



Exploring the Levels of Multidimensional Student Engagement in a Flipped English Writing Classroom: A Mixed-Methods Study

Chunhui Pan¹, Sian Hoon Teoh^{2*}, Khadijah Said Hashim³

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ABSTRACT

Purpose: Student engagement is a key indicator of learning quality and instructional effectiveness. As a blended learning model, the flipped classroom offers a valuable context for studying engagement. This study aims to explore the multi-dimensional engagement levels (behavioural, emotional, and cognitive) of college students in a flipped classroom, focusing on student perceptions. **Methodology:** A case study design was employed at a university in western China, with 35 third-year college students in an English writing flipped classroom. Data were collected using a mixed-method approach, including questionnaires and interviews. **Results:** The study found high

engagement levels across all three domains: cognitive engagement ($M = 4.14$, $SD = 0.607$), behavioural engagement ($M = 4.33$, $SD = 0.544$), emotional engagement ($M = 4.16$, $SD = 0.735$), and overall student engagement ($M = 4.22$, $SD = 0.499$). **Implications for Research and Practice:** The qualitative analysis highlighted the importance of autonomous learning, concentration, and peer interaction, showing that the flipped classroom fosters an environment that supports multi-dimensional engagement. This, in turn, enhances both the learning experience and outcomes.

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Introduction

Contemporary trends in higher education increasingly advocate for student-centred approaches to learning (Berg & Lepp, 2023; Dada et al., 2023; Steen-Utheim & Foldnes, 2017). The integration of next-generation information technologies—such as mobile internet, cloud computing, and big data analytics—has given rise to transformative pedagogical frameworks, most notably the flipped classroom model. This advancement not only reflects the broader shift towards student-centred instruction (Hamzah et al, 2024) but also highlights the considerable role and transformative capacity of digital technologies

¹PHD candidate, Faculty of Education, University Teknologi MARA, Puncak Alama, Selangor, Malaysia, 42300

ORCID : <https://orcid.org/0009-0000-9253-9115> , Email: panchunhui0912@gmail.com

²Professor, Faculty of Education, University Teknologi MARA, Puncak Alama, Selangor, Malaysia, 42300

ORCID : <https://orcid.org/0000-0001-5625-290X> , Email: teohsian@uitm.edu.my

³Dr, Faculty of Education, University Teknologi MARA, Puncak Alama, Selangor, Malaysia, 42300

ORCID : <https://orcid.org/0000-0002-6318-3444> , Email: khadi642@uitm.edu.my

*Correspondence: teohsian@uitm.edu.my

in facilitating educational innovation and systemic reform within the higher education sector.

Although a segment of academic discourse centres on the implementation of technological applications and digital tools within flipped classroom settings, an equally significant body of literature underscores the critical role of student engagement (Newmann, 1992; Nystrand & Gamoran, 1991). Scholars in this domain emphasise the strong correlation between the calibre of learning experiences and subsequent academic achievement. Numerous investigations have identified student engagement as a pivotal metric for assessing the quality of educational delivery and instructional efficacy (Early et al., 2014). Further empirical evidence suggests that engagement is shaped predominantly by environmental stimuli rather than inherent student traits (Sinclair et al., 2003). In essence, engagement is a dynamic and adaptable construct (Fredricks et al., 2004; Furrer et al., 2014), influenced significantly by contextual and situational variables (Connell & Wellborn, 1991).

The flipped classroom, a prototypical model of blended learning, has thus emerged as a fertile setting for investigating the dynamics of student engagement (Fisher et al., 2021). According to Garrison and Kanuka (2004), leading figures in the field of educational technology, fostering active student involvement constitutes the cornerstone of successful blended learning. Empirical studies have substantiated that the enriched technological environments inherent in flipped classrooms can significantly enhance student participation and commitment (Blair et al., 2015; Li & Li, 2022; Steen-Utheim & Foldnes, 2017). Nonetheless, prior research has largely concentrated on general engagement levels or singular dimensions – predominantly behavioural aspects – while offering limited insights into the full spectrum of engagement, including emotional and cognitive domains. Furthermore, there remains a paucity of research exploring how learners articulate and interpret their engagement experiences specifically within flipped English language classroom contexts.

Research Objectives

To assess the extent of university students' engagement in English writing within a flipped classroom context, with particular emphasis on behavioural, emotional, and cognitive dimensions. Furthermore, to conduct a qualitative exploration of learners' experiences and perceptions concerning their engagement in this flipped instructional environment for English writing.

