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Identifying the Constructive Components of Cooperative Learning in Islamic Studies for Lower Secondary Students in Baghdad

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ABSTRACT

Purpose: The objective of this study was to identify the key components that constructively contribute to cooperative learning in Islamic Studies among lower secondary school students in Baghdad.

Methods and Materials: This applied, quantitative, and cross-sectional survey study was conducted with a sample of 175 teachers (115 female and 60 male) selected from a population of 320 lower secondary school educators in Baghdad using Morgan's sampling table. The primary instrument was a researcher-developed 54-item questionnaire, designed through expert interviews and review of global and national theories. The questionnaire utilized a 7-point Likert scale. Its reliability was confirmed through Cronbach's alpha ($\alpha = 0.986$), and its validity was established through concurrent validity. Exploratory factor analysis using principal component analysis and Varimax rotation was employed to extract the underlying components of cooperative learning.

Findings: Exploratory factor analysis identified 12 distinct components that construct cooperative learning in Islamic Studies, cumulatively explaining 63.189% of the total variance. These components include: curriculum design, learning strategies, cognitive skills, group and social skills, interpersonal skills, cooperative management, teacher characteristics, student characteristics, assessment and feedback, interaction and participation environment, equipment and technology, and physical learning environment. Skewness and kurtosis values indicated a normal distribution of scores. The KMO measure (0.89) and significant Bartlett's test ($p < 0.001$) validated the suitability of the data for factor analysis. The scree plot confirmed the retention of 12 components with eigenvalues greater than 1.

Conclusion: The study highlights the multifaceted nature of effective cooperative learning and suggests its adaptation in Islamic Studies can enhance educational engagement and social development. The model is supported by both empirical data and alignment with prior research, although lack of control for teachers' prior experience in cooperative learning may limit generalizability.

Keywords: component, cooperative learning, lower secondary education.

1. Introduction

The topic of active learning and active learners holds a significant position in today's educational discourse. Active learning is considered the most enduring type of learning, where the learner plays a more prominent role than the instructor in the learning process. In recent years, a growing consensus has supported the idea that knowledge constructed by students is meaningful and transferable to other learning contexts (Abbasi et al., 2019). Given the rapid changes occurring in the field of education, there is a growing need for innovative teaching and instructional methods. One such method that has proven influential in both the academic success and satisfaction of students is active learning. According to educational experts, students who engage in active learning not only achieve better academic outcomes but also derive greater enjoyment from the process, as they are not passive recipients of knowledge but active participants responsible for their own learning (Abadi, 2024).

In this context, cooperative learning has emerged as one of the most effective forms of active learning, gaining attention from scholars for its comprehensive developmental benefits to learners. Cooperative learning has the potential to transform students' passive learning experiences into active and constructive ones (Nasr Abadi & Noorouzi, 2021). It represents a modern teaching and learning approach that has been recognized in several educational systems worldwide as a replacement for traditional instructional methods (Kuwabara et al., 2020). Over the past few decades, cooperative learning has been identified as an effective classroom instructional strategy. It is defined as a learning method in which students work together in small groups of four to six to master subject content (Jorjani, 2024).

In other words, cooperative learning involves small groups of learners collaborating as a team to solve problems, complete assignments, or achieve shared goals. This student-centered approach emphasizes meaningful and active participation in the learning process. In this educational model, students are organized into small, structured, and homogeneous subgroups to work together toward common objectives. Each student is not only responsible for their own learning but also for assisting their peers in achieving collective success (Barkley et al., 2020). Cooperative learning enhances students' accountability and creates opportunities for discussion and feedback, guiding them into a process of self-direction. Through teamwork, students modify or refine their thoughts and steer their ideas toward

shared goals. This active participation in collaborative activities closely resembles engagement in social interactions (Gal et al., 2019).

On the other hand, religious education in the contemporary globalized society has undergone profound and, at times, perilous transformations, driven in large part by globalization and the extensive integration of information and communication technologies into daily life. Youth and especially school students face confusion and disillusionment due to a mismatch between the Islamic values taught in schools and the realities they observe in their communities and lives. Ethical and religious lessons included in school curricula often lack relevance to students' real lives, leading to skepticism, neglect, and disengagement (Hill et al., 2020).

Secondary education in most countries is considered one of the most critical educational stages. It is significant for two primary reasons: the specific characteristics of its audience and the multiple functions it serves for learners. These include preparing students for higher education, facilitating their integration into society and the labor market, and accommodating the physical and psychological transformations of adolescence (Khorshidi, 2022).

Therefore, in order for ethics and religious education programs to meet the spiritual and psychological needs of secondary students, such programs must be philosophically, psychologically, and socially aligned with Islamic teachings. In doing so, the divine nature of humans, as referenced in the Quran, can be tangibly and realistically incorporated into ethical and religious curricula, emphasizing human agency. This approach encourages students to voluntarily choose religious and moral concepts, making them an intrinsic part of their identity.

