



Investigating EFL students' perceived values of online cooperative learning in MOOCs

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ABSTRACT

In the rapidly evolving landscape of online education, understanding what drives student satisfaction is crucial for designing effective learning experiences. The study examines the factors influencing English as a foreign language (EFL) students' satisfaction with online cooperative learning (CL) in massive open online courses (MOOCs). Employing a mixed-methods approach, the research investigates how different aspects of CL contribute to student satisfaction and identifies challenges students face in such environments. Quantitative data were gathered from 374 students through a structured survey, while qualitative insights were derived from semi-structured interviews with 16 participants. The findings suggest that CL enhances academic performance, engagement, and social interaction among students. However, challenges such as language barriers, unequal participation, and technological issues were also highlighted. The study emphasizes the importance of clear task assignments, effective leadership, and structured collaboration to mitigate these challenges. The research underscores the need for further exploration into the nuanced experiences of EFL students in MOOCs, particularly concerning cultural and linguistic factors that may influence their learning outcomes. These insights contribute to the broader understanding of how CL can be optimized in online education settings to enhance student satisfaction.

Keywords: online cooperative learning, MOOCs, constructivism theory, higher education

INTRODUCTION

The educational framework has witnessed significant transformation due to rapid technological innovations and the unprecedented worldwide impact of the COVID-19 pandemic. Digital education has emerged as a prevailing mode of pedagogical delivery, offering educators and learners both prospects and challenges. A pedagogical instruction that has demonstrated potential to enhance the online learning experience is cooperative learning (CL).

While collaborative learning offers a plethora of benefits, for examples, the augmentation of learners' motivation and self-efficacy (Mohammadjani & Tonkaboni, 2015), which consequently leads to increased levels of satisfaction (Almaiah et al., 2020), deeper understanding of learning subjects (Doo et al., 2020), and a sense of community and belonging (Wang & Wu, 2022), it is not without its challenges. Students may experience discomfort with collaborative tasks or may exhibit unequal participation, resulting in potential discord (Wang & Wu, 2022). To address these challenges, instructors must provide clear guidelines, facilitate effective communication, and ensure that all group members are held accountable (Faja, 2013; Phungsuk et al., 2017). Moreover, disparities in time zones within online courses catering to a global student demographic can exacerbate the challenges associated with the coordination of synchronous group endeavors, thereby necessitating the implementation of flexible scheduling alternatives or asynchronous collaborative methodologies (Malan, 2021). Technological impediments such as inconsistent internet connectivity and insufficient devices may significantly obstruct students' engagement in collaborative activities (Almaiah et al., 2020).

To optimize the advantages of CL within the realm of online education, it is imperative for educators and institutions to contemplate several pivotal strategies. Professional development for educators is of paramount importance to proficiently design and facilitate CL initiatives in a digital context (Gillies, 2016). The effective utilization of suitable digital tools and platforms is also essential for the successful implementation of CL. Learning management systems equipped with features such as discussion forums, group workspaces, and collaborative documents can significantly enhance the fluidity of interaction and cooperation among students (Hrastinski, 2009). Moreover, adopting flexible and inclusive approaches to CL, such as considering different time zones and providing alternative participation methods, ensures accessibility for all students (Doo et al., 2020).

Significant research gaps exist in understanding the effects of CL on students' satisfaction (SS) in online environments. Limited research explores the nuanced perceptions and attitudes of students towards CL, which could help tailor more effective experiences (Al Fadda et al., 2023; Sugino, 2021). Including diverse students from various cultural backgrounds, age groups, and educational levels can provide a more comprehensive understanding (Mendo-Lázaro et al., 2022). Additionally, the effects of CL across different academic disciplines need further investigation to determine if certain fields benefit more than others (Mendo-Lázaro et al., 2022; Reinhard, 2021). Lastly, while quantitative measures are common, more qualitative research is needed to explore students' subjective experiences through in-depth interviews, focus groups, and case studies (Keramati & Gillies, 2022; Reinhard, 2021). Additionally, the effectiveness of different technological tools and platforms used in CL needs further exploration to identify which best supports student satisfaction (Oyarzun & Martin, 2023). Finally, addressing challenges such as time zone differences, unequal participation, and technological difficulties is crucial for enhancing CL's effectiveness (Fehrman & Watson, 2021). Addressing these gaps can lead to more inclusive and effective educational practices.

After framing the topic against the backdrop of prior investigations, this study aims to explore SS of CL in massive open online courses (MOOCs) from a heterogeneous English as a foreign language (EFL) learner population in a higher education context with a mixed-methods design. To obtain this objective, the research was guided by two research questions:

1. What factors contribute to SS with CL experiences in MOOCs among a diverse discipline university population?
2. What challenges do students face in CL activities in MOOCs, and how do these challenges affect their participation and learning outcomes?

