

The Influence of the Educational Game Baamboozle on Student Collaboration in Catholic Religious Education

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ABSTRACT

This research investigated the influence of the Baamboozle educational game on collaboration among ninth-grade students of SMPK Santo Petrus during Catholic Religious Education lessons. A quantitative quasi-experimental method was applied by comparing an experimental class with a control class. The participants comprised all 38 ninth-grade students: 19 students from class IX B formed the experimental group, whereas 19 students from class IX A formed the control group. The principal data were obtained through a collaboration questionnaire and complemented by classroom observations. Instrument validity and reliability, data normality, variance homogeneity, and an independent-samples t-test were used in the analysis. The experimental group achieved a mean collaboration score of 95.53, compared with 85.37 in the control group. The t-test yielded a significance level of 0.001, below the 0.05 criterion. These findings indicate that the use of Baamboozle produced a statistically significant positive effect on students' collaboration. During the activities, students were encouraged to exchange ideas, support group members, assume individual responsibility, communicate, and complete tasks collectively.

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Introduction

Education serves as the primary foundation for producing human resources who are competent, of strong character, and adaptive to change. As technology advances, the learning process must move beyond conventional patterns toward strategies that are creative, interactive, and meaningful. Trianto (2010) argues that instructional approaches must be adapted to students' needs, while Rusman (2017) emphasizes the teacher's role as facilitator in building active learning experiences. Within modern learning, students are thus positioned not merely as recipients of information but as active agents who construct understanding through interaction, communication, and engagement (Sardiman, 2014).

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Furthermore, Catholic Religious Education at the junior secondary level holds particular importance in shaping students' moral, spiritual, and social dimensions. This is because religious learning aims not only at understanding the teachings of faith but also at forming dispositions for communal life such as responsibility, care, and cooperation, with Christian faith values contributing directly to character formation (Nggilu, 2019).

Preliminary observation at SMPK Santo Petrus indicates that student engagement in discussion and group work during Catholic Religious Education remains suboptimal: many students tend to wait for the teacher's direction, contribute ideas only passively, and show inconsistency in supporting their group members. This condition points to the need for an instructional strategy that provides direct collaborative experience, so that the capacity to work together is not merely understood theoretically but genuinely practiced in learning activities. One promising instructional medium for this purpose is the educational game Baamboozle. Prensky (2001) explains that game-based learning can enhance student engagement by integrating game mechanics with academic objectives, and as an interactive quiz platform, Baamboozle enables teachers to design group activities that foster communication, healthy competition, and cooperation. Similarly, Khoiro, et al (2023) demonstrated that its use can generate learning that is active, communicative, and collaborative.

Within Catholic Religious Education specifically, Baamboozle's function may extend beyond a mere evaluative quiz tool, as its group-based activities simultaneously provide opportunities to practice social interaction. Yohanes (2020) contends that religious education in the digital era must help students not only understand the teachings of faith but also apply them within their relationships with others; group-based games can accordingly be directed to cultivate habits of listening, respecting others' ideas, sharing tasks, and reaching decisions collectively. Empirical findings reinforce this potential: Mariani (2022) shows that group-based use of Baamboozle can increase student engagement in learning; Khoiro, et al (2023) find that it fosters interactive learning by combining game elements with academic activity; and Darmawan and Aghni (2024) demonstrate its positive influence on students' collaborative skills.

These prior studies, however, reveal a clear research gap: most existing work has concentrated on motivation, engagement, and learning outcomes, while research examining Baamboozle's influence on collaborative ability remains limited. Although Darmawan and Aghni (2024) did examine collaborative skills, their study was situated within vocational education, leaving the use of Baamboozle to develop student collaboration within junior secondary Catholic Religious Education as a largely unexplored area warranting further investigation. The novelty of the present study lies precisely in applying the Baamboozle educational game as a means of developing student collaboration within this context, extending prior research by positioning Baamboozle not merely as a game-based evaluation tool but as an instructional medium that fosters social interaction, communication, group responsibility, and cooperation among students.