Research Questions

- RQ1:** What are the levels of university students' engagement across behavioural, emotional, and cognitive domains within the flipped English writing classroom?
- RQ2:** How do students articulate and interpret their experiences of multi-dimensional engagement in the context of the flipped English writing classroom?

Significance of the Study

The significance of this study resides in its provision of an in-depth and holistic understanding of student engagement across multiple dimensions within a flipped

classroom context. It contributes to the existing body of literature by both enhancing and broadening current knowledge concerning learner engagement in such environments, while simultaneously offering greater insight into the pedagogical foundations of the flipped classroom model. Moreover, the study proposes practical instructional strategies to assist educators in the effective implementation of flipped learning, and supplies empirical evidence aimed at fostering improved student engagement within this instructional framework.

Literature Review

Multidimensional Student Engagement

Multidimensional student engagement presents a nuanced and holistic portrayal of learners' involvement in the educational process. Within the academic community, there is now broad agreement on the conceptualisation of student engagement as a multidimensional construct. Among the various classification frameworks proposed, the tripartite model—encompassing behavioural, emotional, and cognitive dimensions—is regarded as particularly influential. [Jimerson et al. \(2003\)](#) identified these three components as the foundational elements in most conceptualisations of student engagement, a finding subsequently affirmed by [Fredricks et al. \(2004\)](#) as well as by [Skinner et al. \(2008\)](#). Moreover, a wide array of studies has adopted [Fredricks et al. \(2004\)](#) tripartite model across both conventional and digital learning contexts ([Appleton et al., 2006](#); [Henrie et al., 2015](#)), employing it to differentiate various engagement forms and to develop robust indicators for measurement ([Li & Baker, 2018](#)).

This investigation adopts the framework proposed by [Fredricks et al. \(2004\)](#) to examine student engagement within the flipped classroom context, focusing on behavioural, emotional, and cognitive aspects. In a blended learning setting, behavioural engagement is particularly associated with learner autonomy, interaction between students and instructors, and collaborative group work ([Ma et al., 2015](#)). Accordingly, in this study, behavioural engagement refers to the observable actions exhibited by students in the flipped classroom, including independent learning (e.g., viewing online instructional videos, completing quizzes and assignments), maintaining concentration, dedicating study time, and engaging in peer and teacher interaction.

Emotional engagement, as defined by [Shoshani et al. \(2016\)](#), pertains to students' affective involvement and their sense of immersion in learning activities. This study explores the emotional responses elicited in students participating in flipped classroom sessions, paying particular attention to both positive and negative affective states—such as interest, enjoyment, sense of belonging, boredom, anxiety, and fatigue. [Fredricks et al. \(2004\)](#) characterise cognitive engagement as the extent of an individual's intrinsic motivation to engage in learning and goal attainment, alongside their ability to plan, monitor, and regulate cognitive processes. Within this study, cognitive engagement denotes the depth of learners' mental involvement and cognitive activity, particularly the application of learning strategies and self-regulatory mechanisms employed during the flipped learning process.

Flipped Classroom

The flipped classroom reverses conventional teaching by shifting content delivery outside class through teacher-prepared instructional videos, allowing students to study at their own pace and revisit unclear material (Clark, 2015; Fulton, 2012a). In-class sessions are then used for student-centred tasks, with teachers facilitating application-based activities and offering support where students struggle (Abeysekera & Dawson, 2014; Fulton, 2012a). As a form of blended learning, it integrates technology to foster active participation and deeper understanding (Bergmann & Sams, 2012; Hamdan & McKnight, 2013). This approach encourages all learners to engage through personalised and collaborative learning (Alvarez, 2012; Berrett, 2012). Flipped learning prioritises the learner (Bergmann & Sams, 2014). Abeysekera and Dawson (2014) define it as a strategy involving pre-class content delivery, in-class active learning, and supplementary tasks to reinforce understanding. While their definition remains broad, Bishop and Verleger (2013) specify that the model requires video-based learning outside class and interactive activities during lessons – a definition adopted in this study.

Research on Student Engagement in Flipped Classroom

Given that student engagement is multi-dimensional, adaptable, and shaped by diverse educational contexts (Li & Li, 2022; Lotto, 2022), examining flipped classrooms through this lens offers a richer understanding of actual learning behaviours. Recent research has highlighted engagement as both a learning process and an outcome within flipped settings. For example, Simpson and Richards (2015) reported significantly higher engagement in flipped classes than in traditional lectures. Similarly, Hung (2014), using a quasi-experimental design, found greater engagement among students in flipped environments. These findings suggest that enhanced learning outcomes in flipped classrooms stem largely from increased engagement (Gross et al., 2015; Jensen et al., 2015).