LITERATURE REVIEW

MOOCs and EFL Students

MOOCs have fundamentally transformed education by offering accessible, flexible, and scalable learning opportunities to a heterogeneous audience worldwide (Alyoussef, 2023). Ever since their appearance in the early 2000s, MOOCs have significantly evolved, providing a wide spectrum of courses across various disciplines (Zaremohzzabieh et al., 2022). Their primary impact lies in democratizing education, enabling learners from diverse backgrounds to access qualified educational resources from globally renowned educational institutions without financial constraints (Kent & Bennett, 2017).

However, for EFL students, MOOCs have revealed vast opportunities and challenges alike. While being offered ample chances to get involved in a wide range of learning contents in MOOCs, EFL learners also encounter specific difficulties such as language barriers (Hoang, 2024), cultural differences (Rahimi & Cheraghi, 2024), and digital literacy (Rahimi, 2024). These challenges can significantly impact their learning experiences in online environments, particularly in MOOCs. Tackling these issues is essential to fully leverage the advantages of MOOCs for EFL students. By integrating multilingual assistance, culturally relevant materials, and digital literacy education, MOOCs can be made more inclusive and supportive, guaranteeing that every learner, irrespective of their background, has the chance to thrive in an online learning setting (Mudra, 2023).

Student Satisfaction in Online Learning

Student satisfaction in online learning environments has been documented being influenced by a myriad of factors. Interactions, namely learner-content, learner-instructor, and learner-learner, played a crucial role in distance education (Moore, 1989). These interactions are critical in CL, where peer support and collaboration can directly impact students' perceived value of the learning experience (Garrison et al., 1999). This presumption remains controversial among researchers. A study by Du (2023) indicated that interactions, perceived difficulty, and course structure were not related to learner satisfaction in MOOCs.

Nevertheless, recent studies confirmed the influence of the quality of course content, motivation, the presence and engagement of instructors, opportunities for interaction, the usability of technology, and the availability of support services on student satisfaction in online learning (e.g., Thanh et al., 2024; Yu, 2022). These findings highlight the multifaceted nature and complexity of student satisfaction issues in online learning environments, thus more studies in search of factors influencing learner satisfaction and guidelines on how to practically manipulate these factors to provide more effective online learning environments should be conducted.

Cooperative Learning in Online Environments

CL is a pedagogical instruction requiring students to work collaboratively to achieve shared learning goals (Slavin, 1980), comprising positive interdependence, individual accountability, promotive interaction, social skills development, and group processing (Johnson & Johnson, 2018). In an online learning modality, discussion forums, video conferencing, and collaborative documents proved to be beneficial to CL (Malan, 2021).

Effective course design, with clear instructions and structured activities, is essential for successful collaboration (Lorente et al., 2024). Additionally, the role of instructors is vital; their active involvement and timely feedback create a supportive environment that enhances the quality of group discussions and learning outcomes (Adl-Amini et al., 2023; Gillies, 2016). Technological tools also play a critical role in facilitating CL, with platforms that support both synchronous and asynchronous communication proving to be particularly effective in improving coordination and engagement (Bhat, 2023; Talmo et al., 2022). Overall, integrating well-designed CL activities, supported by engaged instructors and effective technology, can significantly enhance student satisfaction and learning outcomes in MOOCs.

Perceived Value of Online Cooperative Learning

In order to create a richer learning experience, high-quality and frequent interactions through meaningful discussions and problem-solving helped enhance cognitive engagement and learning perceptions (ElSayad, 2023; Nguyen et al., 2021). Through the active participation and a sense of community among learners, students feel more connected and supported, which is particularly beneficial to learning motivation and satisfaction in the often-so-called-isolating environment of online learning (Almaiah et al., 2020; Gillies, 2023; Rajabalee & Santally, 2021; Wang & Wu, 2022). Additionally, CL helps in developing essential social and interpersonal skills. Online learning environments often fall short of providing opportunities for students to develop these skills, but CL addresses this lacuna by requiring students to communicate, collaborate, resolve conflicts within their learning community groups (Garrison et al., 2001), give constructive feedback (Mohammadjani & Tonkaboni, 2015), and develop a deeper understanding of subject matters (Doo et al., 2020). These skills are not only vital for learning success but also for personal and professional development (Wang & Wu, 2022).

Challenges and Barriers in Online Cooperative Learning

EFL students face several challenges in online CL environments, including language barriers, cultural differences, and varying levels of technological proficiency. These challenges can hinder effective communication and collaboration, leading to frustration and decreased satisfaction (Hijazi & Alnatour, 2021). Additionally, technical issues such as unreliable internet access and platform usability can further complicate the learning experience (Bui et al., 2021). To overcome these barriers, Liebech-Lien (2020) found that collaborative action research in teacher teams can be a catalyst for successful CL implementation.

