous researchers focused on one method (Al-Amin et al., 2021; Al-Fodeh et al., 2021; Farahani et al., 2020; Saboowala & Manghirmalani Mishra, 2021; Tahir et al., 2022), namely blended learning. For example, blended is associated with readiness (Saboowala & Manghirmalani Mishra, 2021), the quality of student counseling skills (Farahani et al., 2020), and student performance (Tahir et al., 2022). An evaluative study also compared student preferences for online and blended (Al-Amin et al., 2021; Al-Fodeh et al., 2021).

Second, studies need to discuss the quality of classroom interaction precisely and whether students thrive in blended and hybrid learning. Since online learning often has problems related to communication due to poor networking (Cahyadi et al., 2021), the quality of interaction between students and teachers in the blended method also needs to be considered. Third, researchers generally only focus on learning engagement, loneliness, and motivation (Hendryadi et al., 2022; Heo et al., 2022; Mizani et al., 2022) when studying online learning, so they ignore another important factor, namely thriving in class. Thriving is a process of adapting to various situations, including physical, psychological, and social, which leads to personal growth as a fundamental human ability to continue to develop (Kleine et al., 2019). Except for Heilferty et al. (2021), research on the issue of student thriving is minimal, so it is interesting to explore further.

The present study examines the relationship between teacher-student relationship quality and students' thriving in the classroom in the context of blended and hybrid learning. Using a multi-group design, this study makes a theoretical contribution in two ways: first, the model developed in this study focuses on the relationship between classroom interaction quality and thriving in the class, which has never been explored before; hence, this is the first empirical study of this relationship. Second, the present

study uses a multi-group approach to detect differences in the effects of classroom interaction on thriving to provide a more comprehensive explanation of the two models (blended and hybrid methods). Practically, the results of this study can be used by educational institution managers to evaluate the effectiveness of hybrid and blended learning methods concerning thriving students in clas

B. Literature Review

Two theoretical foundations are commonly used to explain thriving: social exchange theory (SET) and the socially embedded model of thriving (SEMT). First, SET provides a basis for how a group's interaction quality can influence human behavior (Blau, 1964). For example, in the context of work, good treatment from the company will be used as a basis for employees to repay this kindness by performing optimally. SET focuses explicitly on economic (e.g., incentives) and non-economic (e.g., praise) exchanges. In education, SET can be used as a theoretical foundation that explains how the quality of exchanges between teachers and students can influence student attitudes and behavior. In other words, exchange processes in the form of interactions between teachers and students, as well as in the form of feedback and assessment processes, can cause students perceived thrive. Although in a different context (work), Kleine et al. (2019) identified that contextual factors in the form of relational resources (i.e., attention and support from leaders) are essential factors in forming thriving at work. Using similar arguments, the classroom interaction as a relation between teachers and students can be a contextual factor in forming student thriving in an educational environment.

The following theoretical foundation is SEMT which leads to how thriving at work is formed and its consequences on employee behavior (Spreitzer et al., 2005). The model developed by Spreitzer et al. (2005) is divided into three types of resources (personal, interpersonal, and contextual resources) that can affect development in the workplace. Referring to the SEMT, the TSRQ can be classified as a resource or interpersonal characteristic explaining the relationships between teachers and students in learning activities. Hence, it makes sense to associate of quality of classroom interaction with students' thriving in class.

Thriving in class is conceptually adapted from Spreitzer et al. (2005), which explains thriving at work. Referring to Spreitzer's definition, we define thriving in class as a positive psychological state characterized by a shared sense of vitality and learning. In particular, students perceived as thriving experience personal growth by feeling excited and alive (vitality) and have a feeling of continuing to acquire and apply knowledge (learning). Thus, thriving in class illustrates vitality and student learning in learning activities. In other words, a student who thrives will experience growth, have enthusiasm, dedication, and high commitment to the learning process (vitality), and continue improving their abilities (learning).

