



IMPLEMENTATION OF STRUCTURED COLLABORATIVE STUDY GROUPS FOR AUTHENTIC LEARNING AND COLLABORATIVE PROBLEM-SOLVING IN LARGE-SCALE ONLINE HIGHER EDUCATION

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Abstract

Large-scale online classes often face difficulties in maintaining interaction, participation, and meaningful academic engagement. This study examined the implementation of Structured Collaborative Study Groups (CSGs), the authentic learning and collaborative problem-solving experiences documented in the course records, and the challenges encountered in a large-scale online undergraduate course. The study used a qualitative descriptive case study design and conducted a secondary qualitative analysis of existing educational records generated during routine course implementation. The course enrolled 849 students, of whom 674 actively participated in 58 CSGs. The records included presentation and discussion recordings, presentation materials, group reflective narratives, peer- and instructor-assessment records, course-related WhatsApp communication, written feedback, and instructor field observations. The data were analysed manually through familiarisation, coding, categorisation, pattern development, and comparison across data sources. The findings showed that the model was implemented through clearly assigned roles, collaborative preparation, rehearsals, inter-group sparring, live presentations, peer assessment, instructor feedback, and reflection. The records documented experiences related to academic interaction, presentation confidence, teamwork, responsibility, leadership, and mutual support. The records also showed collaborative problem-solving when students responded to academic questions and managed scheduling, coordination, and technical difficulties. However, uneven participation, delayed responses, time-zone differences, and technical disruptions remained important challenges. The study concludes that structured study groups can support authentic academic learning in large online classes when they are supported by clear procedures, reliable communication, assessment and feedback, and contingency arrangements.

Keywords: *Authentic learning, Collaborative study groups, Collaborative problem-solving, Large-scale online higher education and Qualitative case study*

Introduction

Large-scale online higher education expands access for students across different locations and circumstances. However, large enrolments can make it difficult for instructors to maintain interaction, monitor participation, provide feedback, and create meaningful learning experiences. Research on online learning shows that course design, teaching presence, digital access, learner characteristics, and opportunities for interaction influence student engagement and participation (AlShamsi, 2021; Broadbent et al., 2023; Deng & Benckendorff, 2021; Getenet et al., 2024; Koh & Daniel, 2022; Lawrence et al., 2024). Collaborative learning can address some of these difficulties by involving students in discussion, shared tasks, peer support, and joint problem-solving. In online higher education, collaboration is more effective when students receive clear goals, defined responsibilities, structured activities, guidance, accountability, and feedback (Baanqud et al., 2020; Gunning et al., 2022; Heilporn et al., 2021; Hernández-Sellés et al., 2020; Lock & Redmond, 2021). Without such structure, online group work may be affected by unequal participation, scheduling problems, and weak accountability (Donelan & Kear, 2024).

Authentic learning involves meaningful activities that require students to apply knowledge, communicate their understanding, consider different perspectives, receive feedback, and reflect on their performance (Herrington et al., 2014; Herrington & Oliver, 2000; Lombardi, 2007; Rule, 2006a)). In online courses, authentic academic experiences can be created through collaborative interpretation of learning materials, presentations, questioning,



peer assessment, reflection, simulations, and problem-solving (Dittrich et al., 2022; Hart, J., & Bone, 2022; Koh & Daniel, 2022). These activities move students beyond passive content reception and give them opportunities to practice academic communication and shared responsibility. Although previous studies have examined collaborative learning, student engagement, authentic assessment, and online interaction, recent CJESS studies have also considered technology awareness, digital competence, instructional strategies, and interactive e-learning in relation to engagement and learning (Falade et al., 2026; Linat & Olanrewaju, 2026; Olojo-Kosoko et al., 2026; Rehman & Olanrewaju, 2026). However, there is still limited descriptive evidence showing how a structured study-group model is implemented in a very large fully online course. More practical evidence is also needed on the authentic learning and collaborative problem-solving experiences documented during implementation, together with the difficulties encountered.