Jorjani (2024) conducted a qualitative, library-based study on cooperative learning. The findings showed that in this student-centered method, students engage in small-group learning activities, taking responsibility for their own learning within a collaborative structure. Teachers guide and lead this process. The approach, which emphasizes student cooperation, leads to increased motivation and better academic performance as students voluntarily engage in group-based learning (Jorjani, 2024).

Abadi (2024) also conducted research on cooperative learning. Teaching methods are among the most critical needs of human societies and are central to educational development. The purpose of this review study was to examine the effectiveness of teaching methods based on team participation in student learning. The results indicated

that success in cooperative teaching relies on several components: content, learning environment, teacher-student interaction, assessment, and management (Abadi, 2024).

Rezai and Salimi (2023) conducted a study on cooperative learning. Their research aimed to investigate the impact of cooperative learning on the development of students' social skills. This mixed-methods descriptive study found that cooperative learning positively affected students' interactions with each other and with the teacher. Elements such as textbook content, evaluation methods, and managerial support must be in place to realize the positive outcomes of this learning model (Rezai Rami & Salimi, 2023).

Accordingly, the main objectives of the present study are to address the following questions:

What are the core components of cooperative learning in Islamic Studies for secondary education?

What are the indicators of each of these identified components?

2. Methods and Materials

The present study is applied in terms of its objectives, quantitative in terms of data, and cross-sectional survey in terms of study design. This is because the researcher seeks

to explain and explore information at a specific point in time based on the opinions of educational science experts. The statistical population of this study consists of all lower secondary school students in the city of Baghdad. The population surveyed includes 320 teachers and school administrators at the lower secondary level. Using Morgan's table, a sample of 175 individuals (115 women and 60 men) was selected.

The research instrument was a researcher-made questionnaire consisting of 54 items. This questionnaire was developed based on national and international theories and through interviews with experts. The scale of this instrument ranged from 1 to 7, with 1 representing the lowest and 7 the highest level of acceptability for each indicator by the respondents. The reliability of the instrument was calculated using Cronbach's alpha, which was 0.986, indicating a high level of internal consistency. The validity of the instrument was measured through concurrent validity, and the factor loadings were found to be relatively high. All 54 items were validated and grouped into 12 components.

3. Findings and Results

The statistical characteristics of the twelve components of cooperative learning are presented in Table 1.

Table 1

Descriptive Indicators of Research Components

Component	Minimum	Maximum	Mean	Skewness	Kurtosis
Curriculum	4.54	7.00	5.49	-1.274	1.809
Learning Strategies	4.90	7.00	5.45	-1.020	2.039
Cognitive Skills	4.65	7.00	5.35	-0.512	1.180
Group and Social Skills	4.76	7.00	5.34	-1.287	1.370
Interpersonal Skills	4.38	7.00	5.32	-1.474	1.575
Cooperative Management	5.12	7.00	5.18	-1.904	1.179
Teacher Characteristics	4.92	7.00	5.12	-0.427	2.820
Student Characteristics	4.58	7.00	5.43	-1.142	2.435
Assessment and Feedback	5.33	7.00	4.99	-1.651	2.510
Interaction Environment	5.20	7.00	5.49	-1.244	2.183
Equipment and Technology	4.88	7.00	5.90	-1.174	1.390
Physical Environment	4.29	7.00	5.34	-1.714	2.540

From the table above, the following interpretations can be made:

1. A comparison of the twelve components from the perspectives of the sample groups shows that, in general, the most influential components in effective learning are, respectively: curriculum, learning strategies, cognitive skills, group and social skills, interpersonal skills, cooperative

management, teacher characteristics, student characteristics, assessment and feedback, interaction and participation environment, equipment and technology, and physical learning environment.

2. The lowest mean is related to the component of assessment and feedback ($M = 4.99$), and the

highest mean belongs to the component of equipment and technology ($M = 5.90$).

3. The minimum score across components from the respondents' perspectives is 4.8, and the maximum score is 7.
4. Negative skewness indicates that the distribution skews to the left of the normal distribution.
5. Negative kurtosis suggests that the distribution is shorter or flatter than the normal distribution.
6. The score distributions of all components exhibit negative skewness, meaning that the sum of the squared deviations from the mean is negative, and most individuals scored above the mean on these scales. Among these, the cooperative management component has the highest skewness, while the teacher characteristics component has the lowest skewness. All components display positive kurtosis, indicating that most scores are clustered around the mean. Therefore, based on these findings, the sample distribution is considered normal, suggesting that the sample is representative of the population.

To confirm the data analysis and generalize the research results to the population, exploratory factor analysis was used. The results of this analysis are presented in the

following tables. It should be noted that all 54 indicators of cooperative learning were validated.