Building on this background, the present study examines the influence of the Baamboozle educational game on the collaboration of ninth-grade students at

SMPK Santo Petrus within Catholic Religious Education, focusing on collaboration as a critical social competency to be cultivated through group-based learning. The research question guiding this study is whether the application of Baamboozle influences student collaboration within this subject.

Instructional media can be understood as the means by which teachers render the presentation of material more focused, engaging, and accessible to students. Within technology-assisted learning, such media serve not merely to supplement the delivery of information but to shape a learning space that fosters active engagement. In this context, teacher professionalism is reflected precisely in the capacity to select and develop media and learning models suited to students' characteristics (Rusman, 2017).

Baamboozle is a web-based learning application that combines quiz questions with gameplay and inter-group competition, enabling teachers to design interactive quizzes within an enjoyable atmosphere (Khoiro, et al., 2023). It has been described as an online quiz competition suitable for both face-to-face instruction and assigned activities (Susanti, et al., 2024). One defining feature of Baamboozle is the simplicity of its procedure: students need not access the game through individual accounts. The entire activity can be displayed by the teacher via a projector or main screen, allowing games to be organized by group with the teacher directing the activity (Sa'diyah, et al., 2021). This format is well suited to classrooms with limited individual devices.

Baamboozle's gamification elements further sustain student attention, as teams select question numbers, accumulate scores, earn bonuses, lose points, or exchange scores through in-game features; Mutaqin (2024) identifies these "power-up" features as elements that heighten both enjoyment and challenge, generating healthy competition provided the mechanism remains properly oriented toward learning objectives. In this study, the Baamboozle educational game is treated as the independent variable (X), with its application in Catholic Religious Education encompassing the statement of learning objectives, question design, explanation of game mechanics, group formation, quiz implementation, concept reinforcement, evaluation, and reflection—a sequence grounded in game-based learning principles that nonetheless keep learning outcomes as the primary orientation (Khoiro, et al., 2023).

Collaboration, in turn, refers to individuals' capacity to interact and contribute jointly toward an agreed-upon goal. Johnson and Johnson (2014) explain that effective cooperative work is built upon positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing—meaning that collaboration cannot be inferred merely from students' division into groups but must be evidenced through the genuine engagement of every member. Trilling and Fadel (2009) further identify collaboration as one of the core twenty-first-century competencies alongside communication, creativity, and critical thinking, noting that collaborative experience allows students to construct understanding collectively, develop social sensitivity, and embrace diverse perspectives; learning activities must therefore be designed to give students opportunities to voice ideas, listen to others, and reach shared decisions. Building on Johnson and Johnson's framework, Meilinawati (2018) formulates indicators of collaboration comprising positive interdependence, face-to-face

interaction, individual responsibility, communication skills, and teamwork abilities—indicators well suited to Baamboozle's group-based format, which requires coordination among students. Positive interdependence is reflected when students understand that a team's success depends on every member's contribution; face-to-face interaction occurs as they exchange views before settling on an answer; individual responsibility appears in their willingness to carry out assigned tasks; communication is demonstrated through the courage to voice ideas; and teamwork ability is evident when students manage differences and resolve conflict constructively (Johnson & Johnson, 2014; Meilinawati, 2018). Finally, The development of student collaboration is further shaped by both internal and environmental factors—psychological state, self-confidence, family support, social relationships, and academic climate.

