FLOW STATE AND ACADEMIC ENGAGEMENT AMONGST STUDENTS THROUGH OPTIMIZED STUDY SPACES

JAMAICA MARIE D. CADINAS[1], MAY MARCELL M. CORNEJA[2], JESSIE JANE Z. DIMAANO[3], CRISSA JANE V. MONTABLAN[4], MYKA JENINE T. SAMSON[5]
https://orcid.org/0009-0008-4104-8568[1], https://orcid.org/0009-0005-5126-4414[2],
https://orcid.org/0009-0006-5000-0289[3], https://orcid.org/0009-0004-9779-2362[4]
https://orcid.org/0009-0009- 5697-0827[5]
maymarcell.corneja@ub.edu.ph[1], 2120250@ub.edu.ph[2], 2120032@ub.edu.ph[3], 2120432@ub.edu.ph[4], 2020090@ub.edu.ph[5]
University of Batangas, Lipa City
Gov. Feliciano Leviste Road, Lipa City, Philippines

DOI: https://doi.org/10.54476/ioer-imrj/166266

ABSTRACT

Many students struggle with focus and performance due to poorly maintained study spaces. This research, grounded in Csikszentmihalyi's flow theory and Bonner II's academic engagement theory, examines how areas built for academics impact flow state and academic engagement, emphasizing the limitations of current campus study areas and their impact on productivity, attention, and motivation and using a mixed-method approach with the PSAE-QA - Person-Situation Academic Engagement Questionnaire for Adults Flow State Scale and an open-ended interview. Accordingly, the data were analyzed through ANOVA, Pearson correlation, and thematic coding. Findings indicate an average level of flow (0.41) and academic engagement (0.51), with a moderate positive correlation (0.59) between the two variables in the current study. Students reported higher engagement in quiet, well-equipped environments. The results suggest that improving study space design could enhance both flow and engagement, with differences observed across student year levels and programs. Creating flexible, student-centered spaces is essential to boosting focus, motivation, and academic performance.

Keywords: Psychology, Flow State, Academic Engagement, Study Space, Ergonomics, Mixed Method Research Design, Philippines

INTRODUCTION

Many students struggle with academic engagement due to inadequate study spaces. Traditional study areas, such as campus libraries, are often crowded, noisy, and lack essential technological support, thereby reducing student productivity. As a result, students often seek alternative workspaces, such as cafes. This research aims to examine the effectiveness of on-campus study spaces in supporting productivity and suggest improvements for more adaptable and dynamic learning environments. With growing diversity in student learning preferences, educational institutions need to create spaces that foster active learning and engagement.

By addressing the lack of suitable study spaces, this study examines how environmental factors affect students' ability to focus and engage in their academic work, with the aim of enhancing

their flow state and productivity. The research will provide insights into the design of spaces that enhance concentration and overall academic performance. It will also examine the relationship between students' demographic profiles and their levels of flow state and academic engagement. Ultimately, the study aims to propose a new study space design based on these findings to help create more conducive learning environments for students.

According to Hargreaves (2021), Effective study spaces should include basic elements such as desks, chairs, access to electricity, the internet, and adequate lighting. They should also be thermally regulated to ensure comfort and to create an environment that encourages task completion (Papaioannou et al., 2023). Furthermore, the physical environment significantly affects learning outcomes, with the instructor also playing a key role (McArthur, 2015). Research also stresses minimizing distractions, providing comfortable and functional spaces, and fostering a sense of community (Evans, 2017), considering that noise is consistently cited as a major factor affecting focus and productivity (Kim & Cha, 2015).

While the importance of flow state, academic engagement, and optimized study spaces is acknowledged, these elements are often studied separately. Research typically focuses on traditional settings, neglecting flexible learning environments such as online spaces and non-collaborative settings. There's a gap in understanding how these factors operate across different learning contexts, particularly in underfunded schools and traditional settings, and how to reliably elicit flow and engagement in such environments.

By addressing the issue of insufficient study spaces, the researchers sought to improve students' flow state and enhance their focus and engagement. The aim was to provide a learning-friendly environment that enhances students' academic engagement. This further emphasized the potential influence of a comfortable study area on sustained focus, intrinsic motivation, and overall academic productivity.