This study was conducted in the undergraduate course Introduction to Islamic Studies (ISGS102) at the International Open University. A Structured Collaborative Study Group model was implemented throughout the Spring 2026 semester to organise collaborative preparation, presentation, peer feedback, instructor feedback, communication, reflection, and problem-solving among geographically dispersed students.

Purpose of the Study

The purpose of this study was to describe the implementation of the Structured Collaborative Study Group model in a large-scale online course, examine the authentic learning and collaborative problem-solving experiences evident in the course records, and identify the challenges encountered during implementation.

Research Questions

The study was guided by the following research questions:

1. How was the Structured Collaborative Study Group model implemented in the large-scale online course?
2. What authentic learning and collaborative problem-solving experiences were evident in the course records?
3. What challenges were encountered during implementation?

Methodology

This study adopted a qualitative descriptive case study design (Yin, 2018) to examine the semester-long implementation of the Structured Collaborative Study Group model in ISGS102. The case was bounded by one undergraduate course, one academic semester, and 58 study groups. The study used a secondary qualitative analysis of existing course-generated educational records that had originally been produced for teaching, learning, and assessment purposes. No new data were collected from students for research purposes, and no survey, experiment, or quantitative research strand was conducted. Numerical information was used only to describe the course, the groups, and the available records; no statistical analysis was performed. Accordingly, the study employed one qualitative approach and treated the analysed records as secondary data. ISGS102 was delivered fully online by the International Open University. The course enrolled 849 students. Educational records from 674 students who actively participated in 58 Structured Collaborative Study Groups were included in the case. The remaining 175 enrolled students did not contribute active CSG records; their number was reported only to describe total course enrolment.

The documentary records consisted of 58 online presentation and discussion recordings, 58 group presentation files, 58 group-level reflective narratives submitted by group leaders, 534 submitted peer-assessment responses, 58 instructor-assessment records, course-related WhatsApp communication records, written student feedback, and instructor field observations. The 534 peer-assessment responses were treated as supplementary qualitative records rather than as survey data or a complete census of the 674 active students. Where peer- or instructor-assessment records contained numerical ratings, those ratings were not analysed statistically; only written comments and contextual information relevant to the research questions were examined. The online submission form initially contained 59 group-level entries; one duplicate submission from Group 55 was removed during



screening, leaving 58 unique group records. Table 1 summarises the case profile, available educational records, and their role in the analysis.

Table 1: Case Profile and Educational Records

Item	Number/volume	Role in the study
Course enrolment	849 students	Descriptive context only
Active CSG participants	674 students	Generated records included in the case
Structured Collaborative Study Groups	58 groups	Embedded units within the bounded case
Presentation and discussion recordings	58	Implementation, interaction, question-and-answer exchanges, and challenges
Group presentation files	58	Collaborative preparation and presentation content
Group-level reflective narratives	58	Reported experiences and implementation challenges
Peer-assessment responses	534	Supplementary qualitative comments; not survey data
Instructor-assessment records	58	Assessment and formative feedback
WhatsApp records, written feedback, and field observations	Course-period records	Coordination, support, problem-solving, and contextual interpretation

The records were generated during routine teaching and learning activities conducted from 5 April to 2 July 2026. Students worked in assigned groups, discussed course materials, prepared presentations, participated in rehearsal and inter-group sparring sessions, delivered live presentations, assessed peers, received instructor feedback, and submitted group reflections. After teaching, assessment, and grading had ended, the records were compiled for retrospective analysis and de-identified. Only course-related WhatsApp messages concerning academic discussion, task coordination, peer support, scheduling, feedback, and implementation difficulties were included. Personal and unrelated messages were excluded. Table 2 summarises the implementation sequence and the evidence examined at each stage.