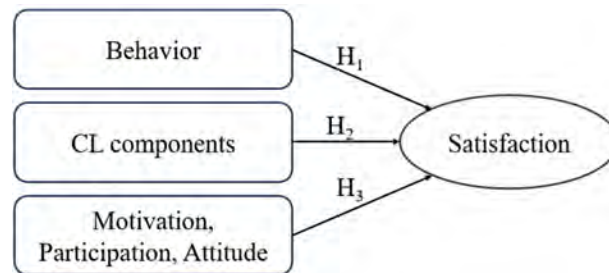


Figure 1. The hypothesized research model (Source: Author)

Additionally, Alansari and Rubie-Davies (2021) emphasized the need for professional development to support teachers in implementing CL effectively.

Constructivism Theory

Constructivism posits that learning takes place when learners play an active role throughout the learning process wherein learners build their knowledge from experiences, reflection on learning, and interaction with others (Bruner, 1960; Dewey, 1938; Piaget, 1977; Vygotsky, 1978). Vygotsky's emphasis on the interpersonal realm suggests that a learner reflects on his or her interaction with others to develop his or her understanding. Similarly, Bruner focused on dialogue as a tool for reflectivity where learners express thoughts and ideas and gain deeper insights that then lead to knowledge construction. Similarly, learning motivation and engagement are increased through interactions between learners and learning contexts (Dewey, 1938; Kolb, 2015). Further, constructivists argue that it is integral for learners to interact with peers and instructors, known as zone of proximal development (Vygotsky, 1978) in developing and retaining knowledge.

Based on the aforementioned analysis, constructivism theory could serve as a theoretical backbone for the current study whose objective was to explore how students actively constructed knowledge through collaborative activities and social interactions in MOOCs.

Research Model and Hypotheses

Based on the aforementioned review of literature, the following hypotheses were formulated (**Figure 1**):

H1: Online CL components have positive effects on SS in learning in MOOCs.

H2: Behavior (BA) has a positive effect on SS in learning in MOOCs.

H3: Motivation, participation, and attitude (MPA) have positive effects on SS in learning in MOOCs.

METHOD

Research Design

This study utilized a mixed methods approach, in which survey questionnaires were utilized for the quantitative data, and semi-structured interviews were conducted after the survey to provide deeper insights into students' experiences and attitudes as well as detailed accounts of how these challenges impact students' participation and learning outcomes. This approach helps provide a more comprehensive picture of the issue under exploration (Creswell & Creswell, 2018).

Participants

A total of 374 survey respondents were qualified for data analysis after the data cleaning for repetition and non-MOOC involvement. Sixteen of them willingly agreed to participate in the interviews. To ensure the interviewees' rights and confidentiality, students' names were not used.

Instruments

In order to discern students' perceptions of factors influencing their satisfaction of CL in MOOCs, the questionnaire was adapted from the CL questionnaire by Gillies and Ashman (1996). The modified

Table 1. Construct reliability of the piloting phase

Variables	Cronbach's alpha	Number of items
Cooperative learning (CL) components	.908	9
Behavior (BA)	.942	5
Motivation, participation, and attitude (MPA)	.932	6
Students' satisfaction (SS)	.926	5

questionnaire comprised 25 five-point Likert scale items coded from 1–5 for “strongly disagree, disagree, neutral, agree, and strongly agree”.

In order to discern students' perceptions of factors influencing their satisfaction of CL in MOOCs, the questionnaire was adapted from the CL questionnaire by Gillies and Ashman (1996). The modified questionnaire consisted of 25 five-point Likert scale items rated by 1–5 as “strongly disagree, disagree, neutral, agree, and strongly agree”. Individual semi-structured interviews were carried out to gauge their attitudes regarding factors that made them feel satisfied with CL experiences, as well as challenges they encountered in CL activities on MOOCs and how these hindrances affect their participation and outcomes of learning on MOOCs.

Data Collection Procedures

Piloting phases

In order to ensure the internal reliability of the items of the instrument and to evaluate the respondent's comprehension of the items, a pilot survey was conducted among thirty English major students who I used to work with for their MOOC learning in the previous semester. The respondents received an email, in Vietnamese, making clear the information about the research purpose, the survey length, and a research consent to their voluntary participation in the research. Their answers were automatically saved in the platform of Google Sheets which can only be accessed by the researcher. The Cronbach's alpha of variables used in the piloting phase were all above 0.7, indicating that the research tool was reliable (Hajjar, 2018), as indicated in [Table 1](#).

