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# The Impact of Large Class Sizes on Student Concentration in the Second Semester of Islamic Education at UIN Professor Kiai Haji Saifuddin Zuhri Purwokerto

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***Abstract***

*This study investigates the impact of large class size on the learning concentration of second-semester students enrolled in the Islamic Education (PAI) Program at UIN Professor Kiai Haji Saifuddin Zuhri Purwokerto. Employing a quantitative descriptive survey design, the research involved 23 students from Class 2 PAI F selected through purposive sampling. Data were collected using a structured questionnaire distributed through Google Forms and analyzed using descriptive percentage techniques. The findings indicate that large class conditions generate significant environmental and psychological challenges affecting students' concentration. A total of 87.0% of respondents reported experiencing classroom noise distractions, while 78.2% encountered difficulties related to visibility and audibility. Environmental discomfort and fatigue were reported by 65.2% of participants, and 95.7% acknowledged frequent loss of concentration during lectures. The accumulation of these conditions contributed to reduced comprehension of course materials, as indicated by 69.6% of respondents. The study demonstrates that learning concentration is influenced by the interaction of physical, environmental, and instructional factors within large-class settings. These findings highlight the importance of optimizing class capacity to support effective learning, sustained attention, and instructional quality in higher education environments.*

***Keywords:*** *Large Class Size, Learning Concentration, Higher Education, Islamic Education, Classroom Environment.*



## INTRODUCTION

The expansion of higher education systems across many regions has intensified concerns regarding the pedagogical consequences of large class sizes, particularly as universities strive to accommodate growing student populations while maintaining instructional quality. Contemporary debates in educational research increasingly emphasize that learning outcomes are shaped not only by curriculum and teaching methods but also by the structural conditions in which learning occurs, including classroom density, student–teacher interaction, and environmental quality. In this context, large classes have become a critical issue because they may constrain opportunities for active engagement, reduce individualized feedback, and weaken the relational dimensions of teaching that support sustained attention and cognitive involvement. The relevance of this issue is especially pronounced in disciplines that depend heavily on discussion, reflection, and interaction, such as Islamic education, where learning is expected to integrate cognitive, affective, and ethical dimensions (Asyafah, 2019).

Empirical studies have consistently reported that large class environments can adversely affect both instructional processes and student learning experiences, although the magnitude and mechanisms of these effects vary across contexts. Research in secondary and tertiary education has shown that increased class size is associated with reduced student participation, diminished teacher–student interaction, and lower levels of classroom engagement (Bahanshal, 2013; Blatchford et al., 2011). Investigations conducted in university settings further indicate that students in large classes often report lower satisfaction and weaker perceptions of academic support, factors that may indirectly influence performance and persistence (Jala, 2026). Studies on active learning have also highlighted that overcrowded classrooms tend to encourage more passive instructional practices, thereby limiting opportunities for collaborative learning and meaningful participation (Mugabe & Ndayambaje, 2021).

At the same time, research on learning environments has demonstrated that concentration is sensitive to physical and contextual conditions, including spatial arrangement, accessibility, and environmental comfort (Floristia et al., 2020). Collectively, these findings suggest that class size influences learning through intertwined pedagogical, social, and environmental pathways rather than through a single causal mechanism.

Despite this growing body of evidence, important limitations remain in the literature. First, much of the existing research focuses on academic achievement or student satisfaction as primary outcomes, while comparatively fewer studies examine concentration as a distinct psychological construct that mediates the relationship between classroom conditions and learning outcomes. Second, many investigations have been conducted in Western or non-Islamic educational contexts, raising questions about the transferability of findings to programs where pedagogical goals include moral and spiritual formation alongside academic development. Third, studies often treat large class size as a purely numerical variable without adequately considering how environmental factors such as air quality, noise, and spatial positioning interact with cognitive processes. Evidence from environmental health research indicates that elevated indoor $CO_2$ concentrations can impair decision-making performance and cognitive functioning, suggesting that classroom density may affect learning not only through social dynamics but also through physiological pathways (Satish et al., 2012). The absence of integrated analyses that connect class size, environmental conditions, and concentration represents a notable conceptual gap in current scholarship.