Table 2: Implementation Sequence of the Structured Collaborative Study Group Model

Stage	Main activities	Evidence examined
Group organisation	Formation of 58 groups, assignment of roles, and communication of procedures	Group membership, role records, and written guidelines
Collaborative preparation	Module reading, task division, group discussion, and slide preparation	WhatsApp records and presentation files
Rehearsal and sparring	Internal practice, inter-group sparring, and question-and-answer exchange	Recordings and communication records



Live presentation	Presentation of course content and responses to questions	Presentation recordings and instructor-assessment records
Assessment and feedback	Peer assessment, instructor assessment, and formative feedback	534 peer-assessment responses, 58 instructor-assessment records, and written feedback
Reflection	Group reflection after presentation	58 group-level reflective narratives

The records were analysed manually using a qualitative thematic procedure based on familiarisation, initial coding, categorisation, and pattern development (Braun & Clarke, 2006). Presentation recordings were examined for collaboration, participation, academic questioning, responses to questions, and implementation problems. Communication records were examined for coordination, academic discussion, peer support, scheduling, and collaborative problem-solving. Reflective narratives, written feedback, assessment records, presentation materials, and field observations were used to identify and compare recurring patterns. Similar codes were grouped into categories and then organised according to the three research questions. Evidence from different records was compared to strengthen the credibility of the interpretation (Nowell et al., 2017). Because the author designed and taught the course, field observations and repeated cross-checking of interpretations against the original records were used to maintain reflexive awareness (Berger, 2015). Direct quotations were assigned de-identified source codes: GR for group reflection and PA for peer-assessment comment.

Before journal submission, the author sought institutional guidance from the Director of Research and Publications at the International Open University. In a written response dated 28 July 2026, the Director confirmed that formal ethical clearance was not required for journal submission. The study involved no new student recruitment, research intervention, or research-specific data collection. Analysis began only after all teaching, assessment, and grading activities had been completed and therefore did not affect students' grades or course outcomes. All records were anonymised or de-identified before analysis, stored securely, and accessed only by the author. No student names, identification numbers, or other personally identifiable information are reported, and the findings are presented in aggregated or de-identified form.

Results

The findings are presented in direct response to each research question.

Research Question 1: How was the Structured Collaborative Study Group model implemented in the large-scale online course?

The Structured Collaborative Study Group model was implemented throughout the Spring 2026 semester in ISGS102. Of the 849 enrolled students, 674 actively participated in 58 groups. Each group followed the same written guidelines and was organised through assigned roles, including group leader, vice leader, secretary, presenters, information-technology support, and presentation-design support. The role structure was intended to distribute responsibility and provide clear points of coordination within each group. The learning activities followed a common sequence. Students read the assigned modules, divided tasks, prepared individual contributions, discussed the content, combined their work into presentation materials, and conducted internal rehearsals. Groups then joined inter-group sparring sessions, delivered live presentations, responded to questions, assessed peers, received instructor feedback, and submitted group reflections. The presentation recordings and materials showed that the activities required students to explain course content, respond to questions, and revise their preparation rather than only submit a final group product.

Communication continued outside the scheduled live sessions. A central WhatsApp community was used for general announcements, while separate channels were used for each group and for group leaders. The communication records showed regular discussion of task allocation, meeting schedules, presentation preparation, reminders, academic questions, and technical arrangements. The assessment process included peer assessment and



instructor assessment of content mastery, presentation clarity, time management, slide quality, participation, preparedness, and presentation ethics. Taken together, the records show that the model was implemented as a structured sequence of collaborative activities supported by communication, assessment, feedback, and reflection.

Research Question 2: What authentic learning and collaborative problem-solving experiences were evident in the course records?