The semi-structured interviews were also piloted to ensure students' accurate comprehension of the interview questions and allow the researcher to make any necessary changes or adjustments (Cohen et al., 2018). In this study, fifteen participants were willing to participate in the interviews. Prior to the commencement of the interviews, participants were provided with reassurance regarding their entitlement to retract their involvement in the research at any given stage. The initial pair of interviews served the purpose of piloting, aiming to assist the interviewer, who is also the researcher, in recognizing probable concerns, including instances of ambiguity or logistical challenges. Consequently, adjustments deemed essential were implemented, thereby enhancing the overall credibility and dependability of the research outcomes (Creswell & Plano Clark, 2018). The initial interview concluded in a mere 30 minutes. Upon reviewing the recorded session (with the interviewee's consent), it became apparent that several responses from the student necessitated additional elaboration or illustrative examples. Subsequent to the second interview, it was noted that the student's answers exhibited greater depth and comprehension. Moreover, familiarity with the interview protocol grew to the extent that question delivery became more adaptable to the conversational tempo, ensuring all predetermined inquiries were addressed.

The actual research data collection procedures

The official survey questionnaires were administered to 449 participants via their emails, presenting the research purpose, attaching a link to the questionnaire, an informed consent and an option to participate in the subsequent interviews. They were informed of their ability to terminate their involvement at any stage before the interview data analysis. The interview data were collected from September to November 2023, and the interview data were from November 01-20, 2023. The collected data were automatically saved in Google Sheets which could be obtained only by the researchers. [Table 2](#) indicates the internal consistency of the official survey questionnaires.

Exploratory factor analysis (EFA) was run to ensure only items that accurately measure the intended constructs remained. This method boosts the validity and reliability of the scale through the exclusion of items

Table 2. Construct reliability of the actual phase

Variables	Cronbach's alpha	Number of items
Cooperative learning (CL) components	.852	9
Behavior (BA)	.839	5
Motivation, participation, and attitude (MPA)	.904	6
Students' satisfaction (SS)	.833	5

Table 3. KMO and Bartlett's test

Variables		Value
KMO measure of sampling adequacy		.968
Bartlett's test of sphericity	Approximate Chi-square	8,140.648
	df	300
	Significance	.000

Table 4. Total variance explained

Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	13.294	53.178	53.178	13.294	53.178	53.178	6.897	27.588	27.588
2	1.302	5.206	58.384	1.302	5.206	58.384	5.597	22.388	49.976
3	1.177	4.709	63.093	1.177	4.709	63.093	2.657	10.626	60.602
4	0.909	3.635	66.728	0.909	3.635	66.728	1.531	6.126	66.728
5	0.850	3.399	70.127						

Note. Extraction method: Principal component analysis.

that exhibit poor alignment with the identified factors, thereby enhancing the precision of the overall measuring tool (Goretzko et al., 2021). The results of this statistical analysis were presented in **Table 3**.

The Kaiser-Meyer-Olkin (KMO) was .968 (**Table 3**), which is excellent suitability for factor analysis (Kaiser, 1974), and Bartlett's test of sphericity, $p < .000$, indicated that the item correlations were sufficiently large for EFA. The total rotated component matrix yielded four components, explaining a total of 66.73% of the variance (**Table 4**), and the result of the rotated factor analysis was demonstrated in **Table 5**. The items BA1, CL1, CL3, and CL9 were deleted since their factor loadings were below .5 (Hair et al., 2019). The results of these statistical analyses show that the validity and reliability of the scale were obtained.

Data Analysis

SPSS 27 was performed to analyze the questionnaire survey data and thematic analysis, based on the guidelines recommended by Braun and Clarke (2006), and was employed to interpret the semi-structured interview data. In the current study, the data-driven approach was adopted in order for the themes to emerge from the data without being influenced by the researcher's pre-determined assumptions.

To ensure the trustworthiness of the qualitative findings, several steps were taken. The reliability in semi-structured interviews was enhanced by using a consistent thematic framework, which ensures that all participants were asked similar questions, allowing for comparability and uniformity across all interviews. Additionally, the codes were continually compared and revised throughout the data analysis for consistency (Saldaña, 2013). For the validity, the participants' interviews were translated verbatim and shared with the participants for confirmation and ensured that the interpretations accurately reflected their viewpoints; this process was known as member checking (Birt et al., 2016). Nevertheless, the researcher acknowledged the hardship in remaining the objectivity or avoiding preconceptions in the analysis and interpretation of the qualitative interview data. Bearing this in mind, the researcher had the participants double-check the accuracy of the transcripts of their interviews to enhance the study's credibility and backed up the interpretations with evidence from the participants' quotes.