Previous researchers have documented various factors that can explain thriving but in the context of the work environment (Kleine et al., 2019). For example, the meta-analysis of Kleine et al. (2019) identified individual factors (psychological capital, stress,

engagement, personality) and relational (leader support and attention, civil work environment, transformational leadership, leader-member exchange, empowering leadership) as forming thriving at work. On the other hand, studies on thriving at school (Calderwood & Gabriel, 2017; Fernandez et al., 2019; Perkins et al., 2016) must address the causes. The present study uses SET and SEMT arguments to explain the formation of student thrive. Using the SET perspective, perceptions of the quality of teacher-student interactions in the classroom can increase student engagement (Havik & Westergård, 2020; Martin & Collie, 2019).

Class interaction is a concept that refers to the support provided by the teacher in the emotional area, instructional support, and class organization (Havik & Westergård, 2020; Martin & Collie, 2019; Pianta et al., 2012). For example, emotional support in the form of attention and empathy for various student difficulties. Class organization can proactively monitor student classroom activities, including encouraging interactive discussions. While instructional support is related to methods, for example, providing students with various learning resources, feedback, and support. The three domains of class interaction are a combination of relational resources, essential for encouraging the formation of emotional reactions (vitality) and cognitive (learning), which are components of student thrive. Thus, we argue that the teacher's ability to create strong interactions can encourage students to thrive.

H1: Perceived classroom interaction will positively related to student's vitality

H2: Perceived classroom interaction will positively related to student's learning

Hybrid and blended learning are two slightly different methods. Hybrid leads learning combines online and face-to-face methods simultaneously, where some students can attend face-to-face classes and others through online classes. Universities widely use this method when social restriction regulations are still being enforced during the post-pandemic transitional period. At the same time, blended learning is more directed at learning settings that alternately use online and face-to-face methods pandemic (Al-Fodeh et al., 2021; McGrath et al., 2021; Singh et al., 2021). These two learning methods will be responded to differently because the interaction pattern will be different. In addition, students' preferences for these two methods will also be different; some students may prefer the hybrid method, and others prefer the blended. Thus, the effect of class interaction in these two methods will differ in students' thriving.

H3: The effect of class interaction on students' thriving will differ based on the learning method (hybrid vs. blended).

C. Research Methodology

This study used a quantitative approach to explain the relationship between the variables tested in the proposed model. A combined quasi-experimental and correlational approach explains the relationship between variables while studying the differences based on the two learning methods (blended and hybrid). This study used a sample of students selected purposively in two semesters of learning at a tertiary institution in Jakarta. The hybrid method will be carried out in the odd semester of 2021/2022 (September 2021 -

February 2022), and the blended method will be carried out in the even semester of 2021/2022 (March–August 2022). Data collection is carried out at the end of each semester. A total of 3 classes (2 undergraduate classes and one master class) became the study samples. One hundred twelve students comprised 75 female students (67%) and 37 male students (33%). The student group comprises two undergraduate classes (88 students) and one class of the master program (24 students).

Classroom interaction was adapted from 5 items (simplicity, accessibility, affordability, flexibility, and empathy) for the quality of remote learning (Cahyadi et al., 2021). While thriving in class is adapted from Porath et al. (2012) with adjustments to the educational environment. We changed the word "at work" to "at classroom" to adjust the context. All items are rated with five Likert-type: 1 = "It does not fit at all" – 5= "It fits perfectly to me." Multi-group model testing was applied using partial least square structural equation modeling (PLS-SEM MGA) with the Smart PLS. The entire process of analysis and interpretation used the guidelines of Hair et al. (2019).

D. Findings

1. Measurement model evaluation

The initial stage in the PLS-SEM analysis is to evaluate the measurement model, including indicator reliability, consistency reliability, and convergent and discriminant validity. First, the loading indicator for all values > cut-off 0.708 (Hair et al., 2019); hence, all indicators meet the reliability indicator. Second, the consistency of reliability assessed by Cronbach Alpha (CA) and Composite reliability (CR) showed that these two parameters were met (CA and CR > 0.70). Next, all the average variance explained (AVE) values are more than 0.50, and indicators of convergent validity have been met (Hair et al., 2019).

