



STAD in Online-Supported Blended Learning for Developing Students' Social Competence: A Classroom Action Research Study

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Abstract

By utilizing digital media support, this research will be examining the utilization of STAD cooperative learning model within blended learning framework. The research is centred on solving the issue of insufficient social interaction and cooperation in technology-assisted learning situations. In this research, Classroom Action Research was used for two cycles, in which the participants were 28 students from class VII-A of SMP Negeri 1 Sendana. Data gathering was done through classroom observation, teacher's reflective journal, structured interview, and documentation of face-to-face and online learning experiences. Interactive data analysis was carried out through three approaches: data condensation, data display, and drawing conclusions. Student social skills were measured using five criteria: self-confidence, accountability, motivation to learn, creative thinking, and digital communication. From the results of the study, it can be seen that the introduction of STAD strategy in the blended learning model led to peer interaction, individual accountability in working in groups, participation in discussion activities, and effective use of digital communication tools. All five elements showed significant progress on part of the learners, particularly after implementing changes into the teaching process in the second cycle. Still, some challenges appeared while implementing this strategy, including different levels of digital literacy, poor quality of Internet access, and various distractors during group work. To conclude, the study proved that collaborative learning through STAD is extremely efficient in building social competence.

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INTRODUCTION

Social interactions are highly critical in the realm of education because it ensures that learners gain vital competencies in communicating, working together, and being socially responsible (Ningsih et al., 2025; Riadi et al., 2021). It is for this reason that schools must have programs that can help their learners gain social competence while learning (Niu et al., 2025). However, technological education advancement has resulted in radical changes in classroom social interaction dynamics. Social interaction in education institutions cannot be considered an auxiliary function in education. Rather, social interaction in education is essential for learners to develop communication competencies, collaboration, and social responsibility (Albrecht, 2006; Goleman, 2005; Lin et al., 2023). As such, schools are expected to provide structured learning experiences that intentionally foster students' social development alongside academic achievement

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(Pham, 2024). However, the rapid expansion of online and technology-mediated learning has significantly transformed patterns of classroom interaction (Nurhidayat et al., 2025).

While learning through online and blended approaches, learners usually get minimal peer-to-peer communication and engagement, and limited direct social interaction compared to those who learn traditionally (Barnard et al., 2009; Kayyali, 2024; Malonisio, 2023; Risdianto et al., 2022; Topping et al., 2022). While there is no doubt about the benefits of learning online, which include flexibility and ease of access to learning tools, it also restricts social engagement and face-to-face communication (Aziz et al., 2021). Various studies reveal that learners enrolled in online education settings are likely to experience lower levels of social presence and engagement than those attending traditional classrooms (Hodges et al., 2020; Martin & Bolliger, 2018). This transition has led to concerns about how students learn socially, especially in terms of communicating, collaborating, and responsibly engaging with one another. Research also shows that learning through the online mode of education is often focused on delivering knowledge and information and not so much on the social aspects of learning (Almaiah et al., 2023; Borup et al., 2012; Chen et al., 2010). It follows then that in most cases, instructional strategies in online learning environments do not allow learners to interact socially, which could negatively impact the acquisition of necessary social skills. Such a scenario poses a major problem for teachers who are supposed to equip learners not only with academic knowledge but also with social skills that will enable them to operate effectively in the world outside the classroom. One such instructional strategy that has repeatedly been proven to enhance social interaction is cooperative learning (Johnson & Johnson, 2009).

Cooperative learning can be achieved through well-structured activities within groups, where learners are taught how to interact and help each other learn, thus achieving effective engagement not only academically but also socially (Tuano et al., 2025). Studies have shown that cooperative learning helps enhance social interaction and peer relationships among students (Gillies, 2016; Valle et al., 2003). There are several different kinds of cooperative learning structures; however, one of the most common is known as Student Teams–Achievement Divisions (STAD). This particular learning structure entails creating student groups with diverse members and involves both individual and group accountability. (Mustari, 2015; Slavin, 2014, 2015). Numerous studies have reported that STAD enhances students' motivation, engagement, and collaborative skills while improving learning outcomes (Slavin, 2014, 2015). These findings suggest that STAD holds strong potential as a pedagogical model for facilitating both learning and interaction.