Table 5. Rotated component matrix

Dimensions	Component			
	1	2	3	4
MPA4	0.828			
MPA3	0.806			
MPA5	0.780			
MPA6	0.729			
MPA1	0.701			
MPA2	0.620			
SS3			0.788	
SS1			0.771	
SS2			0.755	
SS4			0.688	
SS5			0.550	
BA5		0.744		
BA4		0.617		
BA2		0.548		
BA3		0.514		
CL5				0.828
CL2				0.742
CL8				0.601
CL7				0.564
CL6				0.553
CL4				0.551

Table 6. Measurement model parameter estimation

Dimensions	Items	Factor loading	Cronbach's alpha	CR	AVE
Cooperative learning (CL) components	CL4	0.820	0.852	0.853	0.693
	CL6	0.844			
	CL7	0.841			
	CL8	0.824			
Behavior (BA)	BA2	0.840	0.839	0.847	0.756
	BA3	0.869			
	BA4	0.899			
Motivation, participation, and attitude (MPA)	MPA1	0.836	0.904	0.909	0.725
	MPA2	0.761			
	MPA3	0.891			
	MPA4	0.884			
	MPA5	0.880			
Students' satisfaction (SS)	SS3	0.925	0.833	0.833	0.857
	SS4	0.927			

FINDINGS

Quantitative Findings

The reliability and validity of the instrument

To test the reliability validity of the research constructs, the following steps were conducted. First, the internal consistency, composite reliability (CR), and convergent reliability were measured (see [Table 6](#)).

[Table 6](#) indicated the hypothesized model constructs obtained the reliability and convergent validity: the indicator reliability (factor loadings > 0.7), internal consistency reliability (Cronbach's alpha > 0.7, and CR > 0.8) and the convergent validity (average variance extracted [AVE] > 0.5) (Hair et al., 2021). Other items, such as CL2, CL5, BA5, MPA6, SS1, SS2, and SS5, were eliminated since they incurred collinearity with other variables.

Second, the constructs' discriminant validity, Heterotrait-Monotrait ratio was tested ([Table 7](#)). All values are below 0.85, thus the discriminant validity of the constructs is affirmed (Henseler et al., 2015).

Table 7. Discriminant validity

Dimensions	BA	CL	MPA	SS
Behavior (BA)				
Cooperative learning (CL) components	0.894			
Motivation, participation, and attitude (MPA)	0.899	0.847		
Students' satisfaction (SS)	0.865	0.821	0.751	

Table 8. Evaluating the collinearity of the structural model

Dimensions	VIF (structural model)	VIF (full collinearity test)
Behavior (BA)	3.033	1.246
Cooperative learning (CL) components	2.749	2.372
Motivation, participation, and attitude (MPA)	3.018	2.173
Students' satisfaction (SS)		1.746

Table 9. R² values

Dimension	R ²	R ² adjusted
Students' satisfaction (SS)	0.578	0.576

Table 10. Hypotheses testing results

Hypothesis	Paths	Path coefficients	p	Results	f-square
H1	BA → SS	0.420	.000	Supported	0.134
H7	CL → SS	0.299	.000	Supported	0.077
H8	MPA → SS	0.101	.157	Rejected	N/A

Collinearity analysis

The variance inflation factor (VIF) is a measure used in regression analysis to quantify the severity of multicollinearity among the independent variables (Table 8). The VIF should be lower 3 to avoid collinearity issues (Hair et al., 2021). In case the VIF values around 3 or higher could suggest multicollinearity (O'Brien, 2007). However "if all VIFs resulting from a full collinearity test are equal to or lower than 3.3, the model can be considered free of common method bias" (Kock, 2015, p. 7). The full collinearity test results were demonstrated in Table 8; the results showed that all constructs' VIFs were smaller than 3, indicating no collinearity issues the formative indicators in the current study.

Structural equation modelling analysis

To evaluate the structural model, the coefficient of determination R-square (R²), which should vary from 0.25 to 0.90, and the path coefficients which should be tested (Hair et al., 2019). Table 9 showed that the adjusted R² value of satisfaction was equal to 0.576, indicating moderate explanatory relationships among endogenous and exogenous variables of the study.

Hypotheses testing

Table 10 shows the path coefficients and p values of each hypothesis. Hypothesis 1 and hypothesis 2 were supported since $p < 0.001$. Table 10 reveals that the essential components of online CL and BA had direct positive small and close to medium effects on SS in MOOCs, respectively. Surprisingly, the effect of MPA was not confirmed in the present study.

Figure 2 depicted the results of hypotheses testing and the coefficient of determination R² of the model.

Qualitative Findings

By following Braun and Clarke's (2006) thematic analysis approach, we have identified and organized key themes and codes from the interview data, providing a structured understanding of the effects of CL on SS in an online learning mode. These themes offer valuable insights into the various facets of CL, highlighting both the challenges and benefits experienced by students.

