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Enhancing Student Engagement through Action Research: A Collaborative Approach in Secondary Education for Achieving Sustainable Development Goals

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ABSTRACT

Student engagement is crucial for academic progress, motivation, and emotional well-being in secondary education. This study investigates the effectiveness of action research as a collaborative and reflective strategy to improve student engagement. It explores how teachers and students work together to identify classroom challenges, design interventions, and assess their impact through iterative cycles of reflection and action. Employing a qualitative case study approach in two secondary schools in southern Bangladesh, data were collected through interviews, focus groups, and classroom observations. Findings reveal that action research fosters active student participation, enhances teacher adaptability, and promotes a student-centered learning environment. This participatory process increases motivation and responsibility among students while also supporting teachers' professional development. The study highlights how collaborative action research contributes to educational reform and aligns with Sustainable Development Goals—particularly SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice, and Strong Institutions). Implications for practice and policy are discussed.

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1. INTRODUCTION

In recent years, student engagement has become a central focus in educational research, particularly within the context of secondary schools. High levels of student involvement are linked to improved academic performance, enhanced motivation, and stronger knowledge retention (Fredricks *et al.*, 2004). Despite this, many classrooms still rely on passive learning approaches that do not adequately stimulate students' cognitive, emotional, and behavioral investment. As a result, educators often struggle to maintain students' interest and participation, especially in diverse and increasingly digitized learning environments.

Student engagement is now widely recognized as a foundational element for achieving SDG 4 (Quality Education), which calls for inclusive and equitable learning opportunities that promote lifelong learning. Yet, traditional teaching methods often fail to accommodate students' varying needs, limiting their ability to actively participate in shaping their own educational experiences. This poses challenges in achieving SDG 10 (Reduced Inequalities) in education, particularly for students with different learning preferences or those from disadvantaged backgrounds.

Action research emerges as a promising strategy to address these challenges. Defined as a cyclical, reflective process where practitioners investigate and improve their practices, action research empowers teachers and students to collaboratively identify problems, implement interventions, and evaluate outcomes. Unlike top-down reforms, this approach promotes student agency and teacher adaptability, aligning with the participatory ethos of SDG 16 (Peace, Justice, and Strong Institutions) by fostering inclusive, responsive, and accountable learning communities.

This study explores how action research, when employed collaboratively between teachers and students, can enhance student engagement in secondary schools. It investigates how this participatory method transforms classroom dynamics, improves motivation, and supports pedagogical innovation. The purpose of this study is to provide evidence on how collaborative action research strengthens student participation. Its novelty lies in framing action research within the global agenda of sustainable development, particularly in the context of secondary education in Bangladesh. The impact of this work is its potential to guide future instructional practices and policies aimed at fostering inclusive, student-driven learning environments.

2. LITERATURE REVIEW

2.1. Defining Student Engagement

Student engagement is widely defined as students' enthusiasm, motivation, and commitment to learning activities (Appleton *et al.*, 2008). Some literature (Fredricks *et al.*, 2004) further categorizes engagement into three dimensions: behavioral engagement (active classroom participation), emotional engagement (positive attitudes toward school), and cognitive engagement (deep investment in learning). Research consistently shows that increased engagement leads to better academic performance, improved social behavior, and higher psychological well-being (Skinner & Belmont, 1993).

Promoting engagement in these dimensions is essential for achieving SDG 4, which advocates inclusive and equitable quality education. Meaningful engagement enhances learning retention and fosters the development of critical thinking and social-emotional skills, qualities foundational for achieving lifelong learning.

2.2. Challenges to Student Engagement in Secondary Education

Despite the benefits of engagement, secondary education often relies on traditional, didactic instruction that undermines student motivation and autonomy (Zepke & Leach, 2010). As students mature cognitively and socially, they require more agency and active learning experiences. The lack of personalized instruction contributes to disengagement, low academic performance, and increased dropout rates. These issues disproportionately affect students from marginalized or under-resourced backgrounds, further exacerbating educational inequalities, an obstacle to SDG 10.

2.3. Action Research as a Strategy for Engagement

Action research is a participatory and iterative process that involves planning, acting, observing, and reflecting. It enables educators to examine their teaching strategies and adapt them to better meet student needs. Unlike top-down models of reform, action research allows for teacher autonomy and responsiveness to classroom realities, enhancing both teacher efficacy and student outcomes.

Importantly, action research aligns with SDG 16, which promotes inclusive decision-making and transparent institutions. Involving students in the research process fosters shared responsibility, trust, and mutual respect, strengthening classroom governance and collaboration.

2.4. Collaborative Learning and Student Voice

Student engagement increases significantly when learners are active participants in designing and assessing educational activities. Collaborative learning approaches (grounded in the theory of social interaction) emphasize shared meaning-making, peer support, and collective problem-solving. When students work together and with teachers to co-create learning experiences, they develop a stronger sense of ownership and community (Johnson & Johnson, 2009).

This empowerment of student voice directly supports SDG Target 4.7, which emphasizes inclusive learning environments that foster global citizenship, critical thinking, and personal responsibility.