To identify and prioritize the components of cooperative learning, principal component analysis with varimax rotation was applied. After multiple iterations of factor analysis using different rotation techniques to extract optimal factors in terms of number and content, the following key indicators were considered: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.89, and Bartlett's test of sphericity was significant at less than 0.001, indicating that the data were suitable for factor analysis.

The scree plot, also known as the scree or Cattell's elbow plot, depicts the eigenvalues of each extracted component. As it starts from the largest eigenvalue, the graph is always descending. The eigenvalue decreases rapidly as more factors are extracted.

Figure 1: Scree Plot of Eigenvalues (Cattell's Scree)

In the scree plot above, the eigenvalues of 12 factors are greater than 1, and at this point, a relative drop in the curve is observed. This indicates that the indicators included in the test are classified into 12 components. In the scree plot, only those factors with eigenvalues greater than 1 are selected—factors equal to 1 are excluded.

Table 2

Final Characteristics of Factor Analysis for Extracting Constructive Components of Cooperative Learning

Component	Eigenvalue	Variance (%)	Cumulative Variance (%)
1	24.129	16.641	16.641
2	20.665	14.252	30.893
3	17.102	11.794	45.687
4	12.048	8.309	50.996
5	9.601	6.622	57.617
6	8.079	5.572	63.189
7	18.566	14.252	30.893
8	17.120	11.794	45.666
9	12.500	8.309	50.996
10	9.601	7.622	57.617
11	8.079	6.572	63.189
12	20.665	6.252	30.893

As shown in Table 2, Component 1 has the highest eigenvalue (24.129), accounting for 16.641% of the total variance in the variables. This is a significant and distinct share compared to the other components.

Because the unrotated factor matrix and its factor loadings did not yield a meaningful structure, as previously discussed, it was decided to extract the components using the

common method of Varimax rotation. This rotation transferred the extracted components to new axes in order to reveal both the overall structure of the questionnaire and a simpler structure for clearer interpretation. The rotated factor matrix obtained through Varimax rotation is presented in Table 3.

Table 3

Rotated Component Matrix of the 54 Cooperative Learning Indicators via Varimax Rotation

Co mpo nent 12	It e m	Co mpo nent 11	It e m	Co mpo nent 10	It e m	Co mpo nent 9	It e m	Co mpo nent 8	It e m	Co mpo nent 7	It e m	Co mpo nent 6	It e m	Co mpo nent 5	It e m	Co mpo nent 4	It e m	Co mpo nent 3	It e m	Co mpo nent 2	It e m	Co mpo nent 1	It e m
0.489	9	0.694	8	0.722	17	0.667	41	0.611	24	0.599	23	0.620	31	0.735	35	0.730	5	0.523	4	0.620	20	0.653	1
0.469	10	0.646	15	0.629	18	0.639	43	0.493	34	0.599	25	0.534	51	0.592	40	0.727	19	0.714	23	0.755	21	0.680	2
0.605	11	0.519	16	0.661	9	0.532	42	0.684	50	0.581	27	0.599	53	0.591	52	0.448	32	0.764	38	0.750	36	0.467	3
0.525	12	0.637	46			0.613	45			0.736	28	0.834	54			0.508	42	0.855	39	0.712	37	0.626	6
0.753	13	0.634	7					0.457	29											0.680	48	0.593	7
0.665	14							0.449	30													0.474	26
								0.588															

As shown in Table 3, a total of 54 identified indicators for cooperative learning in Islamic Studies for lower secondary school students were categorized under 12 components.

Based on the conducted analysis, the twelve extracted components were defined and labeled according to the following criteria:

a) The nature and magnitude of variables that had the highest loading on each factor.

b) A review of relevant terminology and concepts to identify the name, essence, perspective, and implied meaning of the variables.

c) Existing theories and results of previous studies.

According to the above criteria, the twelve components were named as follows:

- Component 1** had strong correlations with six items and was labeled “*Curriculum.*”
- Component 2** had strong correlations with five items and was labeled “*Learning Strategies.*”
- Component 3** had strong correlations with four items and was labeled “*Cognitive Skills.*”
- Component 4** had strong correlations with four items and was labeled “*Group and Social Skills.*”
- Component 5** had strong correlations with three items and was labeled “*Interpersonal Skills.*”
- Component 6** had strong correlations with four items and was labeled “*Cooperative Management.*”
- Component 7** had strong correlations with seven items and was labeled “*Teacher Characteristics.*”

8. **Component 8** had strong correlations with three items and was labeled “*Student Characteristics.*”

9. **Component 9** had strong correlations with four items and was labeled “*Assessment and Feedback.*”

10. **Component 10** had strong correlations with three items and was labeled “*Interaction and Participation Environment.*”

11. **Component 11** had strong correlations with five items and was labeled “*Equipment and Technology.*”