While most studies treat engagement as a single construct, some have begun exploring it across behavioural, emotional, and cognitive dimensions (Gasmi, 2018; Li & Li, 2022; Lotto, 2022). However, comprehensive insights into how these dimensions evolve in flipped classrooms remain scarce. Few have employed mixed-methods to analyse the development of such engagement over time. This gap is particularly evident in English writing courses, where disengagement is a persistent issue in China's EFL context (Hu, 2022; Jiang et al., 2021; Yu & Zhou, 2022). As writing demands both language production and critical thought, further research is needed to assess how the flipped model affects students' multi-dimensional engagement in this domain.

Methodology

Research Design

This research aims to conduct a thorough examination of students' engagement within the flipped classroom context, adopting a multidimensional framework that incorporates behavioural, emotional, and cognitive aspects. A case study methodology is utilised, employing a mixed methods approach. Initially, quantitative data are gathered through a student engagement questionnaire, followed by qualitative data collection via interviews

to provide richer insight into the quantitative outcomes. This research design facilitates a more holistic understanding of the multifaceted nature of student engagement in flipped classroom environments at the tertiary level.

Sampling

This investigation took place at an undergraduate institution situated in the northwest of Mainland China, employing a purposive sampling strategy for participant selection. This approach was chosen due to its suitability in identifying individuals capable of offering direct, experiential insight into the phenomenon under examination, thereby yielding rich and meaningful data (Creswell, 2009; Onwuegbuzie & Collins, 2015). The study involved 35 undergraduate students (21 female, 14 male) who were enrolled in an English writing module delivered through a flipped classroom approach. Participants were purposefully selected based on their extensive exposure to and deep familiarity with flipped learning, ensuring the collection of relevant and detailed accounts. Prior to data collection, participants were clearly informed about the nature and aims of the research, and their voluntary participation was emphasised. Confidentiality was assured, and all information provided was used exclusively for the purposes of this study.

Research Instruments

This research employs a Student Engagement Questionnaire to assess the engagement levels of students within flipped classrooms. The questionnaire was adapted from the "Classroom Engagement Questionnaire," developed by Zhou et al. (2024). The instrument comprises three key dimensions of engagement: behavioural, cognitive, and emotional (Fredricks et al., 2004), with a total of 32 items (refer to Table 1). A 5-point Likert scale was employed, with responses ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), where higher scores indicate greater levels of engagement. To assess the reliability of the questionnaire, Cronbach's Alpha was calculated, yielding a value of 0.934. This high alpha coefficient demonstrates excellent internal consistency and reliability. Additionally, the validity of the questionnaire has been confirmed in previous research.

Table 1

Multi-dimensional Student Engagement Questionnaire

Dimension	Sub-Dimension	Item
Behavioural Engagement	Autonomous Learning	Item 1-3
	Attention/Concentration	Item 4-7
	Teacher-Student Interaction	Item 8-10
Emotional Engagement	Peer Interaction	Item 11-13
	Interest	Item 14-17
Cognitive Engagement	Satisfaction	Item 18-21
	High-Level Learning	Item 22-25
	Learning Strategies	Item 26-28
	Self-Regulation	Item 29-32

In this research, data were gathered through semi-structured interviews to explore students' perceptions of engagement in flipped classrooms. The interview protocol was

crafted based on the items from the Student Engagement Questionnaire. The items were reworded into open-ended questions, and additional questions were included to probe students' development of behavioural, emotional, and cognitive engagement within flipped classrooms, thereby encouraging more in-depth responses. Furthermore, participants were asked to elaborate on their answers or provide examples to offer richer and more detailed insights. To mitigate the higher costs associated with conducting interviews and to reduce potential biases from interviewers, a thorough interview protocol was designed, enabling the collection of a substantial amount of interview data within a limited time frame.

Data Collection and Analysis

A total of 35 questionnaires were distributed, with 32 valid responses collected. Additionally, 17 of the 35 students involved in the flipped classroom were interviewed to obtain richer insights. Data analysis comprised both quantitative and qualitative approaches. Descriptive statistics (mean and standard deviation) were calculated using SPSS version 21. Interview responses were coded and examined through thematic analysis using NVivo 14.