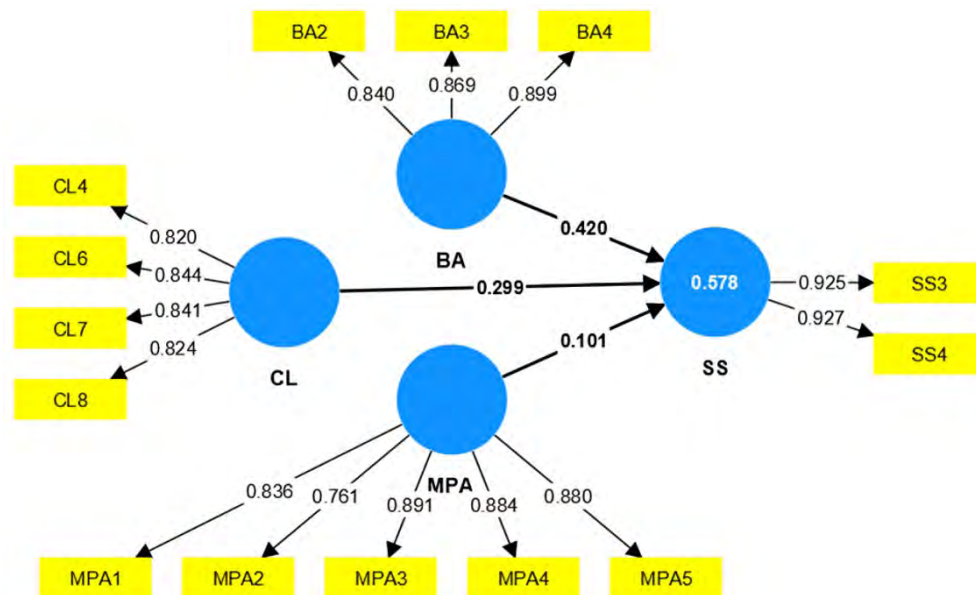


Figure 2. The results of path coefficients (Source: Created by the author based on study results)

Theme 1. Virtual interaction

The theme of virtual interaction encompasses the nature and challenges associated with interacting online, particularly the feelings of discomfort and the difficulty in expressing emotions. Codes identified under this theme include interaction online, interaction without physical presence, uncomfortable, cannot express feelings, difficulty in communication, freedom, and lack of immediate feedback. For instance, one respondent mentioned,

“I feel uncomfortable and cannot fully express my views and attitudes to the listener.”

Other shared

“When interacting virtually in a group, I find it difficult because some issues are not fully understood even in direct discussion, and the interaction is limited by distance. There are many difficulties in discussions as many members do not understand each other.”

Additionally, some mentioned the complex interplay between technical limitations and the emotional and psychological challenges of virtual interaction. They reviewed:

“I feel uncomfortable and often face difficulties and technical issues when interacting online, including not being able to express or see the attitudes of others, and sometimes experiencing device or network problems.”

This suggests that while virtual communication offers convenience and accessibility, it also presents significant hurdles that can affect the effectiveness and emotional quality of interactions. These viewpoints highlighted the discomfort and communication challenges inherent in virtual interactions.

Theme 2. Dynamics of online group work

Online group work dynamics is a theme that addresses the intricacies of collaborating in a virtual environment. It involves the processes of dividing tasks, assigning roles, and coordinating online efforts, as well as maintaining frequent communication and building consensus. Codes such as divide tasks, assign roles, coordinate online, frequent communication, consensus building, conflicting opinions, and difficulty coordinating reflect the various aspects of group work. One interviewee noted,

“Normally, I would divide tasks among friends and manage online”

emphasizing the need for clear role assignment and coordination.

Some made use of online tools for coordination:

“Whether online or in-person interaction, I would create a group via Zalo or Google Meet to discuss the work together”

or

“I send messages to urge group members to complete their work and set a specific deadline.”

Moreover, learning and adaptation in group dynamics are crucial for effective collaboration, particularly in virtual environments. One respondent reflects on their growth in group management, acknowledging that while they lacked prior experience in leading a group, they learned the importance of focusing on the group’s core objectives through collaboration; he said,

“I haven’t managed a group before, but through working with others, I realized the need to focus on the group’s core objectives, resolving any issues so that members feel free to share opinions and complete the group’s tasks effectively.”

This realization highlights the necessity of maintaining a shared vision and direction within the group, ensuring that all members are aligned with the goals. Additionally, the respondent recognizes the challenges inherent in group dynamics, particularly the need to resolve issues promptly to foster an environment where members feel comfortable sharing their opinions. This approach is essential for promoting open communication and effective problem-solving, which are key to successful group work. The role of leadership and structure is equally vital in managing group dynamics. The strategic decision to “select a leader and assign tasks to the members, setting deadlines for them” (one interviewee shared) underscores the need for a clear organizational framework within the group.

Lastly, leadership centralizes communication and coordination, ensuring that tasks are delegated efficiently and that all members understand their responsibilities. The emphasis on setting deadlines further highlights the importance of clear expectations and time management, particularly in virtual settings where members may work asynchronously. A leader who can guide the group, manage deadlines, and maintain momentum is critical to ensuring that the group’s objectives are met on time, thereby contributing to the overall success of the collaborative endeavors.