Addressing this gap is both scientifically and practically important because concentration is a foundational prerequisite for effective learning. In higher education, students are expected to process complex information, engage in critical reflection, and sustain attention over extended instructional periods; disruptions to concentration can therefore have cascading effects on comprehension, participation, and academic achievement. The issue becomes particularly urgent in rapidly expanding universities where pressure on classroom capacity may lead to increasingly crowded learning environments. For programs in Islamic education, where dialogic engagement and reflective understanding are central to the learning process, diminished concentration may undermine not only cognitive outcomes but also the broader educational objectives of character and value formation. Understanding how large class size influences concentration can provide evidence that is directly relevant to institutional planning, classroom management, and the design of learning environments that support both academic effectiveness and student well-being.

This study positions itself within the intersection of educational psychology, learning environment research, and Islamic education by examining the impact of large class size on the concentration of second-semester students in the Islamic Education Program (PAI) at UIN Professor Kiai Haji Saifuddin Zuhri Purwokerto. Rather than focusing solely on achievement metrics, the study conceptualizes concentration as a central outcome through which classroom conditions may influence learning. The research also advances the literature by considering multiple dimensions of the classroom experience—including noise, visibility and audibility, perceived air quality, and students' sense of personal attention from lecturers—in order to capture the multidimensional nature of concentration in large classes. In doing so, it responds to calls for more context-sensitive investigations that recognize how pedagogical and environmental factors jointly shape student engagement and learning processes.

The purpose of this study is to analyze the extent to which large class size affects the concentration of second-semester PAI students and to identify the classroom conditions that most strongly contribute to concentration difficulties. The study is expected to contribute theoretically by enriching models of learning that integrate cognitive, social, and environmental influences within higher education settings. Methodologically, it offers a context-specific quantitative examination of concentration in a large-class environment, providing empirical evidence that may inform future comparative studies and institutional policies aimed at creating more conducive learning conditions in universities.

## RESEARCH METHODS

This study employed an empirical quantitative research design using a descriptive survey approach to examine the impact of large class size on the learning concentration of second-semester students enrolled in the Islamic Education (PAI) Program at UIN Professor Kiai Haji Saifuddin Zuhri Purwokerto. The research was conducted within a naturally occurring educational setting in which

students experienced classroom conditions characterized by high enrollment density, with approximately fifty students occupying a single class. Participants consisted of 23 active students from Class 2 PAI F who were undertaking the Educational Psychology course during the period of data collection. A purposive sampling technique was adopted because the selected class fulfilled the specific criteria relevant to the research objective, namely exposure to a large-class learning environment and participation in comparable instructional activities. Data were collected through an online questionnaire administered via Google Forms, enabling efficient access to respondents and facilitating the systematic collection of self-reported perceptions regarding concentration, classroom conditions, and learning experiences.

The research instrument consisted of a structured questionnaire containing closed-ended items measured using a four-point Likert scale ranging from Strongly Agree to Strongly Disagree. The instrument was developed to capture five principal dimensions associated with learning concentration in large-class environments, including classroom noise distraction, environmental comfort and fatigue, visibility and audibility barriers, attention stability, and perceived comprehension of course materials. Content validity was established through alignment between questionnaire indicators and theoretical constructs derived from educational psychology and classroom learning literature, while internal consistency was maintained through the use of standardized response categories across all items. Data analysis was conducted using descriptive statistical techniques, primarily percentage distribution analysis, to identify patterns and tendencies in participants' responses and to interpret the prevalence of concentration-related difficulties associated with large class size. Ethical considerations were observed throughout the study by ensuring voluntary participation, obtaining informed consent prior to data collection, preserving respondent anonymity, and guaranteeing that all collected information was used exclusively for academic research purposes.

## RESULTS AND DISCUSSION

### Environmental Distractions and Physical Constraints in Large-Class Learning Settings

The descriptive survey results indicate that environmental distractions constitute one of the most salient challenges experienced by students in large-class settings. A total of 87.0% of respondents agreed that classroom noise frequently disrupted their ability to maintain concentration during lectures. This pattern suggests that the learning environment was characterized by competing stimuli that diverted attentional resources from instructional content. Similar observations were reported by Bahanshal (2013), who found that excessive class size intensified noise-related disruptions and weakened students' engagement with learning activities.

The prominence of auditory distraction can be interpreted through cognitive attention theory, which posits that individuals possess limited processing capacity when exposed to simultaneous streams of information. Students in crowded classrooms are required to filter relevant instructional messages while suppressing irrelevant environmental stimuli. Such conditions increase cognitive load and reduce the efficiency of information processing during instructional sessions. Comparable tendencies were identified by Simbolon et al. (2025), who emphasized the strong relationship between classroom environment and students' concentration levels.