Social skills among learners are increasingly becoming part of the expected outcomes of education in today's society, especially in situations where learning takes place collaboratively or through technological interactions (Budyartati, 2016). Such skills can be developed through conversations, collaboration, and social interactions among learners. This, therefore, implies that educational methodologies that promote peer involvement are crucial for socializing learners (Hassani et al., 2025). These values are often addressed normatively rather than through empirically grounded pedagogical strategies supported by digital learning tools (Soma & Sutrisno, 2018; Tatang & Abas, 2019). Nonetheless, despite the relevance of social competence to learning processes, it receives little attention in educational literature, where it is considered more of a consequence than a goal of educational interventions. Similarly, there is a dearth of empirical research examining how particular cooperative learning models contribute to the formation of students' social competence (Asrifan et al., 2025; Gillies, 2016; Ismail & Al Allaq, 2019; Nguyen & Oanh, 2025; Rizal & Rahman, 2025). Even those few studies that highlight the social nature of cooperative learning do not offer detailed explanations on how cooperative learning models like STAD help foster social competence among students in blended learning settings. The lack of this kind of research grows more relevant as online education becomes a common mode of education within learning institutions. Furthermore, research combining cooperative learning with value-based and Islamic modes of education is still lacking, although such settings emphasize cooperation, responsibility, empathy, and harmonious social interactions.

To address this gap, the present study investigates how the STAD cooperative learning model can support the development of students' social competence within an online-supported blended learning environment. The research operationalized social competence in STAD-blended learning by adopting five measurable criteria: (1) self-confidence, which involves the ability of learners to

communicate their views and start discussions; (2) sense of responsibility, which can be seen from how committed the learners are to their group tasks; (3) learning motivation, which can be seen from the level of their participation in the activities; (4) creativity, which is seen from the generation of new ideas in problem solving; and (5) online communication skills. The above indicators reflect the nature of the students' participation, collaboration, and their responses to each other during face-to-face as well as online learning sessions. The existence of these dimensions is captured using observations in the classroom setting, reflective journals from teachers, semi-structured interviews, and documentation of collaborative practices either in person or online. Through these observable indicators, this study hopes to contribute a more empirically based understanding of how STAD can enhance students' social competence in technology-mediated learning environments.

METHOD

With a descriptive analytical focus, this study used a Classroom Action Research (CAR) design qualitatively (Buaraphan, 2016). The dynamics and outcomes of employing the STAD model within an online-enhanced blended learning setting were studied using the CAR approach, in particular in terms of students' development of social competence. The key objective of the research was to understand how the STAD model has been adapted for use within technology-enabled learning environments, and what changes have taken place in the process of social interaction and collaboration within the course of several learning cycles.

The analysis was process-oriented and concerned mainly with how students interact socially and collaborate while learning face-to-face and online. Two action cycles, each comprising the four typical CAR stages of preparation, action, observation, and reflection, were used to carry out the research. Approximately three instructional meetings (two weeks) were used to implement each cycle (Feiyue, 2022). Figure 1 illustrates the research timeline across two Classroom Action Research (CAR) cycles implemented in this study.