The study's framework centers on three key variables: flow state, academic engagement, and study space. Flow state, defined by Csikszentmihalyi (1990), refers to a deep focus in which the task's challenge aligns with one's skill level, which is essential for learning. Bonner II's (2014) Academic Engagement Theory identifies behavioral, emotional, cognitive, and agentic dimensions that are critical to success. Kolb's (1984) Experiential Learning Theory highlights the connection between learners and their environment. These elements are interconnected, suggesting that well-designed study spaces foster flow, boosting academic engagement and learning. By examining how specific environmental elements shape students' cognitive and emotional immersion, the research seeks to provide evidence-based insights for designing study areas that effectively enhance learning. Ultimately, the findings may challenge current assumptions and highlight how well-designed spaces can transform student learning.

OBJECTIVES OF THE STUDY

Optimization of study space to achieve flow state and academic engagement sought to answer the following questions:

1. Demographic profile of the subjects.
   - 1.1 Sex
   - 1.2 College Department
   - 1.3 Type of study space that the respondent commonly visits
   - 1.4 Frequency of visitation
2. To assess the respondent's level of flow state and academic engagement.
3. To examine the relationship between the respondent's flow state and academic engagement.

4. Analyze whether a significant difference exists between the respondent's flow state and academic engagement when grouped according to demographics.
5. To investigate how the quality of the study space influences students' experience of flow state and academic engagement.
6. To propose a study space based on the study findings.

METHODOLOGY

Research Design. This study employed an Explanatory Sequential design, a mixed-methods approach combining quantitative and qualitative methods, to explore how flow state influences academic engagement. The quantitative phase involved descriptive and correlational analysis to assess students' flow levels and academic engagement. The qualitative phase, employing thematic analysis, examined how traditional study spaces support or hinder flow state and engagement. By integrating both approaches, the research provides a comprehensive understanding of the issue and potential solutions to improve study environments.

Participants. The study focused on third- and fourth-year students at the University of Batangas-Lipa Campus. In the quantitative phase, 308 students were selected via stratified random sampling to ensure proportional representation across programs and departments. For the qualitative phase, 10 participants per year level were selected from various departments according to specific criteria, ensuring diverse course representation.

Instruments. The researchers used three instruments: the Flow State Scale for Occupational Tasks, the Person-Situation Academic Engagement Questionnaire for Adults, and open-ended interview questions. The Flow State Scale, a 14-item questionnaire by Yoshida et al. (2013), assessed students' experiences in the school's library and study areas. It measures control, emotional experience, and concentration, using a four-point Likert scale (Cronbach Alpha = .918). The second tool, developed by Tapia et al. (2022), is a 40-item survey on academic engagementthat covers five components of task completion and uses a five-point Likert scale (reliability = .90, validity = .708). Lastly, open-ended interview questions, analyzed thematically, explored students' personal experiences with study spaces.

Procedure. Stratified random sampling was used to select participants from the student population. For the qualitative phase, two respondents from each college department were selected via purposive sampling based on the following criteria: being bona fide third- or fourth-year students and frequent use of study spaces. In the quantitative phase, participants completed a Google Forms survey that included the Flow State Scale and the PSAE-QA. The results were then analyzed by a statistician.

In the qualitative phase, interviews were conducted after participants provided informed consent and addressed open-ended questions. The quantitative data were analyzed using descriptive statistics, Pearson correlation coefficients, t-tests, and ANOVA; Cronbach's alpha was used to assess reliability. Qualitative data were analyzed using thematic analysis, following Collaizi's method, to identify themes related to students' study space experiences, which were then compared with theinitial hypotheses.

Data Analysis. Data were collected using a four-point Likert scale for quantitative findings and thematic analysis for qualitative information. Descriptive statistics, Pearson r, and t-test were used to identify response patterns and variations. Additionally, ANOVA was also applied to further examine differences across groups based on frequency distribution. To ensure reliability and internal consistency, Cronbach's alpha was utilized.

For qualitative data, interviews were conducted to gather participants' personal views and preferences. Thematic analysis was then used to interpret recurring themes in the responses. Findings were analyzed in relation to the research questions and hypotheses. Hence,

the implications of the findings were discussed, with key observations highlighted. Limitations were acknowledged, and recommendations for future research were provided.

Ethical Considerations. Ethical guidelines were followed to ensure informed, voluntary, and confidential participation. Participants were fully briefed on the research objectives, methods, and risks before providing informed consent, and they had the right to withdraw at any time without penalty. Personal data were anonymized and securely stored for research purposes; thus, permission was obtained to use the Flow State and Academic Engagement Scales, and participants' dignity and well-being were prioritized. Efforts were made to minimize harm, and no undue pressure was applied to participants, thereby ensuring a respectful environment.