Student responses further revealed that noise was not merely an incidental occurrence but a recurring characteristic of the classroom atmosphere. Informal conversations among peers, movement within the classroom, and overlapping interactions created a learning context in which attention was continuously fragmented. The persistence of these disturbances appears to have undermined the stability of sustained attention required for effective academic engagement. Blatchford et al. (2011) similarly argued that larger classes tend to reduce instructional control and increase the likelihood of off-task behavior among students.

The educational implications of these findings extend beyond temporary distraction. Concentration functions as a prerequisite for meaningful knowledge acquisition because learners must allocate sufficient attentional resources to encode and interpret instructional information. When attention is repeatedly interrupted, the continuity of cognitive processing becomes compromised. Astuti et al. (2018) demonstrated that concentration is positively associated with learning outcomes, indicating that disruptions in attention may indirectly affect academic achievement.

Physical classroom conditions also emerged as an important factor influencing concentration. Approximately 78.2% of respondents reported difficulties related to visibility and audibility,

particularly among those seated in middle and rear sections of the classroom. These findings suggest that large enrollment sizes may create spatial inequalities in access to instructional communication. Research by Floristia et al. (2020) similarly highlighted how distance-related factors can influence students' ability to maintain focus during learning activities. The distribution of responses regarding environmental and spatial barriers is presented in Table 1.

**Table 1. Environmental and Physical Barriers Affecting Learning Concentration (n = 23)**

| Indicator | Agree (%) |
|---|---|
| Classroom noise disrupts concentration | 87.0 |
| Difficulty hearing lecturer explanations | 78.2 |
| Difficulty viewing presentation materials | 78.2 |
| Reduced engagement due to seating distance | 73.9 |

The data in Table 1 indicate that environmental and spatial barriers were experienced by a substantial majority of participants. The relatively high percentages across indicators suggest that concentration difficulties were not restricted to isolated cases. Patterns of this nature imply the presence of structural classroom conditions that systematically influence students' learning experiences. Ramandani et al. (2025) noted that classroom management challenges become increasingly complex when student density exceeds the capacity required for effective instructional monitoring.

The issue of seating position warrants particular attention because visibility and audibility directly affect access to instructional information. Students located farther from the lecturer often reported reduced opportunities to follow explanations and participate actively in classroom interactions. Such circumstances may weaken students' sense of inclusion within the learning process. Yuliandri et al. (2024) found that classroom seating arrangements significantly influence concentration and engagement by shaping interaction patterns within instructional settings.

Another noteworthy finding concerns the relationship between classroom size and active participation. Respondents frequently associated physical distance from the lecturer with declining willingness to ask questions or contribute to discussions. Reduced interaction opportunities may diminish students' cognitive involvement and lower their attentional investment in classroom activities. Mugabe and Ndayambaje (2021) argued that large classes often constrain active learning practices because instructional interactions become increasingly difficult to manage.

The observed patterns are particularly relevant within Islamic higher education contexts, where learning is expected to encourage intellectual engagement alongside reflective participation. Educational models emphasizing interaction and dialogue require conditions that enable meaningful communication between lecturers and students. Physical barriers and environmental distractions may therefore interfere not only with concentration but also with broader pedagogical objectives. Asyafah (2019) emphasized that effective Islamic education depends on learning environments that facilitate active interaction, reflection, and sustained learner engagement.

**Classroom Comfort, Mental Fatigue, and the Decline of Attention Stability**

The survey findings revealed that environmental comfort represented another critical dimension influencing students' concentration in large-class settings. A total of 65.2% of respondents reported experiencing drowsiness, fatigue, or feelings of discomfort during classroom sessions despite the availability of air-conditioning facilities. This finding suggests that thermal control alone was insufficient to guarantee an optimal learning environment when classroom occupancy remained high. Satish et al. (2012) demonstrated that indoor environmental conditions can directly influence cognitive functioning and decision-making performance.

The relationship between classroom density and concentration extends beyond pedagogical considerations into physiological dimensions of learning. High student occupancy increases the accumulation of heat, carbon dioxide, and other environmental stressors that may contribute to mental fatigue during prolonged instructional periods. Students exposed to such conditions often experience declining alertness and reduced capacity to sustain attention over time. Simbolon et al. (2025) similarly

identified classroom environmental quality as a significant determinant of students' concentration levels.