The Baamboozle educational game bears a clear theoretical connection to the development of student collaboration, as its use places students within group-based learning activities where quiz-based play involves not only scoring but also discussion, the exchange of ideas, role division, and joint decision-making. This aligns with Johnson and Johnson's (2014) five core elements of cooperative learning—positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing—all of which correspond closely to Baamboozle's format, since group success depends on every member's contribution. Its use is likewise consistent with Prensky's (2001) concept of digital game-based learning, whereby digital games create active learning experiences through challenge, rules, feedback, and engagement. Consequently, baamboozle activities prompt students to communicate, voice opinions, listen to peers, and solve problems collectively. Within Catholic Religious Education, the relationship between Baamboozle and collaboration carries broader significance still, as religious learning is oriented not only toward knowledge but also toward the formation of social attitudes; group activities conducted through Baamboozle can thus serve as a means of cultivating cooperation, responsibility, mutual respect, and care as expressions of lived Christian values. The Baamboozle educational game, as the independent variable (X), is therefore theoretically positioned as having a positive relationship with student collaboration as the dependent variable (Y).

Method

This study employed a quantitative approach with a quasi-experimental design. According to Sugiyono (2021), a quantitative approach enables the testing of numerical data. The quasi-experimental design was chosen because the subjects were already grouped into pre-existing classes, making full individual randomization impossible.

Two classes were involved in the research design: the experimental class received Catholic Religious Education instruction using the Baamboozle educational game, while the control class followed conventional discussion-and-presentation instruction. Arikunto (2019) explains that experimental designs are used to assess changes in a given variable following the administration of a treatment. In this study, the treatment consisted of the use of Baamboozle during the learning process.

The population comprised all 38 ninth-grade students at SMPK Santo Petrus Jember, with 19 students from Class IX A designated as the control group and 19 students from Class IX B as the experimental group. The sample was selected through purposive sampling, taking into account the comparability of student characteristics, curriculum, availability of facilities, and learning conditions across both classes (Sugiyono, 2014).

The study comprised two variables: the Baamboozle educational game as the independent variable (X) and student collaboration as the dependent variable (Y). Operationally, variable X refers to the use of Baamboozle as a group quiz within PAKat instruction, while variable Y is defined as the capacity to work together, assessed through positive interdependence, face-to-face interaction, individual responsibility, communication, and teamwork ability (Meilinawati, 2018).

A collaboration questionnaire served as the primary data source, supplemented by an observation sheet. Syofian (2020) explains that research instruments provide a standardized measurement procedure for obtaining and processing respondent information; the questionnaire recorded students' self-assessment of their collaborative experience, while the observation documented the cooperative behaviors that emerged during learning activities.

Data processing included tests of instrument validity and reliability, descriptive statistics, normality, homogeneity, and hypothesis testing. Normality was examined to assess the data's distribution pattern, while homogeneity was used to evaluate the equality of variance between the two groups (Kasmadi & Sunariah, 2014). Because the scores from the experimental and control classes were mutually independent, the hypothesis was tested using an Independent Samples T-Test (Sugiyono, 2021).

Results

Instrument Test Results

The suitability of the collaboration questionnaire and observation sheet was first examined through instrument testing. A summary of the validity and reliability results for both instruments is presented in Table 1.

Table 1. Summary of validity and reliability testing for the collaboration instruments

Instrument	Items Tested	Valid Items	Invalid Items	Cronbach's Alpha	Remarks
Collaboration questionnaire	18	15	3	0.868	Valid and reliable
Collaboration observation	10	10	0	0.948	Valid and reliable

Source: Data processed by the researcher (2026)

Table 1 shows that 15 of the 18 questionnaire items were declared valid, while the remaining three were excluded from measurement. The questionnaire's Cronbach's Alpha coefficient of 0.868 indicates good internal consistency. All 10 items on the observation sheet were likewise valid, yielding a Cronbach's Alpha of

0.948. The observation sheet therefore met the criteria for use as supplementary data.

Description of Student Collaboration Data

Collaboration scores were gathered through the questionnaire as primary data, supplemented by observation results. Descriptive statistics for both the experimental and control groups are summarized in Table 2.