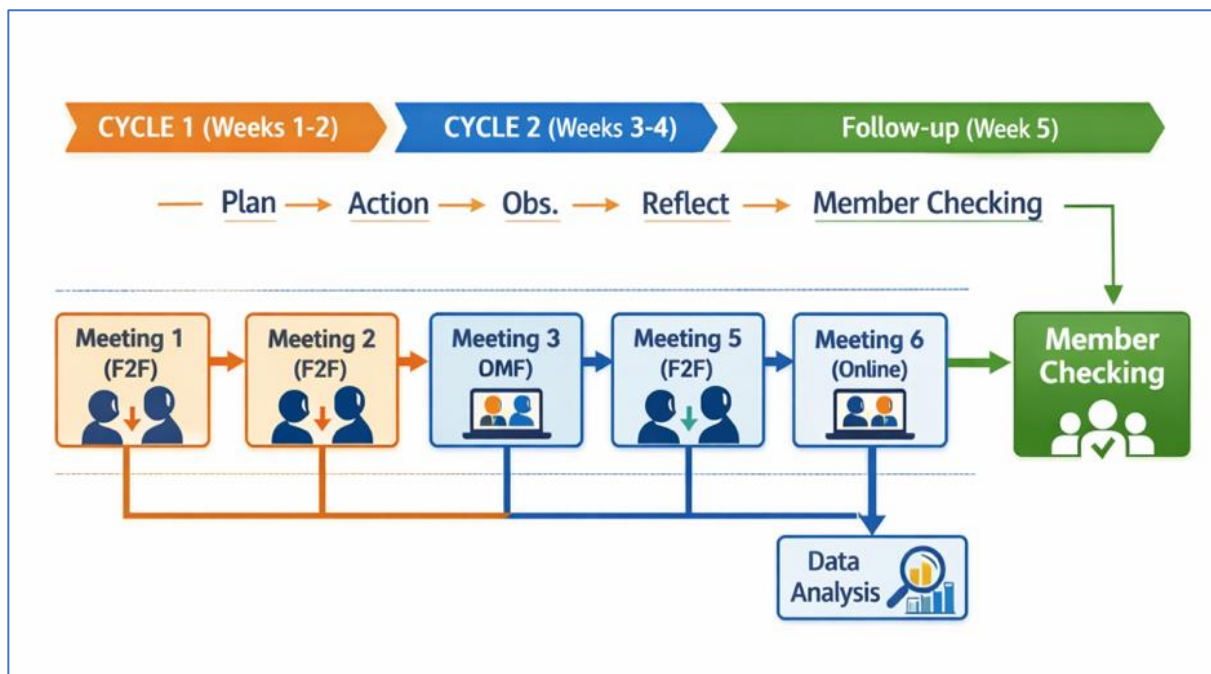


Figure 1. Illustrates The Research Timeline Across Two CAR Cycles.

Each cycle spanned two weeks, comprising three instructional meetings (two face-to-face sessions and one online session). A one-week interval between cycles was used for data analysis and reflection to inform instructional adjustments. Data collection occurred continuously throughout both cycles, with member checking conducted one week after Cycle 2 completion.

Both cycles provided a basis for making the instructional design process iterative through the emergence of patterns of interactions among students and dynamics in the classroom environment. In the first phase of both cycles, planning was conducted where the researcher made up lesson plans incorporating activities supported by the Internet within the context of the STAD model of cooperative learning. In addition, the development of digital instructional materials and structured discussions, as well as grouping of students heterogeneously, took place. The preparation of the tools required for gathering data was crucial at this stage and included teacher self-reflection journals, interviews, and observations. At the action stage, the implementation of the plan activities was executed in the classroom context.

Discussions and live sessions conducted through digital platforms were used as methods of enhancing further communications outside the physical presence environment and classroom lectures. Observation entailed capturing the experiences of students under the two interaction modes, which include physical presence and discussions. Methods of data collection included interviews, field notes, teachers' reflection journals, classroom observations, and online discussion participation. Noteworthy was the keen interest paid to observable signs of social skills possessed by the students, such as self-assurance, accountability, study motivation, creativity, and online communication. The reflection stage was performed following each cycle to assess the implementation effectiveness of the instructions provided and pinpoint improvements needed.

From the analysis of Cycle 1 reflections, the following challenges arose, which included uneven contributions by groups, lack of contributions by students in online discussions, and unclear allocation of responsibilities in the teams. For the above-listed reasons, some instructional changes have been implemented in the second cycle. Such changes include clear distribution of roles within the groups, more focused online discussion questions, facilitation during face-to-face sessions, and instruction for less computer-savvy students. These changes were meant to improve cooperative learning and encourage more equitable student engagement. The study sought to document how the STAD cooperative learning model could be gradually improved to support the growth of students' social competence in an online-supported blended learning setting through an iterative CAR process.

Participants

The study was conducted at SMP Negeri 1 Sendana, Majene Regency, Indonesia, and involved students from Class VII-A in Islamic Religious Education (PAI). The participants consisted of 28 seventh-grade students, aged between 12 and 13 years old, including 14 male and 14 female students. The class was selected purposively because the students were actively engaged in online-supported blended learning activities during the research period. Most students had basic access to smartphones and internet connectivity. Others experienced occasional connectivity limitations or required additional guidance in using digital learning tools. These baseline conditions were taken into consideration during the instructional design and implementation of the STAD cooperative learning activities. The classroom teacher also participated as a collaborator, contributing to the planning, implementation, observation, and reflection stages of the instructional cycles. The teacher's involvement was essential in facilitating classroom activities, documenting classroom dynamics, and supporting reflective evaluation after each cycle of the Classroom Action Research process.