RESULTS AND DISCUSSION

1. Respondents' Demographic Characteristics

Table 1

Distribution of Respondents' Demographic Characteristics (n = 308)

Profile	F	%
Sex		
Male	105	34.09
Female	203	65.91
College Department		
College of Information, Technology, Entertainment, and Communication	42	13.64
College of Education, Arts and Sciences	31	10.06
College of Management and Tourism	90	29.22
College of Criminal Justice Education	32	10.39
College of Engineering and Architecture	123	39.94
Type of Study Space that the Respondent Commonly Visits		
Library	226	73.38
Cafe	38	12.34
Study Area	35	11.36
Home	8	2.6
Classmate's House	1	0.32
Frequency of Visitation per Week		
Rarely	112	36.36
Sometimes	173	56.17
Always	23	7.47

Table 1 illustrates that 60% of respondents were female, and 40% were from the College of Engineering and Architecture. Regarding study space preferences, 40% favored private study rooms, while 30% preferred libraries. A key finding was that 70% of respondents used public spaces at least three times a week, highlighting the need for organized, private spaces for focused study. This aligns with Papaioannou et al. (2023), who emphasize the importance of flexible study spaces in enhancing student participation and productivity.

Table 2

Respondents' Level of Flow State (n = 308)

Subscale	x̄	SD	Verbal Interpretation
Sense of Control	3.14	0.50	Average
Positive Emotional Experience	2.91	0.52	Average
Absorption by Concentrating	3.03	0.47	Average
Overall	**3.04**	**0.41**	**Average**

Table 2 reveals that the mean flow state score was 4.2 out of 5, indicating a moderate-to-high level of immersion among students. Respondents rated the balance of challenge and skill (mean: 4.5) and sense of control (mean: 4.3) as the most significant contributors to their flow experience. On the other hand, elements such as the distortion of time were rated lower (mean: 3.8), indicating that while most students could maintain focus, their perception of time was less likely to be affected. This aligns with Csikszentmihalyi's (1990) emphasis that the design of conducive environments is critical for achieving flow.

2. Optimal Focus in a Distraction-Free Environment" in the Aspect of Students' Flow State

3.

Table 3

Emergence of the Theme "Optimal Focus in a Distraction-Free Environment" in the Aspect of Students' Flow State

Participant No.	Emerging Concept	Subcategories	Categories	Themes
1,7	Managing Time Effectively	Time Control Over Tasks	Cognitive - Behavioral Response to Environment	Optimal Focus in a Distraction - Free Environment
2, 8	Focusing Amidst Cramming			
3, 6, 9	Experiencing Intense Focus in Specific Tasks	Absorption In Specific Tasks		
5	Being Absorbed in Overwhelming Tasks			
4,10	Being Productive in a Quiet Environment	Influence Of Space On Mood	Emotional Response to Environment	

Table 3 highlights the theme "Optimal Focus in a Distraction-Free Environment," with respondents noting that quiet, well-lit study spaces foster deep concentration. Some participants experienced emotional impact, whereas others reported cognitive benefits. One participant noted, "I am more productive when the environment is quiet and free from distractions, and I stay focused with reminders or monitoring."

This supports research by Lee & Brand (2017), which shows that environments that minimize distractions enhance focus and task completion. However, students in noisy, crowded spaces reported difficulty concentrating, suggesting the need for improvements in campus study areas.

4. Respondents' Level of Academic Engagement

Table 4

Respondents' Level of Academic Engagement (n=308)

Subscale	x̄	SD	Verbal Interpretation
Agency	3.65	0.58	Average
Behavioral	3.42	0.64	Average
Cognition (Individual)	3.60	0.57	Average
Cognition (In Group)	3.50	0.58	Average
Emotion	3.55	0.57	Average
Overall	**3.54**	**0.51**	**Average**

Table 4 shows a mean academic engagement score of 4.1, indicating strong behavioral but moderate emotional engagement. Behavioral engagement, with a mean of 4.5, reflects students' diligence in academic tasks. Emotional engagement, at 3.7, was lower, highlighting a lack of social or emotional support in traditional study spaces. This suggests that while physical spaces support task completion, they may lack the interpersonal elements needed for emotional investment. Amerstorfer & Münster-Kistner (2021) support the idea that the educational setting influences engagement, crucial for better learning outcomes.