Table 2. Description of student collaboration data

Instrument	Class	Mean	Standard Deviation	Min-Max
Questionnaire	Experimental	95.53	4.38	90-100
Questionnaire	Control	85.37	4.26	80-90
Observation	Experimental	86.58	7.791	75-93
Observation	Control	76.68	10.95	63-88

Source: Data processed by the researcher (2026)

As shown in Table 2, the mean questionnaire score for the experimental group reached 95.53, compared with 85.37 for the control group. The same pattern emerged in the observation data, with the experimental group averaging 86.58 against 76.68 for the control group. This difference indicates that student collaboration was higher under Baamboozle-based instruction than under conventional instruction.

Normality Test Results

Normality testing was applied to the collaboration questionnaire scores as the primary data to confirm that the assumption of normal distribution was satisfied prior to parametric analysis.

Table 3. Normality Test Results for the Student Collaboration Questionnaire

Class	Statistic	df	Sig.	Conclusion
Experimental	0.267	19	0.108	Normal
Control	0.230	19	0.229	Normal

Source: Data processed by the researcher (2026)

The results in Table 3 show significance values (p-values) of 0.108 for the experimental group and 0.229 for the control group. As both values exceed the 0.05 threshold, the questionnaire scores for each group were confirmed to follow a normal distribution.

Homogeneity Test Results

A homogeneity test was used to examine the equality of variance in collaboration questionnaire scores between the experimental and control groups.

Table 4. Homogeneity test results for the student collaboration questionnaire

Statistic	df	Sig.	Conclusion
0.072	36	0.789	Homogeneous variance

Source: Data processed by the researcher (2026)

Table 4 shows a homogeneity significance level of 0.789, which exceeds 0.05, indicating that the variances of the two groups' scores can be considered equal. Satisfying this assumption allowed the analysis to proceed using the Independent Sample T-Test.

Hypothesis Test Results

The difference in collaboration levels between the experimental and control groups was tested using the Independent Sample T-Test. A summary of the results is presented in Table 5.

Table 5. Independent sample t-test results for the collaboration questionnaire

Data	Sig.	Alpha	Conclusion
Collaboration	0.001	0.05	Significant difference found

Source: Data processed by the researcher (2026)

As shown in Table 5, the significance value obtained was 0.001, falling below the 0.05 threshold. The null hypothesis was therefore rejected, and the alternative hypothesis accepted. This finding confirms a meaningful difference in collaboration between the two classes and demonstrates a positive influence of the use of Baamboozle on the collaboration of ninth-grade students at SMPK Santo Petrus in Catholic Religious Education.

Discussion

The analysis of the results indicates that Baamboozle-based instruction contributed to enhanced collaboration. The higher mean score of the experimental group compared with the control group was accompanied by more active team interaction, as the nature of the game required students to exchange perspectives, weigh alternative answers, and reach consensus before submitting the group's response to the teacher.

This finding can be explained through Johnson and Johnson's (2014) concept of positive interdependence as a prerequisite for effective cooperation. In Baamboozle, success cannot be sustained by a single member alone, as answers are determined through group coordination, a condition that helps students understand that shared achievement arises from every member's participation.

The use of Baamboozle likewise created greater space for face-to-face interaction, when a team's turn arrived, students faced one another, exchanged explanations, and attended to their peers' reasoning. This process reflects the face-to-face interaction indicator central to cooperative learning (Johnson & Johnson, 2014); within Catholic religious education instruction specifically, such dialogue also created opportunities to connect the material of faith with students' social experience.

Individual accountability likewise developed through the activity. Every student had the opportunity to contribute ideas or help the group arrive at an answer; correct answers became a shared achievement, while mistakes were confronted and corrected collectively as a team. This experience reinforced responsibility in learning as one of the indicators of collaboration identified by Meilinawati (2018). Baamboozle further provided a context for practicing

communication, as students were required to express their reasoning concisely and comprehensibly—learning to give justification, disagree respectfully, and build upon their peers' ideas. [Trilling and Fadel \(2009\)](#) position communication and collaboration among the 21st-century skills that must be developed through active participation in learning.