The course records showed authentic learning and collaborative problem-solving experiences related to collaboration, academic interaction, communication, confidence, responsibility, leadership, and mutual support. During preparation, students shared interpretations of the modules, compared ideas, negotiated task division, and combined individual contributions into group presentations. During sparring and live presentations, they explained concepts, responded to questions, clarified interpretations, and provided feedback to other groups. These activities gave students opportunities to practise academic communication with a real peer audience. Several group reflections referred to increased confidence in speaking and presenting. One reflection described the activity as “...*pertama kali presentasi...*” [“...it was my first experience giving a presentation...”] (GR01). Other reflections stated that the activities helped “...*melatih keberanian...*” [“...develop my confidence to speak in front of others...”] (GR02) and “...*melatih kekuatan mental...*” [“...strengthen my confidence and mental resilience...”] (GR03). These statements indicate that some students perceived repeated discussion, rehearsal, presentation, and question-and-answer activities as opportunities to become more confident in online academic communication.

The reflections also described teamwork, responsibility, and leadership. One group reported that the interaction “...*menambah pengalaman kita bermuamalah dengan baik kepada sesama...*” [“...enriched our experience of interacting respectfully and positively with one another...”] (GR04), while another stated that participation meant “...*jadi memiliki teman diskusi...*” [“...gaining peers with whom to discuss ideas and course materials...”] (GR05). A group leader described it as “...*pengalaman pertama saya menjadi ketua...*” [“...my first experience serving as a group leader...”] (GR06), and another reflection called the activity “...*kesempatan untuk tumbuh dan belajar...*” [“...an opportunity to grow and learn...”] (GR07). Peer-assessment comments also described members as “...*selalu sabar memberi arahan*” [“always patient in providing guidance”] (PA01), “...*banyak membantu saya saat kesulitan*” [“often helped me whenever I encountered difficulties”] (PA02), and “...*sering mengevaluasi setiap setelah latihan Zoom*” [“consistently evaluated our performance after each Zoom practice session”] (PA03). These records show students’ perceptions of shared responsibility, mutual support, and leadership within the groups. Collaborative problem-solving occurred in both academic and organisational situations. During presentations and question-and-answer sessions, students had to respond to questions, clarify explanations, and defend their interpretations. In the communication channels, they also solved practical problems related to meeting times, task redistribution, delayed responses, unavailable members, and technical difficulties. Problem-solving was therefore observed as part of the collaborative learning process rather than measured as a separate quantitative outcome.

Research Question 3: What challenges were encountered during implementation?

Implementation was not uniform across all groups. The records documented uneven participation, delayed responses from some members, difficulties arranging meetings across countries and time zones, technical disruptions during online presentations, and occasional problems coordinating with assigned sparring partners. These difficulties sometimes affected preparation, presentation roles, and the timing of group activities. Group leaders used several practical responses. They contacted inactive members individually, reminded members of deadlines, changed meeting times, redistributed presentation responsibilities, and adjusted the order of activities. In a small number of cases, a group proceeded without its assigned sparring partner or one student delivered a larger part of the presentation because another member was unavailable. These records show that written procedures and communication channels helped groups respond to difficulties, but they did not remove all participation, scheduling, and technical problems. Overall, the findings show that the model provided a clear



structure for large-scale online collaboration and created opportunities for authentic academic interaction, communication, shared responsibility, and collaborative problem-solving. At the same time, its implementation depended on active participation, timely communication, role accountability, and practical contingency arrangements.

Discussion of the Findings

Structured Implementation of Collaborative Learning

The first finding shows that the model was implemented through clear roles, a common sequence of activities, communication channels, assessment, feedback, and reflection. This structure helped organise collaboration across 58 groups and 674 active students. The finding is consistent with previous research showing that online collaboration is more effective when students receive clear goals, defined responsibilities, teacher guidance, and accountability procedures (Baanqud et al., 2020; Heilporn et al., 2021; Lock & Redmond, 2021). It also supports Donelan and Kear's (2024) argument that online group work requires deliberate design to reduce persistent problems such as unequal contribution and weak coordination. The practical implication is that large online classes should not rely on an unstructured instruction to "work in groups." Students need a clear sequence that explains what they must prepare, how they should coordinate, how their work will be assessed, and what to do when difficulties arise. In this case, the use of group roles, rehearsals, sparring sessions, presentations, peer assessment, instructor feedback, and reflection provided that sequence.