Research Procedure

In the present classroom action research, the first author acted as a classroom teacher and the primary researcher. In order to eliminate any possible bias, the second author assisted in data analysis and peer debriefing, while the teacher-researcher kept a reflexive journal and critically analyzed some class videos for accurate interpretation. The STAD approach to cooperative learning was executed in a blended mode that is aided by the Internet, involving two class meetings and one online class meeting per cycle. The learning materials and discussion questions were shared using Google Classroom, WhatsApp was used for group communication, and Google Meet was used whenever immediate clarifications were required.

The process involved major phases of the STAD approach: presentation, grouping of students into heterogeneous groups, group study, individual testing, and group awards. The students

participated in collaboration through discussion in class as well as online, while individual accountability was ensured by conducting in-class quizzes as well as improving one's score relative to previous results. Presentation and question-and-answer sessions were used as well to enhance collaborative learning. While there were some modifications to the approach through the use of digital technology, the basic elements of STAD were retained.

Data Collection Techniques

The data collection process occurred mainly through three modes of data gathering. First, a semi-structured observation schedule was created based on the five criteria for social competence. This was applied in all direct observation instances. It aimed at counting and evaluating the number of times students spoke out, collaborated with their peers, and engaged in non-verbal communication. The teacher-researcher took field notes, and the research assistant took note of certain student behaviors by time sampling every five minutes.

These interviews were semi-structured and carried out among 12 purposefully sampled students according to the extent to which they participated actively in class discussions. The aspects that the student interviews aimed at covering included group discussions, confidence in expression, difficulties during interactions, interaction through online discussion boards, and change between cycles. The teacher interview questions covered interaction behaviors, the success of instructional modifications, and difficulties encountered in organizing online interactions. All interviews took about 20-30 minutes each and were recorded and transcribed verbatim.

Documents used include screenshot captures from Google Classroom discussion forums, WhatsApp chat group logs, lesson plans, and assignments from students. The documents have been analyzed for traces of quality digital communication, peer response, and collaboration among peers when solving problems. There was also a documentation log where the date, platform, and type of online communication were captured.

Data Analysis

Data analysis followed the interactive model of Miles et al., (2018), which comprises three interrelated phases: data condensation, data display, and conclusion drawing and verification. The analysis proceeded through five systematic stages to ensure rigor and transparency.

Stage 1: Initial Coding. All observational field notes, interview transcripts, and online discussion logs were imported into qualitative data analysis software (Humble, 2012). The data for Cycle One was independently coded by two researchers - the lead researcher and her assistant, trained in qualitative techniques - according to a tentative codebook developed from the five social competence criteria.

Stage 2: Codebook Development. The two coders reviewed the codes obtained from the analysis, sorted out differences that emerged, and improved the coding system. They came to an agreement on any differences, leading to a final code book with well-defined codes and criteria on which to include or exclude items. The intercoder reliability after discussion was 92%.

Stage 3: Focused Coding. Using the finalized codebook, both researchers independently coded the remaining data from Cycle 2. Regular meetings were held to discuss emerging patterns and resolve any new coding ambiguities.

Stage 4: Theme Identification. The coded data were organized according to the overarching themes that aligned with the five social competence criteria. In each of these criteria, subthemes were derived to reflect the subtleties in which students exhibited these social skills when operating in face-to-face and virtual environments. Subthemes under 'digital communication' ranged from initiating an online conversation to giving constructive feedback.

Stage 5: Verifications. Results were confirmed through triangulation from different sources of data and member checking. Negative cases-situations where the students did not exhibit social competence indicators-were studied separately to identify obstacles and constraints.

Operationalization of Social Competence Indicators

In order to investigate social competence in students' learning experiences in the online-based blended learning environment, the construct was operationalized by defining the following five indicators: self-confidence, sense of responsibility, learning motivation, creativity, and digital communication. The above indicators are based on the study's conceptual emphasis on cooperation

in interactions, as well as cooperative learning theories (Johnson & Johnson, 2009), and studies about technology-mediated cooperation (Mena-Guacas & Velandia R, 2020).