Results

The Result of Quantitative Data Analysis

Quantitative data addressing the first research question – college students' engagement across behavioural, emotional, and cognitive domains in the flipped classroom – were collected using a student engagement questionnaire. Descriptive statistics (mean and standard deviation) were first calculated for overall engagement and its three sub-components. Each dimension was then analysed at the item level, reporting means, standard deviations, and response frequencies. A Likert scale midpoint of 3, representing neutrality between agreement and disagreement, was used as the interpretive benchmark (Vaske, 2019). Scores above this point suggest positive engagement, while scores below indicate reduced engagement. As summarised in Table 2, all engagement dimensions exceeded the theoretical mean: behavioural engagement (M = 4.33, SD = 0.544), emotional engagement (M = 4.16, SD = 0.735), cognitive engagement (M = 4.14, SD = 0.607), and overall engagement (M = 4.22, SD = 0.499). These results reflect strong engagement, with behavioural engagement rated highest.

Table 2

Descriptive Statistical Analysis of Student Engagement

Dimension	N	M	SD
Behavioural Engagement	32	4.33	0.544
Emotional Engagement	32	4.16	0.735
Cognitive Engagement	32	4.14	0.607
Overall Student Engagement	32	4.22	0.499

To gain a deeper understanding of students' engagement within the flipped classroom environment, the following analysis examines all sub-dimensions of each engagement

dimension (behavioural engagement, emotional engagement, and cognitive engagement). Behavioural engagement comprises four sub-dimensions: autonomous learning, concentration, teacher-student interaction, and peer interaction. As presented in Table 3, the results indicate that autonomous learning achieved a mean score (M) of 4.29 (SD = 0.62), concentration had a mean of 4.25 (SD = 0.62), teacher-student interaction also recorded a mean of 4.25 (SD = 0.78), and peer interaction received the highest mean score of M = 4.58 (SD = 0.58). This analysis suggests that all sub-dimensions of behavioural engagement were rated highly by students, with peer interaction being the most pronounced, reflecting a substantial degree of collaborative learning within the flipped classroom. Table 4 provides further details, showing the mean and standard deviation for each item under behavioural engagement. The results reveal that the three items measuring peer interaction had the highest mean values.

Table 3

Descriptive Statistical Analysis of Sub-Dimension of Behavioural Engagement

Sub-Dimension	N	M	SD
Autonomous Learning	32	4.29	0.620
Concentration	32	4.25	0.620
Teacher-Student Interaction	32	4.25	0.789
Peer Interaction	32	4.58	0.580

Table 4

Behavioural Engagement Questionnaire Items with Mean Score and Standard Deviation

Sub-dimension	Item	M	SD
Autonomous Learning	1) I was able to watch instructional videos before class in time.	4.470	0.76
	2) I could complete the prescribed assignments or tests on time before class.	4.310	0.85
Concentration	3) I was able to ask questions about the content I didn't understand from the pre-class autonomous learning.	4.090	0.89
	4) I paid attention in class.	4.190	0.82
	5) When studying in class, I thought seriously.	4.130	0.83
Teacher-Student Interaction	6) I was very focused when completing classroom tasks.	4.340	0.78
	7) I thought carefully about the questions the teacher asked.	4.380	0.79
	8) I was willing to take the initiative to answer the teacher's question.	4.250	0.95
	9) In any discussion with the teacher, I would ask if I have any questions.	4.220	0.87
Peer Interaction	10) I was happy to discuss with the teacher.	4.280	0.92
	11) When discussing with classmates, I listened carefully.	4.690	0.64
	12) I was willing to participate in discussions among my classmates.	4.560	0.71
	13) In classroom group activities, I actively cooperated with my classmates to participate in classroom activities (such as presentations, mutual evaluation of homework, etc.)	4.500	0.80

Table 5 displays two sub-dimensions of emotional engagement, namely 'Interest' and 'Satisfaction'. The mean score for 'Interest' was M = 4.09 (SD = 0.86), while 'Satisfaction' achieved a mean of M = 4.24 (SD = 0.69). Both scores exceed the theoretical average of 3,

indicating a high level of emotional engagement among students. Notably, the higher mean score for 'Satisfaction' underscores the students' positive reception of the flipped classroom experience, reflecting their favourable views regarding the educational outcomes and overall experience within the flipped classroom environment for English writing. Table 6 further presents the mean and standard deviation for each item under emotional engagement, revealing that the mean values for the three items related to students' classroom satisfaction were notably higher.