Authentic Academic Learning and Collaborative Problem-Solving

The second finding shows that students participated in activities resembling authentic academic practice. They interpreted course materials, discussed different viewpoints, prepared presentations, communicated their understanding to peers, answered questions, assessed others, received feedback, and reflected on their performance. These activities correspond with established features of authentic learning, including meaningful tasks, collaboration, articulation, multiple perspectives, feedback, reflection, and authentic assessment (Dittrich et al., 2022; Hart, J., & Bone, 2022; Herrington et al., 2014; Herrington & Oliver, 2000; Lombardi, 2007; Rule, 2006b; Villarroel et al., 2018). Students' reflections also described greater confidence in presentation, teamwork, responsibility, leadership, and mutual support. These reported experiences are consistent with research showing that structured online collaboration can support participation, knowledge construction, and social interaction (Han & Ellis, 2021; Hernández-Sellés et al., 2020; Lawrence et al., 2024). However, the present study did not measure changes in confidence or academic performance. The findings therefore represent students' reported experiences and documented participation rather than verified learning gains. Collaborative problem-solving appeared in two forms. First, students responded to academic questions, clarified ideas, and defended interpretations during sparring and presentation sessions. Second, they solved practical problems involving schedules, task distribution, absent members, and technical difficulties. This finding is compatible with research showing that collaborative problem-solving benefits from structured guidance and opportunities for interaction (Ouyang et al., 2021). In the present case, problem-solving was part of the collaborative process and was not assessed as a separate quantitative outcome.

Implementation Challenges and Practical Implications

The third finding shows that a clear structure did not remove all difficulties. Uneven participation, delayed responses, time-zone differences, technical problems, and unavailable sparring partners remained visible. Similar challenges have been reported in online group-work research, particularly when students differ in availability, digital access, and level of contribution (Donelan & Kear, 2024; Heilporn et al., 2021). The responses used by group leaders—individual reminders, changed schedules, redistributed tasks, and alternative presentation arrangements—show the importance of contingency procedures. Instructors using this model should prepare clear steps for inactive members, missed meetings, unavailable partner groups, and technical failure. Communication tools can support coordination and participation, but they must be combined with clear expectations, role accountability, and instructional guidance (Falade et al., 2026).



Conclusion

The study found that the Structured Collaborative Study Group model was implemented through assigned roles, collaborative preparation, rehearsals, sparring sessions, presentations, peer assessment, instructor feedback, communication, and reflection. The records documented learning experiences related to academic interaction, presentation confidence, teamwork, responsibility, leadership, mutual support, and collaborative problem-solving. Implementation was affected by unequal participation, delayed communication, scheduling difficulties, and technical problems. The findings suggest that structured study groups can provide practical opportunities for authentic academic learning in large-scale online higher education. Their implementation requires clear procedures, reliable communication, assessment and feedback, role accountability, and contingency arrangements. Because the study was descriptive and based on one course, the findings do not establish causal effectiveness.

Recommendations

Based on the findings, the following recommendations are made:

1. Instructors should provide written group roles, timelines, activity sequences, assessment criteria, and participation expectations before collaborative work begins.
2. Online courses should use reliable communication channels and clear procedures for reminders, inactive members, task redistribution, and coordination across time zones.
3. Peer assessment, instructor feedback, and post-presentation reflection should be included to help students review both their academic work and their collaborative participation.
4. Institutions and instructors should prepare alternative arrangements for absent members, unavailable partner groups, and technical disruptions.
5. Future studies should examine the model in other courses and institutions and should include independent measures of learning outcomes, participation patterns, and instructor workload.

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