Self-confidence showed itself when students were ready to state their thoughts and views, ask questions, and join in group conversations. Responsibility is the term used to describe the commitment of students to perform their assigned duties, help groups achieve their goals, and work as teams. Learning motivation was exhibited by the commitment to learn actively, take initiatives, and persist in collaborative learning situations. Creative thinking is the term used to describe the process whereby students can develop ideas and solutions in problem-solving conversations.

The validity of the results was enhanced through the process of triangulation, where the data collected through classroom observation, reflections of teachers, semi-structured interviews, and online discussion data were analyzed to identify patterns. Triangulation helped validate that the conclusions reached on the social competencies of the learners were justified, as the evidence obtained from all the sources was consistent.

Trustworthiness and Rigor

To ensure the trustworthiness of the findings, this study applied the strategies of credibility, transferability, dependability, and confirmability. The reliability of results was ensured through the triangulation process, involving classroom observation, teachers' reflection logs, semi-structured interviews, and online discussions. Moreover, member checking was used, as six students representing diverse achievement levels were asked to confirm preliminary conclusions about their attitudes toward the proposed interventions. The transferability of results was ensured through the provision of descriptive accounts of the context, participants, and instruction. The dependability of results was ensured through peer debriefing, which involved reviewing the analysis of 20 percent of the coded data by a colleague with extensive experience conducting classroom action research. At the same time, an audit trail was kept, detailing all processes from data collection to revision. The credibility of findings was assured through the researchers' reflexivity.

Ethical Considerations

This research was done with high regard for ethical standards. Permission was sought from the management of SMP Negeri 1 Sendana to conduct this research. As the subjects were seventh graders, their parents or guardians signed an informed consent form, while the subjects themselves verbally agreed after being told about the research. Students were told that their cooperation would not affect their academic standing and that participation was entirely voluntary. All participant identities were anonymised, and the data gathered was handled in confidence to preserve their privacy. The study was approved by the appropriate academic authorities at the researchers' university and adhered to general ethical criteria for educational research.

RESULTS AND DISCUSSION

Development of Students' Social Competence Across CAR Cycles

This section presents the findings of the classroom action research across two instructional cycles. The analysis focuses on the development of students' social competence as reflected in five indicators: self-confidence, responsibility, learning motivation, creative thinking, and digital communication. Data were collected from classroom observations, teacher reflection logs, semi-structured student interviews, and documentation of online learning interactions. The findings are organized according to the iterative process of the two CAR cycles.

Cycle 1

To provide an overview of the changes in students' social competence across the two cycles, the comparative frequency of each observed indicator is presented in Figure 2.

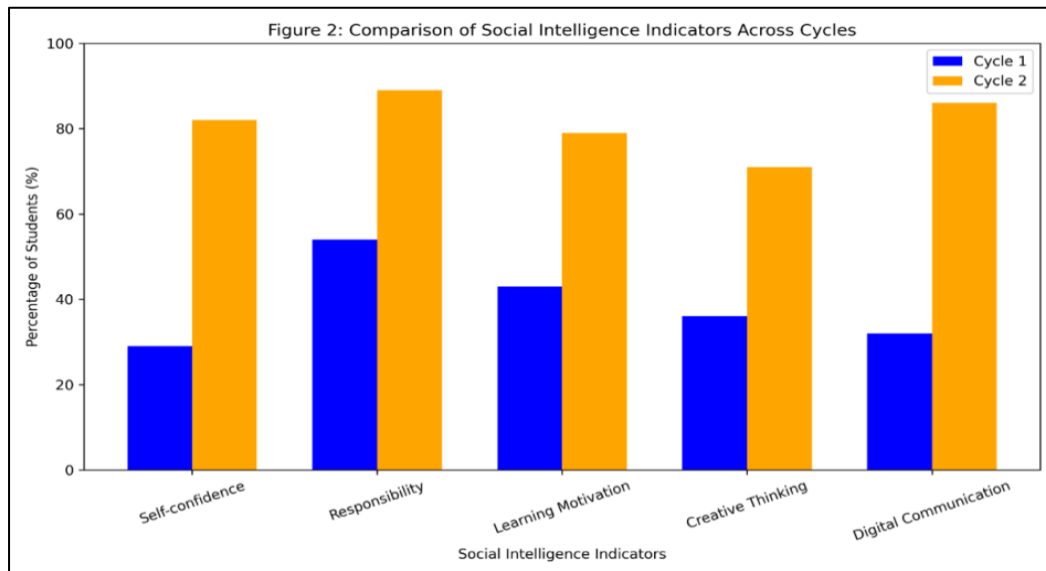


Figure 2. Comparative Frequency of Observed Social Competence Indicators Across The Two Cycles