Table 5

Descriptive Statistical Analysis of Sub-Dimension of Emotional Engagement

Sub-Dimension	N	M	SD
Interest	32	4.09	0.867
Satisfaction	32	4.24	0.694

Table 6

Emotional Engagement Questionnaire Items with Mean Score and Standard Deviation

Sub-Dimension	Item	M	SD
Interesting	14) I felt very satisfied while completing the class tasks such as homework and group discussions.	4.09	0.96
	15) I was truly inspired by the insightful discussions among my classmates.	4.09	1.05
	16) I'm really interested in learning more about the new content of the class.	4.03	0.86
	17) When I began exploring new knowledge in class, I felt truly fulfilled and excited about the learning journey.	4.16	1.08
Satisfaction	18) The current classroom model is interesting to me.	4.12	0.75
	19) I really enjoy the instructional approach where students can ask questions and teachers provide thoughtful responses.	4.16	0.92
	20) I prefer the current classroom model over the more teacher-centred approach.	4.31	0.85
	21) Compared to traditional classrooms where teachers dominate, the current model feels more rewarding for me.	4.38	0.75

Table 7 presents the mean (M) and standard deviation (SD) for the three sub-dimensions of cognitive engagement: High-level Learning (M = 4.10, SD = 0.653), Learning Strategies (M = 4.11, SD = 0.778), and Self-Regulation (M = 4.20, SD = 0.702). The results indicate that the scores for all three sub-dimensions of cognitive engagement exceed the theoretical mean of 3, demonstrating a significant level of cognitive involvement among students within the flipped English writing classroom. Notably, the self-regulation sub-dimension displayed particularly high mean values, suggesting that students show exceptional skill in managing their learning processes. Table 8 further outlines the mean and standard deviation for each item related to cognitive engagement.

Table 7

Descriptive Statistical Analysis of Sub-Dimension of Cognitive Engagement

Sub-Dimension	N	M	SD
High-Level Learning	32	4.10	0.653
Learning Strategies	32	4.11	0.778
Self-Regulation	32	4.20	0.702

Table 8

Cognitive Engagement Questionnaire Items with Mean Score and Standard Deviation

Sub-Dimension	Item	M	SD
Higher-Level Learning	22) I was able to apply concepts, theories or methods learned in the English Writing Course to solve practical problems or apply knowledge to new situations.	4.16	0.80
	23) When I participated in class discussions or completed assignments, I can comprehensively analyse problems from different perspectives.	3.97	0.93
	24) I sometimes have different perspectives during class discussions.	4.00	0.84
	25) I would be happy to provide facts or examples to support my point of view.	4.31	0.89
Learning Strategies	26) I was able to review the learning notes in time after class.	4.09	1.08
	27) I was able to summarize what I have learned in the English Writing Course in time.	4.31	0.82
	28) I can quickly identify key information from a lot of reading materials.	3.94	1.01
Self-Regulation	29) I was able to make my own learning plan and strictly implement it.	4.06	0.87
	30) I often monitored myself to follow the study plan and adjust my actions in time.	4.06	1.01
	31) I have been constantly improving my learning methods and trying to improve my learning efficiency.	4.41	0.83
	32) I insisted on finishing my study tasks before doing anything else.	4.28	0.72

In summary, the quantitative findings reveal high levels of behavioural, emotional, and cognitive engagement in the flipped English writing classroom. Behavioural engagement was strongest, with students actively engaging in self-directed learning, classroom participation, and interaction with peers and instructors. Emotional engagement was also substantial, reflecting strong interest and satisfaction with the flipped model, highlighting its influence on the overall learning experience. Cognitive engagement results indicated the effective use of higher-order thinking, strategic learning, and self-regulation, reflecting students' deep intellectual involvement.

The Result of Qualitative Data Analysis

This section primarily aims to analyse the qualitative data gathered from interviews to address research question 5: "How do students describe and perceive their engagement experiences in the flipped English writing classroom?" The objective is to gain a deeper understanding of the insights drawn from the quantitative data. Thematic analysis is employed as a flexible method for systematically examining patterns within qualitative data (Braun & Clarke, 2013). The process involves six steps:

Step 1: Familiarization with the Data

According to Braun and Clarke (2013), data analysis begins with contextual familiarisation. This process commenced upon receiving the semi-structured interview responses, with each transcript reviewed four times to ensure a comprehensive understanding.