Table 1: Measurement model results

Indicators	Mean	SD	Loading	Cronbach's Alpha	Composite Reliability	AVE
CLI1	3.772	0.979	0.871	0.910	0.933	0.735
CLI2	3.576	1.029	0.826			
CLI3	3.696	0.989	0.857			
CLI4	3.558	1.073	0.896			
CLI5	3.634	1.094	0.833			
VIT1	3.478	0.773	0.863	0.857	0.899	0.643
VIT2	3.357	0.865	0.863			
VIT3	3.446	0.811	0.870			
VIT4	3.451	1.034	0.642			
VIT5	3.353	0.884	0.747			
LRN1	3.464	0.850	0.856	0.925	0.944	0.770
LRN2	3.701	0.899	0.917			
LRN3	3.719	0.909	0.864			
LRN4	3.661	0.992	0.866			
LRN5	3.772	0.976	0.883			

Next, discriminant validity is evaluated with two parameters, the Fornell and Larcker criterion and the heterotrait-monotrait (HTMT) ratio. Based on the Fornell and Larcker criteria, as shown in Table 5, there is no greater intercorrelation than the AVE square (diagonal italic) value. Similarly, the HTMT ratio also shows no values exceeding the cut-off value of 0.90. Hence, based on these two parameters, the discriminant validity of the measurement model is fulfilled (Hair et al., 2019).

Table 2: Discriminant validity assessment

Fornel-Larcker Criterion			
	1 CLI	2 VIT	3 LRN
1 CLI	0.857		
2 VIT	0.328	0.802	
3 LRN	0.433	0.259	0.877
Heterotrait-monotrait (HTMT) ratio			
	1 CLI	2 VIT	3 LRN
1 CLI			
2 VIT	0.37		
3 LRN	0.469	0.292	

2. Structural model evaluation

The first stage of structural model evaluation begins with assessing multicollinearity based on the variance inflation factor (VIF) value, then proceed with evaluating the coefficient of determination (R2), f2 effect size, and Q2. Based on the VIF value, no number exceeds 3, according to the recommendation (Hair et al., 2019). Furthermore, the R2 values for the .108 vitality and .188 learning models are all at the weak level (<0.25). Meanwhile, both models are weak for predictive relevance (Q2), in the range of 0.–0.25 (Hair et al., 2019). Finally, the effect size for classroom interaction on vitality is 0.121, and learning is 0.231 at weak and moderate levels, respectively.

Table 3: Structural model assessment

Model	Coeff	SD	P Values	R^2	Q^2	f^2
Model 1: Full Sample						
CLI -> VIT	0.335	0.063	0.000	0.108	0.064	0.121
CLI -> LRN	0.437	0.063	0.000	0.188	0.139	0.231
Model 2: Blended						
CLI -> VIT	0.561	0.075	0.000			
CLI -> LRN	0.213	0.091	0.021			
Model 3: Hybrid						
CLI -> VIT	0.346	0.101	0.001			
CLI -> LRN	0.503	0.073	0.000			

The hypothesis testing shown in Table 3 (total sample) shows that classroom interaction is significantly related to vitality (β = 0.335, p-values 0.000 <0.01) and learning (β = 0.437, p-values 0.000 <0.01). It can be stated that H1 and H2 have been supported. Next, multi-group analysis shows the variation in the relationship. First, in blended learning, classroom interaction has been shown to significantly positively affect vitality and learning, with vitality (β = 0.561, p-values < 0.01) dominant over learning (β = 0.213, p-values < 0.05). Second, similar results were found in hybrid learning (Model 3), where all relationships were significant. Based on the different effects, hybrid learning shows that classroom interaction has a higher effect on learning (β = 0.503, p-values < 0.05) than vitality (β = 0.346, p-values < 0.05).

E. Discussion

The results of this study make an essential contribution to the literature on learning methods and techniques applied post-pandemic. Theoretically, the study's results uncover that link between classroom interactions and thriving in class has never been explored. In particular, the results of this study illustrate that classroom interaction as a relational factor between lecturers and students has a beneficial effect on the vitality and learning students feel. In other words, high-quality interactions can trigger emotional responses (vitality) and cognitive responses (learning). In short, the results of this study offer new knowledge about the relationship between classroom interaction quality and thriving in class that has not been explicitly explored.

The first hypothesis provides support for the effect of classroom interaction on thriving. As shown in Table 3, the effect of classroom interaction varies across the three models tested. The quality of interaction in the classroom has a more significant effect on students' vitality in blended learning than in hybrid learning. In other words, students' emotional responses related to their vitality following learning in the blended class were higher than in the hybrid learning method carried out in the previous semester. Since relationships between teachers and students are a reflection of a classroom's ability to foster student development, it stands for the reason that interactions and relationships are the keys to comprehending vitality.