During the first cycle, the implementation of the Student Teams Achievement Divisions (STAD) cooperative learning model introduced students to structured collaborative learning supported by digital communication tools. From the initial observations, students seemed to lack self-confidence and participation in discussion groups. Some students would lean on their more enthusiastic colleagues in group activities.

The observation notes also revealed that very few students were the initiators of any discussions and could speak up for themselves. This was noted by one student who observed:

“At first, I was not confident to speak because I thought my answer might be wrong. But after my friends encouraged me, I tried to share my idea.”

Inequality was also evident regarding responsibility among members of these groups. While some students took it upon themselves to do the assignments, others only responded once instructed by their colleagues. As noted in the reflection logs of teachers, better division of roles and discussion guides could have been instrumental in ensuring that all students contributed equally. Another problem witnessed was minimal engagement in the online discussions.

It means that the skills of digital communication and interaction were still being developed in the first cycle. In spite of all the difficulties encountered, the signs of learning motivation and creativity were beginning to emerge. There were some learners who suggested different ideas in the discussion process and even posed queries regarding the topics of the lesson. This meant that the cooperative learning approach started promoting interaction among the learners, but it still needed some modification. After the first cycle reflection, a number of modifications were introduced in the second cycle.

Cycle 2

Improvement was observed in various aspects of social competency in the second cycle. There was a noticeable increase in the level of confidence that the students had when presenting their views and responding to their peers. A student mentioned in his/her interview that

“In the second meeting, I felt more confident to speak because we had already discussed the material in our group first.”

The observation data also demonstrated the enhancement of responsibility among group members. The learners were conscious of their designated positions and participated effectively in the completion of the group assignments. This claim is substantiated by the teacher’s reflection notes, which reveal that the role distribution was clear, thus enabling students to comprehend their duties and participate in the process in a balanced manner. Moreover, the learners’ interest in the learning process was heightened. The classroom observation revealed that students maintained

their active involvement in both physical and virtual environments. Several learners posed further queries and explanations in the course of collaborative activities.

In the presentation phase, it was found that learners were able to apply moral lessons learned in Islamic Religious Education in real-life situations. Progress could especially be seen in terms of digital communication. Documentation of discussions conducted online revealed that there was an increased level of interaction between students in comparison to Cycle 1. Instead of just posting their own answers, they also responded to other students' ideas and asked for clarification. This improvement in the quality of online interaction between cycles is illustrated in Figure 3.

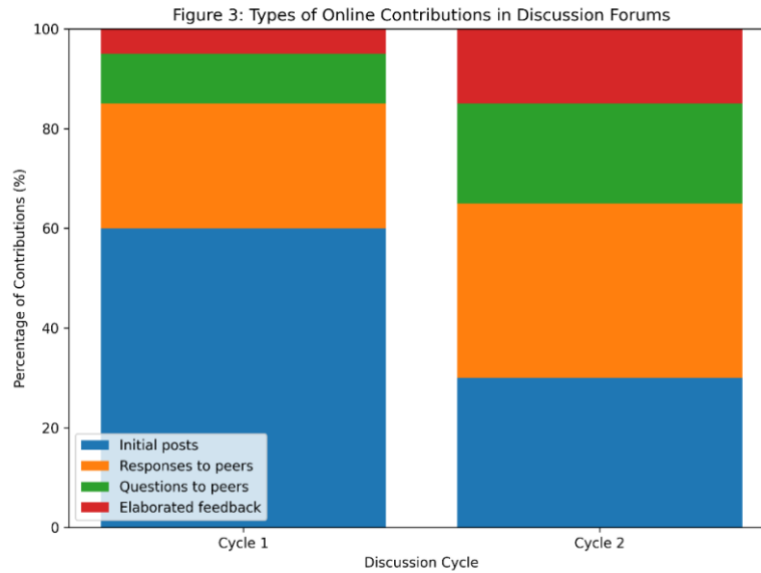


Figure 3. The Transformation in Online Discussion Quality Between Cycles

Table 1 illustrates how social competence indicators were operationalized through analytical codes and supported by evidence from multiple data sources.