Step 2: Data Coding

This study adopted in vivo coding to preserve participants' original expressions, aligning with Manning (2017) and Saldaña (2021). This method is particularly effective for capturing the nuanced experiences of the study group by reflecting the contextual meanings within the interview transcripts. The researcher systematically examined each transcript, identifying phrases relevant to behavioural, emotional, or cognitive engagement. For example, in response to a question about pre-class video learning (RQ1), P9 noted, "In the flipped class, through watching lecture videos repeatedly," and P17 shared, "I would quickly scan the online course videos, and then find something I didn't understand, I would go back and watch it again." Terms like "repeatedly," "watch it many times," and "watch it again" were coded similarly. In response to RQ14, concerning feelings after completing a writing task, P4 said, "I feel excited because I have gained knowledge," while P16 stated, "I had a sense of accomplishment when I found out the problems with my peers' compositions." All initial codes were transferred into a Microsoft Excel workbook, resulting in 498 unique codes. Table 9 presents examples of these coded transcript sections.

Table 9

Sample of Initial Coding in Semi-Structured Interview Transcript Data

Code	Participant
The online lecture videos before class in flipped classroom allows me to watch it many times.	P1
However, with continuous learning and practice, I experienced a great sense of achievement when I realized that I could also find errors.	P2
Within the flipped classroom setting, the desire to acquire knowledge or motivation for learning is much more intense compared to traditional classrooms.	P3
Because there is no pressure to give feedback to each other, that's why it feels more relaxed.	P4
After class and careful consideration, I will ask the teacher for help , and I feel relaxed at the same time.	P5

Step3: Searching for Themes

As outlined by Braun and Clarke (2013), this stage of analysis aims to develop themes that meaningfully reflect the data. In Step 3, related codes were clustered into thematic categories. For example, all codes referencing teacher feedback were grouped under "Teacher-provided timely feedback/guidance." This process initially produced 36 distinct categories, as detailed in Table 10.

Table 10

Sample List of Categories Derived from Coded Transcripts

Category	Codes in Category	Sample Codes
1.1 Repeated video-Watching	6	<p>P1: The online lecture videos before class in flipped classroom allows me to watch it many times.</p> <p>P9: In the flipped class, through watching lecture videos repeatedly</p> <p>P16: I usually watch lecture videos from beginning to end.</p> <p>P17: I would quickly scan the online course videos, and then find something I didn't understand, I would go back and watch it again.</p>
2.1 Find Partner's Problems Carefully	10	<p>P9: Especially during group assessments, my classmate Zhang Xiao has been really dedicated to correcting my essays.</p> <p>P10: Because each student has the task of peer evaluation, they will focus on carefully correcting their peers' essays.</p> <p>P17: In the group mutual evaluation, the group members are involved in finding mistakes together, and our attention is very high at this time.</p>
4.1 Having a Sense of Achievement	12	<p>P2: However, with continuous learning and practice, I experienced a great sense of achievement when I realized that I could also find errors.</p> <p>P4: I feel excited because I have gained knowledge.</p> <p>P10: This increases my level of engagement and gives me a sense of achievement.</p>
5.1 Get Support/Help	28	<p>P2: The essay pre-reading and practice questions assigned by the teacher before each class are really beneficial for my studies.</p> <p>P5: Engaging in discussions and revising each other's compositions among group members is super helpful as it helps me recognize many of my weaknesses and apply the writing skills I've learned for mutual evaluation.</p> <p>P11: It feels amazing to discover the strengths of others, make up for our own weaknesses, and support each other.</p>

Step 4: Reviewing Themes

After identifying the themes, the researcher conducted a subsequent review of the dataset. This additional analysis was designed to ensure that no important details had been overlooked during the initial coding process, in line with the guidelines set by Braun and Clarke (2013). If any omissions were identified, they were incorporated into the analysis. Each theme was carefully reviewed in relation to the research questions, codes, categories, and interview transcripts.

Step 5: Defining and Naming Themes

At this stage, themes were refined to reveal the overarching narrative of the analysis (Braun & Clarke, 2013). Drawing from 498 codes across 36 categories, ten themes were identified, aligned with behavioural, emotional, and cognitive engagement. The names and descriptions of these themes are shown in Table 11.