Respondents frequently associated feelings of drowsiness with the duration of lectures conducted in densely populated classrooms. Although air-conditioning reduced thermal discomfort, students perceived that the crowded atmosphere still generated a sense of physical exhaustion. Such perceptions indicate that environmental comfort is influenced by multiple factors rather than temperature regulation alone. Satish et al. (2012) argued that indoor environmental quality affects cognitive performance through mechanisms that extend beyond subjective comfort.

An important pattern emerging from the data concerns the interaction between fatigue and attentional persistence. Students who reported higher levels of classroom discomfort were also more likely to acknowledge difficulties maintaining focus throughout the lecture period. This pattern reflects the interconnected nature of physiological and cognitive processes within educational environments. Pramesti et al. (2018) emphasized that concentration levels are closely associated with learners' physical and psychological readiness during instructional activities.

The decline in attentional stability became increasingly visible when respondents were asked about their ability to remain focused on lecture content. Approximately 95.7% of participants acknowledged that they frequently lost concentration, became distracted, or shifted attention toward unrelated activities during class sessions. Such a high proportion indicates that attention instability represented one of the most prominent consequences of large-class learning conditions. Wibowo et al. (2022) noted that concentration plays a central role in determining students' capacity to process and organize academic information effectively. The distribution of responses related to classroom comfort and attention stability is summarized in Table 2.

**Table 2. Environmental Comfort and Attention Stability Indicators (n = 23)**

| Indicator | Agree (%) |
|---|---|
| Feeling drowsy or fatigued during class | 65.2 |
| Experiencing discomfort in crowded classrooms | 65.2 |
| Frequently losing concentration during lectures | 95.7 |
| Being easily distracted by non-academic activities | 95.7 |

The figures presented in Table 2 indicate that concentration difficulties were substantially more prevalent than perceptions of environmental discomfort alone. This pattern suggests that attentional decline may be influenced by a combination of physical, social, and instructional factors operating simultaneously within large classrooms. Environmental discomfort appears to function as one contributing factor among several interconnected influences. Blatchford et al. (2011) observed that classroom size affects attention through complex interactions involving engagement, instructional monitoring, and classroom dynamics.

Attention instability was also reflected in students' tendency to disengage from instructional activities when direct lecturer supervision became less visible. Participants frequently perceived that their actions attracted less attention in a classroom populated by approximately fifty students. Such perceptions may reduce accountability and encourage off-task behavior during lectures. Jala (2026) reported comparable findings indicating that larger classes are associated with lower levels of student satisfaction and engagement.

From an educational psychology perspective, sustained attention requires continuous reinforcement through interaction, feedback, and cognitive stimulation. Learning environments that limit personal contact between lecturers and students may weaken motivational processes that support concentration. Reduced opportunities for direct interaction can gradually diminish students' investment in classroom activities. Mugabe and Ndayambaje (2021) argued that active learning practices become increasingly difficult to sustain when class size restricts meaningful participation.

The findings also suggest that instructional effectiveness cannot be separated from environmental and psychological conditions within the classroom. Research on innovative pedagogical approaches has consistently shown that learning outcomes improve when students remain actively engaged and

cognitively attentive throughout instructional activities. Studies conducted by Putri et al. (2024), Syakuro et al. (2024), Nazara and Fatimah (2026), Wulandari (2026), Emilya (2025), and Hanim et al. (2016) collectively demonstrate that effective instructional strategies rely heavily on students' ability to maintain concentration and active participation. Persistent attention instability within large classes may therefore undermine the potential benefits of even well-designed pedagogical interventions.

**Implications of Large Class Size for Learning Comprehension and Educational Effectiveness**

The final dimension examined in this study concerns the extent to which concentration difficulties influenced students' comprehension of course materials. Survey results indicated that 69.6% of respondents experienced challenges in understanding lecture content when learning took place in a large-class environment. This finding suggests that concentration-related barriers extended beyond momentary attentional disruptions and affected broader cognitive outcomes. Astuti et al. (2018) emphasized that concentration functions as a critical predictor of successful learning performance across educational settings.

The relationship between concentration and comprehension is grounded in cognitive theories that view attention as a prerequisite for information processing. Students who are unable to maintain focus encounter difficulties encoding, organizing, and retaining academic content presented during lectures. Reduced attentional engagement consequently limits opportunities for meaningful knowledge construction. Wibowo et al. (2022) highlighted that cognitive performance is strongly dependent on the quality of attention allocated to learning tasks.