Table 1. Coding Matrix of Social Competence Indicators

Social competence Indicator	Theoretical Alignment with Goleman (2005)	Analytical Code	Data Source	Representative Evidence
Self-confidence	<i>Situational Awareness:</i> Reading group dynamics and knowing when/how to contribute	Expressing opinions; initiating discussion	Observation; interviews	"At first I was not confident to speak..."
Responsibility	<i>Self-Regulation:</i> Managing one's behavior to fulfill group expectations	Completing group tasks; fulfilling roles	Observation; teacher logs	Students completed assigned roles and ensured tasks were finished
Learning motivation	<i>Authenticity:</i> Genuine engagement and investment in collaborative process	Active participation; asking questions	Observation; interviews	Students remained engaged throughout discussions
Creative thinking	<i>Situational Awareness + Authenticity:</i> Adapting and contributing uniquely to group needs	Proposing ideas; alternative explanations	Observation; presentations	Students connected moral concepts to real-life situations
Digital communication	<i>Empathy:</i> Attending to peers' perspectives and responding respectfully in online spaces	Online responses; peer feedback	Online forum documentation	Students responded to peers and elaborated ideas in discussions

The findings of this study provide several pedagogical implications. First, cooperative learning models such as STAD can be effectively adapted to online-supported blended learning environments to promote not only academic engagement but also students' social competence. Second, structured collaborative activities and clear role distribution are essential to ensure balanced participation and meaningful interaction among students. Finally, integrating digital discussion platforms with face-to-face interaction can extend opportunities for peer communication and collaborative learning. These pedagogical implications are synthesized into a conceptual model, as illustrated in Figure 4.

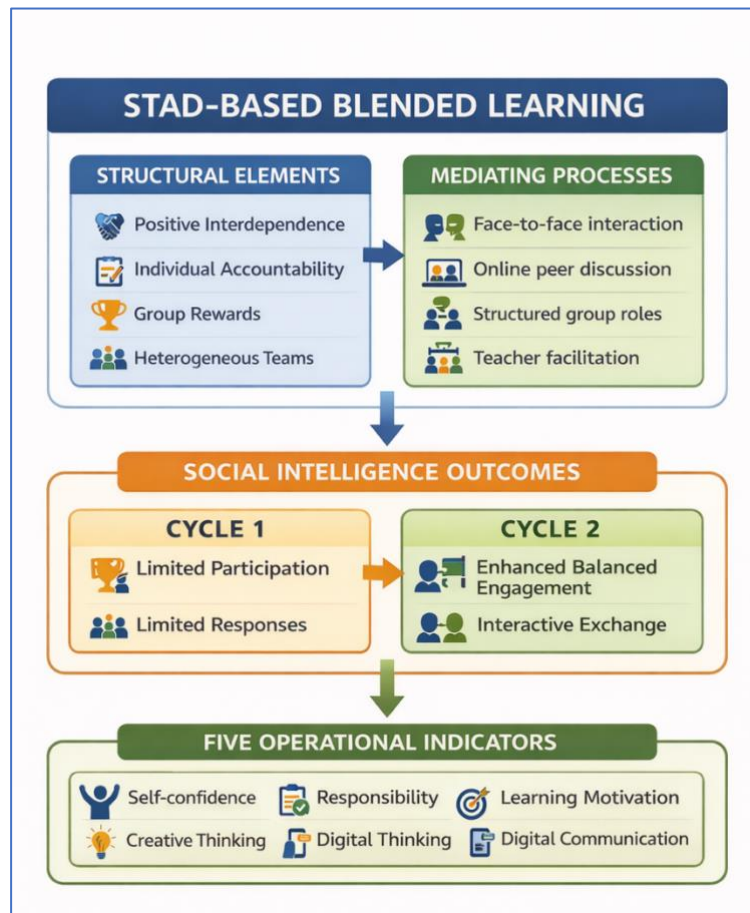


Figure 4. Conceptual Model of STAD-Based Blended Learning for Developing Students' Social Competence.