Theme 3. Perception of fairness and support

The theme of perception of fairness and support delves into how students perceive the equity and assistance they receive from peers in an online setting. This perception in online interactions varies significantly among students, with experiences ranging from feelings of unfairness to positive, respectful exchanges. One respondent expressed a sense of unfairness, stating,

“I feel it’s unfair because I can’t see others’ attitudes–no one shows dislike openly.”

This raises the challenge of not being able to observe non-verbal BA, which can lead to misunderstandings or feelings of inequity.

Additionally, communication difficulties are noted, particularly in peer interactions, where conveying information is more challenging than in direct communication, despite lecturers’ efforts to be clear and dedicated. Some students, however, feel respected during virtual interactions with friends, as one mentioned,

“When interacting with friends, I feel they still respect me when we interact virtually.”

Yet, this is contrasted by others who occasionally experience indifference or disrespect, as another student noted,

“Sometimes they ignore me and seem uninterested”

and

"I don't feel respected."

Despite these challenges, positive experiences are also reported, with some students feeling that their peers are friendly and treat them well, similar to in-person interactions:

"I feel my peers are friendly and treat me well"

and

"It's similar to direct interaction; my peers are friendly with each other."

These varied perceptions underscore the complex dynamics of fairness and support in virtual environments, where the lack of physical presence can both hinder and foster respectful and supportive relationships.

Theme 4. Outcomes and benefits of cooperative learning

Outcomes and benefits of CL highlight the positive impacts that this pedagogical approach can have on students' academic performance and understanding. CL significantly enhances academic performance, as students working in groups often achieve higher scores compared to those working individually. One respondent noted,

"Group work results in higher scores than working alone because working individually can lead to a one-sided perspective and a lack of full understanding of the assignment."

This sentiment is echoed in another student's observation:

"Understanding each other better leads to higher academic results compared to working individually."

However, the effectiveness of group work can vary depending on the task, as highlighted by a participant who mentioned that while their group excelled in presentations, they struggled with written assignments due to varying writing skills among members.

In addition to academic benefits, CL improves collaboration and group dynamics. Students reported that "through CL, the group can achieve what the teachers require" and that this approach "improved my teamwork skills and we supported each other more."

The experience also fostered better connections and harmony within the group, with one student noting,

"There is better connection and harmony among us"

and another adding,

"We became more united and learned to listen to each other's opinions better."

Furthermore, CL contributes to the development of important skills. As noted by a participant,

"It enhances understanding, thinking, and teamwork skills."

The collaborative nature of this learning method allows each member to contribute their creativity, leading to more refined and effective outcomes. As one respondent put it,

"CL is more effective because each person brings their own creativity, making the work more perfect."

Overall, group activities not only improve academic performance but also build team spirit, sharpen teamwork skills, and help achieve collective goals, making CL a highly beneficial educational approach.

Theme 5. Preparation and readiness for cooperative learning

The theme of preparation and readiness for CL focuses on the steps students take to prepare for collaborative activities. Effective preparation and readiness in CL are essential for smooth group dynamics and successful outcomes. One key strategy to avoid conflicts is through clear task assignment, as one participant shared,

“To avoid conflicts in group work, I usually assign each member a part and ensure contributions from all members.”

Establishing common goals and rules is another crucial aspect, with students emphasizing the importance of consensus and structure. As one respondent noted,

“We agree on a topic, and if someone doesn’t participate in the meeting, they will follow the group’s consensus”

while another added,

“We establish rules before working together.”

Gathering and evaluating input from all group members also plays a vital role in fostering collaboration. This approach involves regularly seeking opinions and making collective decisions, as expressed by a student:

“I frequently ask for opinions from the group, and then we make a collective decision based on everyone’s input.”

Leadership and decision-making are further highlighted in the process, with the group leader facilitating discussions and guiding decisions. As one student explained,

“If I were the group leader, I would compile the opinions and let the group vote. We would go with the most popular opinion.”

Together, these practices underscore the importance of preparation, communication, and structured decision-making in ensuring the success of CL activities.

DISCUSSION

The current study on EFL SS with online CL in MOOCs aligns with and expands upon previous research that emphasized the importance of CL in enhancing student satisfaction by fostering engagement, promoting interaction, and providing social support in online environments (Slavin, 1980). However, the current study also reveals unique challenges and nuances less emphasized in earlier research. While previous studies focused on the general benefits of CL, such as increased motivation and higher satisfaction levels (Almaiah et al., 2020), this study delves deeper into the specific difficulties faced by EFL students in MOOCs. It identifies the critical role of preparation and readiness, noting that inadequate task assignment and lack of clear goals can lead to conflicts and reduced effectiveness in group work—an area not extensively explored in prior studies.