Participant responses revealed that comprehension difficulties often emerged after prolonged exposure to classroom distractions and attentional fatigue. Students reported that interruptions caused by noise, environmental discomfort, and reduced lecturer interaction collectively weakened their ability to follow instructional explanations. Such experiences indicate that comprehension challenges developed through an accumulative process rather than a single isolated factor. Simbolon et al. (2025) similarly found that unfavorable classroom environments exert a gradual influence on students' learning concentration and academic engagement.

The findings also point toward the existence of a pedagogical constraint associated with high student density. In classes containing approximately fifty students, opportunities for clarification, questioning, and immediate feedback become more limited. Students who fail to understand particular concepts may therefore experience difficulties resolving misconceptions during instructional sessions. Blatchford et al. (2011) argued that larger classes frequently reduce the quality and frequency of teacher–student interaction, thereby affecting learning effectiveness.

An additional issue concerns the compatibility between large-class conditions and the pedagogical objectives of Islamic higher education. Learning within Islamic education programs often emphasizes reflection, dialogue, and conceptual understanding rather than simple information transmission. Educational environments that restrict interaction may weaken the realization of these instructional goals. Asyafah (2019) maintained that meaningful Islamic learning requires pedagogical processes that encourage active intellectual engagement and reciprocal communication. The distribution of responses regarding learning comprehension and perceived instructional effectiveness is presented in Table 3.

**Table 3. Learning Comprehension and Educational Effectiveness Indicators (n = 23)**

| Indicator | Agree (%) |
|---|---|
| Difficulty understanding lecture materials | 69.6 |
| Reduced opportunity for interaction with lecturer | 82.6 |
| Limited opportunity to ask questions | 78.3 |
| Preference for smaller class capacity | 87.0 |

The data displayed in Table 3 indicate that comprehension challenges were accompanied by perceptions of reduced instructional interaction. The high percentage of respondents preferring smaller class capacities suggests that students recognized a connection between classroom structure and

learning quality. These perceptions provide important contextual evidence for interpreting concentration-related difficulties identified in earlier findings. Jala (2026) similarly reported that class size influences both academic performance and student satisfaction through its effects on educational experiences.

The preference for smaller class capacities can be interpreted as a response to perceived limitations in communication and participation. Students appear to associate smaller learning groups with increased opportunities for engagement, feedback, and academic support. Such perceptions are consistent with contemporary educational approaches emphasizing learner-centered instruction and collaborative participation. Putri et al. (2024) demonstrated that active and interactive learning environments contribute positively to students' educational outcomes.

The present findings also carry implications for classroom management and instructional design within higher education institutions. Large classes require lecturers to balance content delivery, classroom control, and student engagement under conditions of considerable complexity. Effective management strategies become increasingly important when student numbers exceed levels conducive to personalized interaction. Ramandani et al. (2025) noted that classroom management challenges intensify as class size expands, demanding more adaptive instructional practices.

From a broader institutional perspective, the findings indicate that learning effectiveness is shaped by the interaction of environmental, psychological, and pedagogical factors. Concentration difficulties, environmental discomfort, and limited instructional interaction collectively contribute to reduced comprehension among students in large-class settings. Educational quality cannot be assessed solely through curriculum content because learning outcomes are also influenced by the conditions under which instruction takes place. Kusniawan and Kaihatu (2026) emphasized that stakeholder preferences provide valuable evidence for evaluating educational service quality, and the strong preference for smaller class sizes observed in this study reflects students' expectations regarding effective learning environments.

## CONCLUSION

The findings demonstrate that large class size exerts a substantial influence on students' learning concentration through interconnected environmental, psychological, and instructional mechanisms. High levels of classroom noise and spatial barriers limited students' access to instructional communication, while environmental discomfort and mental fatigue weakened attention stability during learning activities. These conditions collectively contributed to declining comprehension of course materials, indicating that concentration functions as a critical mediating factor between classroom conditions and learning effectiveness. The results further suggest that instructional quality in higher education cannot be separated from the structural characteristics of the learning environment, particularly class capacity and opportunities for meaningful lecturer–student interaction. Efforts to improve educational effectiveness should therefore consider not only pedagogical innovation but also the optimization of classroom size to create conditions that support sustained attention, active participation, and deeper academic engagement among students.

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