Triangulation of Findings

Triangulation across classroom observations, student interviews, teacher reflection logs, and online discussion documentation confirmed consistent patterns of improvement in students' social competence. These multiple sources of data collectively indicated that structured cooperative activities supported students' confidence, responsibility, and collaborative interaction.

Discussion

The research proves that the application of the STAD model cooperative learning, modified for a blended learning system supported by information technology, can facilitate the growth of students' social competence (Lin et al., 2023; Ningsih et al., 2025). Based on five observable elements such as self-confidence, sense of responsibility, motivation, creative thinking, and digital communication, the results suggest that cooperation is effective in improving participation, collaboration, and interpersonal relationships within both face-to-face and computer-assisted learning conditions (Nguyen & Oanh, 2025). The significant contribution of the present research involves its attempt to measure social competence using observable indicators appropriate for both traditional and digital communication processes. The findings of this research support cooperative

learning theory, specifically its emphasis on positive interdependence and individual accountability, which underscores the importance of well-designed group activities for promoting active involvement and sharing of responsibilities in learning. In the current research, the STAD design facilitated the students' involvement in learning through assigning clear roles, group assignments, discussion among peers, and individual accountability, which ultimately led to a steady improvement in the students' social skills. This research also supports past literature on cooperative learning, which has found that cooperative learning leads to the development of social skills and interpersonal skills among students.

One of the important contributions of this study is the demonstration that the effectiveness of the STAD model does not need to be confined within traditional classrooms, but it can be effectively modified to achieve non-academic objectives within a technology-assisted learning environment. Whereas previous studies have centred mostly on academic gains within the confines of traditional classrooms, the current results reveal the applicability of the model in enhancing social skills among students within a blended learning environment (Asrifan et al., 2025; Gillies, 2016; Ismail & Al Allaq, 2019; Nguyen & Oanh, 2025; Rizal & Rahman, 2025). Another aspect of novelty that this study introduces is the application context, wherein cooperative learning served not only as a learning method but also as a means of value-oriented interaction. The further improvement achieved through the two rounds of CAR also emphasizes the significance of instruction improvement through iterations. The changes made following the first cycle, including those such as clear assignment of roles, use of more guiding questions, better facilitation techniques, and help for less literate students, significantly contributed to the progress that was made in regard to interactions. In this sense, it is evident how useful CAR could be in improving classroom instruction by reflecting on classroom problems.

In the case of Muslim education, the use of the cooperative learning method was consistent with the principles of value-based education, which include cooperation, accountability, empathy, and mutual support (Soma & Sutrisno, 2018; Tatang & Abas, 2019). Instead of considering moral values as purely theoretical knowledge, the learning approach allowed the students to put such values into practice through collaboration and communication among each other. Herein, cooperative learning served both as a pedagogical tool and a connecting point between cognitive learning and value-based teaching. However, some issues occurred during the implementation process, such as the lack of technology resources, different digital skills among students, and sometimes even the tendency to be distracted during group work (Almaiah et al., 2024). This demonstrates that the success of using the STAD model in an online environment requires not only the application of the approach, but also a good technical background and proper teacher guidance.

Overall, the results reveal the importance of examining the efficiency of online-supported STAD from the perspective of its structured pedagogy. The positive interdependence, heterogeneity among teams, recurrent interactions among peers, and personal accountability provided an environment that enabled the students to contribute actively, cooperate among themselves, and interact consistently in their collaborative work. In online-supported classes, this process was further developed through digital platforms, allowing the interactions to continue outside the classroom environment. From the perspective of Islamic education, this process could also be examined in light of such values as *adab* (mannerism in social interactions), *ukhuwah* (brotherhood), and *ta'awun* (cooperative spirit). Therefore, the contribution of STAD towards enhancing the social competence of the learners could be considered as the outcome of consistent interaction and collaboration within supportive learning environments.

LIMITATION

Despite its contributions, this study has several limitations. The research was conducted in a single classroom with a relatively small number of participants, which may limit the generalizability of the findings. Moreover, the research mainly concentrated on the qualitative aspects of developing social competence in a certain teaching and learning environment. Future studies might include larger samples, several schools, and different methodologies to explore the connection between cooperative learning and social competence in computer-assisted learning environments.

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