Table 11

The Themes and Codes Derived from the Current Study

Dimension	Theme	Category	
Behavioural Engagement	Theme 1: Behavioural Engagement Derived through Autonomous Learning	1.1 Repeated Video-Watching 1.2 Independent Completion of Class Tasks 1.3 Prepare Writing Materials Before Class	
	Theme 2: Behavioural Engagement Derived through Concentration	2.1 Find Partner's Problems Carefully 2.2 Answer and Ask Questions Actively 2.3 Finish Writing within a Time Limit 2.4 Thinking, Analysing, and Recording Key Points	
	Theme 3: Behavioural Engagement Derived through Student Collaboration and Interaction with Peers and Teacher	3.1 Working with Peers to Find Mistakes 3.2 Learning from Peers 3.3 All Students Involved 3.4 Discuss Together 3.5 Teacher Provided Just-in-Time Feedback 3.6 Teacher gave Positive Comments	
	Emotional Engagement	Theme 4: Emotional Engagement Derived through Interest	4.1 Having a Sense of Achievement 4.2 Desiring to Acquire Knowledge and Solve Doubts 4.3 Feel Confidence (Being Recognized) 4.4 Find Interesting
		Theme 5: Emotional Engagement Derived through Satisfaction	5.1 Get Support 5.2 Relaxed Classroom Atmosphere 5.3 Adaptation (Enjoying)
		Theme 6: Experiencing Challenges	6.1 Find it Difficult 6.2 Can't Find the Mistake 6.3 Feel Frustration and Nervous

Table 11(continued)

The Themes and Codes Derived from the Current Study

Dimension	Theme	Category
Cognitive Engagement	Theme 7: High-Order Learning	7.1 Discover the Strengths and Weaknesses of Peer Writing
		7.2 Realize Self- Shortcomings
		7.3 Comprehensive Understanding and Apply Knowledge
	Theme 8: Self-Regulation	8.1 Time Management
		8.2 Taking Notes and Summarize
		8.3 Making Adjustment
	Theme 9: Students' Perceived Writing Achievement	9.1 Learned How to Use Advanced Vocabulary
		9.2 Learned to Design the Composition
		9.3 Writing has Improved
Students' Suggestions	Theme 10: Teachers' Classroom Organization and Classroom Equipment Support	10.1 Organization of Group Mutual Evaluation Activities
		10.2 The Release Time of the Writing Topic
		10.3 Classroom Discipline
		10.4 Classroom Screen and Network

Behavioural Engagement

Theme 1 highlights how students engaged with lecture videos and pre-class tasks to prepare writing materials for in-class essays. This process facilitated the development of independent learning skills. Theme 2 illustrates students' active involvement in classroom activities, focusing on immediate writing tasks with concentration. They proactively answered and asked questions, engaging in thoughtful reflection on teacher responses, though attention was sometimes disrupted by external factors. Theme 3 reveals that peer and group evaluations helped students identify mistakes in their peers' work, fostering an awareness of the value of peer feedback and encouraging self-reflection in their own writing. This participation in discussions was promoted by the flipped classroom model.

Emotional Engagement

Theme 4 reflects students' enthusiasm for learning English writing in the flipped classroom, driven by a strong desire for knowledge and problem-solving. It also underscores the boost in self-confidence and achievement as students identified errors in peer essays, further fuelling their interest in writing. Theme 5 focuses on students' adaptation to the flipped classroom, noting the relaxed atmosphere during discussions and the enhanced sense of belonging within the classroom, strengthening relationships with teachers and peers. Theme 6 captures the challenges students face, particularly the difficulties encountered during pre-class video studies and in-class writing tasks, along with the frustration and anxiety stemming from difficulties in peer evaluations.

Cognitive Engagement

Theme 7 demonstrates that students were able to apply the knowledge and techniques acquired in the English Writing course to address practical problems or adapt their learning to new contexts. Additionally, during class discussions or peer assessment activities, students were able to identify strengths and weaknesses in their peers' compositions through thorough analysis and evaluation, reflecting on these from multiple perspectives. Theme 8 highlights how students in the flipped English writing classroom effectively employed self-regulation strategies. These strategies included planning study schedules, maintaining and regularly reviewing notes from recorded lectures, reflecting on and evaluating their learning progress, gathering pertinent information, organising their learning environments, and actively seeking assistance from various sources.