Specifically, this study is the first to provide empirical evidence regarding the relationship between classroom interaction quality, perceived vitality, and general thriving. Therefore, this study provides preliminary evidence regarding the importance of creating good classroom interactions to increase a sense of vitality and learning among students. However, several similar studies highlight the quality of interaction in the classroom and its impact on learning effectiveness. For example, previous studies which proved that class interaction affects students' emotional responses (e.g., engagement and motivation) so that the higher the quality of the interaction, the higher the level of student participation in learning activities (Havik & Westergård, 2020; Martin & Collie, 2019; Pianta et al., 2012). In addition, the present study complements the previous thriving studies,

which were mainly carried out in the work environment (Kleine et al., 2019) related to relational resources.

Related to the differences in the methods used, this study found that in the context of vitality, the blended model was more effective in increasing the effect of classroom interaction. In other words, blended learning provides more learning opportunities to encourage quality interactions from students both online and face-to-face mode. Blended learning using alternate learning modes can reduce student boredom and isolation in attending online classes (Singh et al., 2021). Moreover, several studies also support the application of blended learning even before the pandemic (Captari et al., 2018; Condie & Livingston, 2007; Edward et al., 2018; Ghazal et al., 2018), during and post-pandemic (Al-Fodeh et al., 2021; McGrath et al., 2021; Singh et al., 2021).

The second hypothesis provides convincing support that class interaction quality affects students' perceived learning. In other words, the teacher's ability to manage interactions is an essential factor in improving the quality of learning. This finding is relevant to how teachers' pedagogic abilities can affect the quality of learning, especially in e-learning (Peres et al., 2014; Zajda, 2018; Zhao et al., 2022). Furthermore, the results of this study also provide complete information about the more appropriate methods to enhance perceived learning. As shown in Table 3, the effect of the quality of classroom interaction on perceived learning is more dominant in the hybrid method than in the blended mode. In other words, students feel more of a sense of continuously acquiring and applying knowledge in hybrid mode learning activities that combine online and offline models simultaneously.

Accordingly, combining learning technology and cloud information can support the learning process in the classroom, where various studies have found that the hybrid format is effective as a distance learning mode for university students (Manciaracina, 2020; Masalimova et al., 2021; Wijaya & Budiman, 2021). The results of this study also confirm that colleges and universities need to start extending the application of digital learning environments and hybrid learning methods to serve as alternative modes. These strategies will create a more flexible environment for when and how learning will occur and allow students to attend online and face-to-face classes simultaneously.

This study, of course, has not only theoretical contributions but also practical ones. First, hybrid and blended learning positively relates to perceived vitality and learning in university students. In other words, efforts to improve these two essential components of student growth can be made by increasing the teacher's pedagogic ability to manage interactions in class. Thus, university managers need to carry out continuous refreshments and training for teachers to update their new skills in interaction, especially in using various learning platforms that are currently developing. Second, tertiary education managers need to conduct an internal survey regarding the effectiveness of the chosen learning method.

Given that there is a differentiation in the quality of interaction between hybrid and blended learning in the relationship between classroom interaction quality and students' thriving in their class. Because perceived vitality and learning are closely related to the

teacher's ability to manage interactions in class, mastery of various methods, including games and instructions that can encourage student motivation, needs to be mastered by the teaching team. Therefore, higher education leaders must continue to provide various technical training related to managing online classes.

F. Conclusion

After the reduction in concern over the spread of COVID-19, various sectors have carried out activities as before, along with lifting social distancing restrictions. In the education sector, learning methods were developed by adopting various options, including hybrid and blended learning modes. The purpose of this study is to examine the relationship between classroom interaction and thriving (vitality and learning) and the difference between hybrid and blended learning. The study results show that classroom interaction in all models significantly influences students' perceived vitality and learning. Moreover, these results find interesting conclusions where the classroom interaction effect is more effective in influencing vitality in blended learning. In contrast, for hybrid learning, the dominant effect of classroom interaction is on students' perceived learning.

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