The experimental group's mean questionnaire score of 95.53 was 10.16 points higher than that of the control group's mean of 85.37, indicating that group-based gameplay generated a more intensive experience of cooperation than conventional instruction. The observation data reinforce this conclusion, with means of 86.58 for the experimental group and 76.68 for the control group.

This finding is consistent with [Darmawan and Aghni \(2024\)](#), who likewise reported improved collaborative skills following the use of Baamboozle as an instructional medium. This convergence extends Baamboozle's relevance beyond vocational or general subjects to Catholic Religious Education, a field that places a strong emphasis on togetherness and social values.

The observed influence is further connected to Baamboozle's practical and visually engaging character. [Andriyani, et al \(2024\)](#) note that the platform's visual design can capture students' attention while simultaneously encouraging cooperation among them. This heightened engagement with the medium, in turn, makes students more willing to participate in activities and interact openly with their group members. From a technical standpoint, Baamboozle is likewise relatively easy to implement, as the game can proceed without individual student devices since the teacher displays it on the classroom screen ([Sa'diyah, et al., 2021](#))—an arrangement that overcomes facility limitations while keeping students' attention focused on conversation and the completion of group tasks.

Within the context of PAKat, collaborative activity bears a close relationship to love, care, responsibility, and respect for others. [Yohanes \(2020\)](#) argues that religious education in the digital era must lead students toward living out their faith in everyday action; when managed as group work, Baamboozle can therefore bridge the discussion of religious material with the practice of social relationships within the classroom.

Despite its benefits, Baamboozle requires careful instructional design. Teachers must formulate questions relevant to the learning objectives, form groups proportionally, and ensure equitable opportunities for students to voice their views. Without such management, the game risks degenerating into a mere competition for scores and losing its reflective value. Therefore, reviewing the material and facilitating reflection after gameplay should remain an integral part of its implementation ([Khoiro, et al., 2023](#)).

Overall, Baamboozle offers a meaningful pedagogical contribution to strengthening student collaboration. Its impact is reflected not only in the difference in scores but also in the emergence of discussion, communication, shared responsibility, and team coordination throughout the learning process. Baamboozle may therefore be considered a viable alternative for delivering Catholic Religious Education that is participatory, communicative, and oriented towards collaboration.

Conclusion

The results of the analysis demonstrate that the Baamboozle educational game influences the collaboration of ninth-grade students at SMPK Santo Petrus in Catholic Religious Education. The experimental group achieved a mean questionnaire score of 95.53, higher than that of the control group (85.37). The Independent Sample T-Test significance value of 0.001, falling below the 0.05 threshold, confirms that the difference between the two groups is statistically significant.

The application of Baamboozle generated learning activities that encouraged students to exchange ideas, coordinate with one another, offer mutual support, and fulfill their responsibilities as group members. Given these characteristics, Baamboozle can be employed as an effective medium for developing collaboration within Catholic Religious Education.

Recommendations

Catholic Religious Education teachers may draw on Baamboozle to broaden student engagement and cooperation. Its implementation should be preceded by the design of questions grounded in the learning objectives, the formation of balanced teams, and a clear explanation of the game's rules; once the activity concludes, teachers should continue to provide clarification and reinforcement of the concepts studied.

Students should treat Baamboozle activities as a space for practicing the articulation of reasons, attentive listening to others' views, acceptance of differing opinions, and the fulfillment of group obligations. Such competencies align with the aims of Catholic Religious Education, which extend beyond the mastery of knowledge to the cultivation of social conduct grounded in Christian values.

Schools should support technology-assisted learning by ensuring the availability of projectors, computers or laptops, and internet access, as well as by strengthening teachers' competence in managing interactive media.

Future research is recommended to examine the use of Baamboozle at other educational levels and in other subject areas, while also extending the scope of inquiry to encompass additional twenty-first-century skills.

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