12. **Component 12** had strong correlations with six items and was labeled “*Physical Learning Environment.*”

4. Discussion and Conclusion

In total, 54 indicators were found to be effective in determining the components of cooperative learning. All indicators showed acceptable statistical values. Ultimately, twelve components were extracted to define the key elements of cooperative learning, as follows: the first component was Curriculum (16.641), the second Learning Strategies (14.252), the third Cognitive Skills (11.794), the fourth Group and Social Skills (8.309), the fifth Interpersonal Skills (6.622), the sixth Cooperative Management (5.572), the seventh Teacher Characteristics (11.252), the eighth Student Characteristics (10.794), the ninth Assessment and Feedback (10.309), the tenth Interaction and Participation Environment (9.622), the

eleventh Equipment and Technology (8.572), and the twelfth Physical Learning Environment.

Each of the twelve components includes the following sub-indicators:

The first component, Curriculum, includes the following indicators: having flexibility in the curriculum; ensuring sufficient diversity in curriculum content; balancing cognitive, affective, and psychomotor domains; designing the curriculum around students' personal needs and interests; and setting clear and explicit goals in the teaching of religious education.

The second component, Learning Strategies, includes the following indicators: emphasizing skill acquisition within content; using engaging and interactive projects in religious lessons; enhancing problem-solving skills; emphasizing the active role of the learner; and establishing necessary skill workshops for students.

The third component, Cognitive Skills, includes: curriculum content that promotes mental and intellectual development; improving understanding of religious content; emphasizing creative thinking; and enhancing students' self-efficacy.

The fourth component, Group and Social Skills, includes: curriculum design around social dimensions and student life; attending to group needs in educational content development; fostering a spirit of group collaboration; and recognizing and rewarding group efforts collectively.

The fifth component, Interpersonal Skills, includes: strengthening interpersonal skills; addressing peer relationships within the classroom; and fostering valuable resource exchange between teachers and students.

The sixth component, Cooperative Management, includes: encouraging democratic management in schools; developing collaborative in-school governance; creating structures that promote student participation in school decisions; and enhancing coordination among students to improve learning outcomes in religious education.

The seventh component, Teacher Characteristics, includes: improving understanding of students' cognitive skills; the ability to form heterogeneous groups; the ability to clearly communicate lesson objectives in religious education; guiding students based on their talents; creating interdependence among students; assigning individual responsibilities; and attending to all students' abilities.

The eighth component, Student Characteristics, includes: enhancing students' psychomotor skills; strengthening intrinsic motivation; and respecting diverse and personal viewpoints within the school.

The ninth component, Assessment and Feedback, includes: conducting group-based evaluations; focusing on group outcomes in assessment; evaluating students' communication skills; and assessing their social competencies.

The tenth component, Interaction and Participation Environment, includes: providing suitable sports areas; ensuring spaces for collaborative and group activities; and having appropriate interactive environments for skill-based internships.

The eleventh component, Equipment and Technology, includes: designing curricula based on modern global technologies; access to well-equipped laboratories and libraries; availability of necessary educational aids; and access to technologies that facilitate student interaction.

The twelfth component, Physical Learning Environment, includes: appropriate organization and layout of the classroom; adequate lighting (both in terms of intensity and type, natural or artificial); consideration of classroom color schemes; proper heating and ventilation; standard noise levels; and proportional classroom size relative to student numbers.

The current findings align with those of previous researchers: Jorjani (2024) regarding student and teacher roles ([Jorjani, 2024](#)); Abedi (2024) concerning content, learning environment, teacher-student interaction, assessment, and management ([Abadi, 2024](#)); Rezaei and Salimi (2023) regarding textbook content, assessment methods, and managerial support; Anavi et al. (2023) with respect to human interaction, experienced interactive teaching, suitable environment, resources, and evaluation ([Rezai Rami & Salimi, 2023](#)); and Mende et al. (2021) regarding assessment, environment, management, and student interaction ([Mende et al., 2021](#)).

Comparison of the present study with prior research on cooperative learning in secondary schools shows broad agreement with their findings, with the critical distinction that none of the previous studies specifically focused on Islamic education. This research attempted to comprehensively address all relevant domains and mechanisms to evaluate the structural components of cooperative learning. Therefore, based on the findings and their alignment with previous research and existing theories, the proposed framework is supported by adequate theoretical and empirical evidence. This framework can serve as a significant step toward clearly identifying the key components of cooperative learning.

A limitation of the study is the failure to control for the work experience of the sample in the context of cooperative learning in religious and Islamic education, which could influence overall results. Accordingly, it is recommended that in-service training courses be held regularly to update teachers' capabilities in modern learning methods—especially cooperative learning—by employing experienced specialists. Furthermore, adopting models from countries that have successfully implemented innovative teaching methods in place of traditional ones is also suggested.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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