Theme 9 reveals that students felt they had acquired advanced vocabulary, learned the structure of English composition, and made significant improvements in their English writing skills after a semester of flipped classroom learning. Theme 10 captures students' feedback on enhancing the flipped classroom experience, particularly regarding aspects such as classroom organisation by teachers and the availability of classroom resources. Specific areas for improvement noted by students included the preparation and timing of teaching video content, scheduling of learning tasks and materials, organisation of group activities, and the enhancement of the classroom's smart environment to better support learning activities.

Step 6: Producing the Report

In this stage, the participants' experiences were conveyed through a blend of analysis, visual data, and key excerpts. Qualitative analysis revealed high levels of engagement across behavioural, emotional, and cognitive domains. Themes such as autonomous learning, concentration, interaction with peers and teachers, interest, satisfaction, higher-order learning, self-regulation, and challenges emerged. The flipped classroom model created an environment that greatly enhanced student engagement and interaction, improving both the learning experience and academic outcomes. Students demonstrated progress in their English writing skills, driven by emotional engagement, which in turn fostered cognitive engagement.

Discussion

This study uses a mixed-method approach to assess college students' multi-dimensional engagement in the English writing flipped classroom, covering behavioural, emotional, and cognitive aspects. Quantitative findings reveal high engagement levels across all dimensions: cognitive ($M = 4.14$, $SD = 0.607$), behavioural ($M = 4.33$, $SD = 0.544$), and emotional ($M = 4.16$, $SD = 0.735$), with an overall engagement score of $M = 4.22$ ($SD = 0.499$). These results align with Cassano et al. (2024) study of 68 undergraduates at Politecnico di Milano, which explored engagement in flipped classrooms using Video-Annotation Tool-based teaching content.

Qualitative analysis confirmed these findings, highlighting high engagement in all three domains. Behavioural engagement centred on autonomous learning, enhanced focus,

cooperative learning, and active peer and teacher interactions. Emotional engagement stemmed from students' increased interest in English writing, boosted by a sense of achievement, confidence, and a supportive classroom environment, resulting in higher satisfaction. Cognitive engagement involved students critically analysing their peers' and their own writing during peer evaluations, facilitating higher-order learning activities. Feedback indicated that students felt a sense of accomplishment, particularly in mastering advanced vocabulary and improving writing skills. The qualitative data reinforced the significance of autonomous learning, concentration, and peer interaction, showing that the flipped classroom fosters a supportive environment, enhancing both the learning experience and outcomes.

The qualitative findings of this study align with those from previous research on student engagement in flipped classrooms, particularly the work of [Steen-Utheim and Foldnes \(2017\)](#). Their study demonstrated that students in flipped classroom environments reported more positive learning experiences and increased engagement, particularly with regard to emotional involvement. [Steen-Utheim and Foldnes \(2017\)](#) identified seven key factors that contributed to enhanced learning: peer commitment, recognition, safety, teacher relationships, physical environment, collaborative learning, and video-based content. These factors resonate with the findings of the current study, which highlighted elements such as peer interaction, support, a sense of accomplishment, and increased confidence.

Conclusion

This study employed a mixed-method approach to investigate multi-dimensional student engagement in the flipped English writing classroom, focusing on behavioural, emotional, and cognitive dimensions. The quantitative findings revealed high levels of engagement across all three dimensions, with behavioural engagement being the highest. These results align with existing theories, such as the engagement theory, which underscores the importance of collaborative, project-based learning and the role of meaningful student engagement in effective learning. Qualitative analysis further demonstrated that students' engagement was fostered through pre-class activities like lecture videos and quizzes, along with in-class peer and teacher interactions. These activities not only enhanced behavioural and emotional engagement but also promoted cognitive engagement.

The study's findings offer valuable insights into multi-dimensional student engagement in flipped classrooms, reinforcing the idea that such classrooms create an environment conducive to comprehensive engagement. The research provides practical guidance for educators, suggesting that they design activities promoting active participation both inside and outside the classroom, such as pre-class assignments, videos, quizzes, and classroom interactions. To enhance emotional engagement, creating a supportive and inclusive environment and fostering positive relationships is essential. To stimulate cognitive engagement, educators should incorporate problem-solving tasks, critical thinking exercises, and opportunities to apply theory to practice. Despite the study's limitations, particularly its sample size, the findings contribute significantly to the understanding of flipped classrooms. Future research should expand the sample size and explore the impact of flipped classrooms on engagement across various courses.

Additionally, longitudinal studies would help assess the long-term effects of sustained engagement on student achievement, retention, and content understanding, providing deeper insights into how ongoing engagement shapes academic progress and outcomes.

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