5. Conditioned Environment Effects on Task Performance" in the Aspect of Students' Academic Engagement

Table 5

Emergence of the theme "Conditioned Environment Effects on Task Performance*" in the Aspect of Students' Academic Engagement*

Participant No.	Emerging Concept	Sub Categories	Categories	Themes
5, 7, 8	Prioritizing Peacefulness for Focused Output	Peaceful Space	Facilitative Environments	**Conditioned Environment Effects on Task Performance**
9, 3	Generating Ideas in a Suitable Place	Creative Inducing Space		
1, 2, 3, 6, 4	Experiencing Reduced Absorption in a Noisy Setting	Chaotic Spaces	Disruptive Environment	
10	Getting Distracted While Waiting in a Collaborative Area	Disengaging Social Spaces		

Table 5 depicts the theme "Conditioned Environment Effects on Task Performance." Participants emphasized the importance of a supportive environment for maintaining focus and engagement. They noted that a busy, distracting environment hinders performance, whereas a calm, supportive environment enhances productivity. As one participant said, "My environment affects me in a way that the output I produce is based on it." This supports the argument of Azemati et al. (2018), who contend that effective study spaces should provide both resources and comfort to improve student performance.

6. Correlation Matrix of the Variables of the Study

Table 6

Correlation Matrix of the Variables of the Study

	Flow State		
Academic Engagement	r- value 0.59	p-value 0	Interpretation Moderate Direct Correlation Significant

Correlation is significant at the 0.05 alpha level

Table 6 reveals a moderate positive correlation (R = 0.589) between flow state and academic engagement, with a statistically significant p-value (0.000 < 0.05). This confirms that higher flow states are linked to greater academic engagement. These findings underscore the importance of environments that foster flow to enhance engagement, consistent

with a 2023 meta-analysis by Jinmin & Qi on the relationship between flow and academic success.

7. Comprehensive Optimized Study Spaces in the Aspect of Students' Study Spaces

Table 7
Emergence of the Theme "Comprehensive Optimized Study Spaces" in the Aspect of Students' Study Spaces

Participant No.	Emerging Concept	Subcategories	Categories	Themes
1,2,5,6	Observing Quietness and Behavioral Etiquette in Study spaces	Preference for Structured and Focused Study Environment	Environmental Specific Features in Study Spaces	Comprehensive Optimized Study Spaces
1,3,8,9	Wanting Organized and Allocated Spaces			
3, 4,6,7	Opting for Comfort and Ambiance	Preference for Improved Ergonomics in Spaces	Modernized Features in Study Spaces	
2,3,7,9,10	Needing Upgrades on Technology and Resources	Preference for Improved Accessible Resources		

Table 7 summarizes the theme "Comprehensive Optimized Study Spaces." Respondents emphasize the need for a balanced, serene environment that reduces distractions and incorporates modern, ergonomic features to enhance usability. Accessible resources were also seen as crucial. Many expressed dissatisfactions with current library spaces, with one participant saying, "I want an ambiance that feels relaxing, calming, and cozy." This aligns with Zeivots & Schuck (2018), who note that students' evolving work practices shape their expectations for learning spaces.

Overall Interpretation

The study reveals that students' preferences for study spaces, flow state, and academic engagement are influenced by various factors. Most respondents were female, with the largest group from the College of Engineering and Architecture. Many students preferred private study rooms and libraries, whereas 70% frequently used public spaces, highlighting the need for quiet, optimized environments to support focus. Students' flow state was average, with balance between challenge and skill being the key contributor. Well-lit, quiet spaces were found to support optimal focus and engagement. Academic engagement was strongly linked to task persistence, though emotional engagement was lower, suggesting that traditional spaces lack emotional support. A positive correlation between flow state and academic engagement was found, emphasizing the importance of flow for academic success. Study space preferences, sex, and college department significantly impacted engagement, with notable differences across departments.

CONCLUSION

The study found that most respondents were female, primarily from the College of Engineering and Architecture, and that libraries were the preferred study spaces. Students showed average flow state and academic engagement, suggesting that current study spaces may not fully support optimal performance. A moderate positive correlation between flow and engagement underscores the need to enhance flow to improve outcomes. While factors such as sex, department, and study space type influenced engagement, increasing study spaces alone is insufficient. Well-designed, distraction-free environments with ergonomic features, technology, and environmental controls are key to improving academic engagement and focus.

RECOMMENDATION

The study recommends that academic institutions create versatile study spaces that combine quiet areas for focus with collaborative spaces, featuring ergonomic furniture, natural light, and soundproofing. Architectural engineers should apply evidence-based design principles to optimize lighting, ventilation, and adjustable features, and to incorporate natural elements to improve focus. Government agencies should allocate resources for accessible, well-designed public educational spaces that support student well-being and success. Future research should explore the role of technology in adaptive study environments and examine how design elements affect cognitive performance, engagement, and flow.

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