Additionally, while earlier research highlighted the benefits of CL in reducing feelings of isolation and promoting a sense of community (Wang & Wu, 2022), the current study provides a more nuanced view by illustrating how perceptions of fairness and support can contribute to these drastic online learning issues. Some participants reported feelings of unfairness and lack of respect, particularly when they were unable to observe non-verbal cues during virtual interactions. This contrasts with the generally positive portrayal of CL in prior studies, suggesting that the virtual nature of MOOCs may introduce new challenges that require careful management.

Furthermore, this study emphasized the role of leadership and decision-making in successful CL activities, which helped produce new insights. Previous research has recognized the importance of group dynamics and leadership in traditional learning modes (Gillies, 2016), yet the current study highlights how these elements

are also critical in online learning platforms, particularly for EFL students. The findings suggest that the effective delegation of tasks, rule establishment, and the facilitation of group decisions are pivotal in ensuring the success of CL in MOOCs.

The challenges identified in the current study, such as difficulties with group dynamics, unequal participation, and the complexities of virtual interaction, align closely with issues reported in prior research. For example, Wang and Wu (2022) and Malan (2021) have discussed similar obstacles related to the coordination of group activities, including time zone differences and technological barriers. These inherent challenges need considerations to CL, particularly in virtual settings.

Despite these similarities, this study diverges prior research on some aspects. First, the study did not confirm a significant impact of MPA on student satisfaction in MOOCs, which were found by Yu (2022) and Thanh et al. (2024) in online settings. The difference suggests that in the specific context of MOOCs for EFL students, other factors, such as language barriers, technological literacy, and cultural differences, may override the influence of MPA. Another key difference lies in the methodological approach. The current study used a mixed-methods design, which provides a lens for a more detailed exploration of the dynamics and complexities of CL in MOOCs, especially the students' subjective experiences that might be underestimated in quantitative research (e.g., Du, 2023; Thanh et al., 2024).

In light of the constructivism theory, the current study once again underscores the active role of learners in constructing their own understanding through experiences and reflection. The findings of the present study highlight the importance of preparation and readiness in the context of CL, particularly in MOOCs, where EFL students often face the aforementioned unique challenges.

Another key finding of this study is the role of clear task assignments and the establishment of common goals in avoiding conflicts and ensuring successful collaboration. This approach aligns with the constructivist emphasis on active participation, where each student's contribution is essential for knowledge construction. Additionally, the establishment of rules and consensus before starting group work, as highlighted by a participant, reflects the constructivist principle of creating a structured learning environment that helps facilitate meaningful learning experiences.

Furthermore, the study revealed that consolidating and evaluating shared ideas from all group members is crucial for effective collaboration, which is a core aspect of constructivist learning. This practice not only motivates active participation but also enables the co-construction of knowledge through social interaction, as posited by Vygotsky (1978). The role of the group leader in facilitating discussions and guiding decision-making further reinforces the importance of structured, yet flexible, leadership in fostering a collaborative learning environment.

These findings also highlight the relevance of constructivism in designing and implementing CL activities in online settings, such as in MOOCs. By ensuring that students are adequately prepared, assigned clear tasks and roles, and encouraged to contribute to the shared goals, educators can create a favorable learning environment, even online, that promotes the active construction of knowledge. This approach not only boosts academic outcomes but also helps students' growth of critical social and communication skills, which are essential for EFL students self-directing their learning in the complexities of online education.

CONCLUSION AND LIMITATIONS

The current investigation elucidates the profound influence of collaborative learning on EFL SS in a digital educational context, especially within MOOCs. The study underscores the importance of preparation and readiness, clear task assignments, and effective leadership in ensuring the success of CL activities. These findings align with the principles of constructivism, which contend the learners' active role in constructing knowledge through collaborative activities and social interactions. Notwithstanding the obstacles associated with virtual interactions, the research indicates that meticulous planning and systematic execution of collaborative learning methodologies can foster a vibrant and supportive online learning environment.

This study, while informative and comprehensive, is without some limitations. The first shortcoming is attributed to its homogeneous EFL students, which may not fully represent the broader population of online learners. Furthermore, the technological challenges faced by learners, including varying degrees of digital

literacy and access to stable internet connectivity, were not thoroughly examined in this investigation, which may also influence the learners' perceptions regarding the merits of online collaborative learning.

Implications

The results of this investigation yield significant implications for educators and institutions engaged in the realm of online education, especially within the framework of MOOCs. The faculty should place a strong emphasis on the preparation and readiness of students before involving students in CL activities. This includes providing clear guidelines for task assignments, establishing common goals, and ensuring effective leadership within groups. Furthermore, it is imperative for educators to recognize the obstacles inherent in virtual interactions and endeavor to establish organized environments that promote substantial and inclusive engagement. The research further underscores the necessity for continuous support and professional development for educators to proficiently design and oversee collaborative learning activities within online environments.

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