2.5. Benefits and Challenges of Action Research in Practice

Numerous studies highlight the benefits of action research in fostering inclusive, reflective, and effective pedagogy. Teachers gain professional insights, while students become more actively involved in the learning process. The cyclical structure of action research allows for real-time adjustments, leading to more adaptive and responsive classrooms. In line with SDG 4.c, which emphasizes the professional development of educators, action research contributes to continuous teacher learning and instructional innovation.

However, implementation is not without challenges. Teachers often face time constraints, a lack of training, and the complexity of addressing diverse student needs. These barriers highlight the necessity for institutional support and policy frameworks that prioritize participatory, student-centered approaches to reform, principles consistent with both SDG 10 and SDG 16.

3. METHODS

This study employed a qualitative case study design using an action research framework, suitable for examining how collaborative processes affect student engagement in real educational settings. Action research is inherently cyclical (comprising planning, action, observation, and reflection) and aligns with SDG 4 by fostering inclusive, learner-centered teaching practices. The qualitative approach enabled deep insight into participant perspectives, promoting equity and agency in line with SDG 10.

The study was conducted in two secondary schools in southern Bangladesh, representing diverse urban populations. Using purposive sampling, 10 teachers and 40 students (ages 12–18) were selected for their willingness to engage in collaborative inquiry. Teachers represented core subject areas (English, Mathematics, Science), while students were selected for their readiness to participate actively in feedback and learning design.

This inclusive participant structure supports SDG 16, which promotes participatory decision-making and inclusive institutional practices within schools.

To capture multiple perspectives and ensure data triangulation, three primary qualitative techniques were used:

Interviews with both teachers and students explored their perceptions of engagement and their experiences with action research.

- (i) Teacher interviews documented the planning, implementation, and reflection phases.
- (ii) Student interviews focused on their motivation, participation, and feelings of ownership in co-designed learning tasks.

This method amplified student voice, which directly contributes to SDG 4.7 (education for sustainable development and citizenship).

Focus groups with students provided insights into peer dynamics and collective responses to collaborative learning. These sessions illuminated how co-created strategies influenced group engagement and motivation.

Structured observations were conducted using a rubric based on behavioral, emotional, and cognitive engagement indicators (Fredricks *et al.*, 2004). Observation helped track real-time changes in student participation and the use of instructional strategies responsive to diverse learners, supporting SDG 10.

Data were analyzed using thematic analysis (Braun & Clarke, 2006), a method well-suited for identifying recurring patterns in qualitative research. The steps included:

- (i) Familiarization with transcripts and notes
- (ii) Generation of initial codes
- (iii) Theme development based on engagement and collaboration
- (iv) Refinement and verification of themes
- (v) Integration of findings into the broader research narrative

This method ensured that both teacher and student perspectives were reflected fairly, reinforcing SDG 16's emphasis on inclusive participation and transparent processes.

The study followed ethical research protocols to ensure participant rights and data integrity:

- (i) Informed Consent: All participants received detailed explanations of the study and signed consent forms.
- (ii) Confidentiality: Pseudonyms were used, and data were stored securely.
- (iii) Voluntary Participation: Participants could withdraw at any stage without consequence.

These safeguards align with SDG 16.6 and 16.7, which emphasize integrity, ethical decision-making, and accountability in institutional processes.

4. RESULTS AND DISCUSSION

This section presents the results of the action research cycles conducted in two secondary schools in Bangladesh and integrates them into a broader discussion. Data from interviews, focus groups, and observations are analyzed thematically and supported by literature. The findings are organized into four overarching themes with multiple sub-themes; each aligned with relevant SDGs.

4.1. Theme 1: Action Research as a Tool for Enhancing Student Engagement

4.1.1. Theme 1: Empowering Teachers to Reflect and Adapt

Teachers who engaged in action research reported becoming more responsive to students' needs. This reflective process led to meaningful adjustments in lesson design, materials, and classroom strategies. Teachers noted that by observing students' engagement levels and gathering feedback, they could adapt their instructional approaches more effectively.

This teacher empowerment aligns with SDG 4.c, which advocates for teacher training and professional development. Teachers emphasized the value of ownership over their professional growth:

"I now regularly reflect on student feedback to shape my lessons. It's a continuous learning cycle for both me and the students." — Teacher participant

Moreover, the reflective nature of action research supports lifelong learning for educators, as envisioned in SDG 4.

4.1.2. Theme 1: Enhanced Teacher-Student Collaboration

Teachers and students jointly identified learning challenges and brainstormed strategies. This led to more personalized and relevant instructional plans. Students reported a greater sense of mutual respect and understanding in classrooms where their input was actively sought.

"We weren't just listening anymore—we were contributing." — Student participant.

This collaboration reinforces SDG 16.7, promoting inclusive and participatory decision-making processes within school institutions.

4.1.3. Theme 1: Fostering a Student-Centered Learning Environment

Through action research, teachers increasingly shifted toward student-centered instruction. Activities became more aligned with student interests, prior knowledge, and preferred learning styles. Differentiated instruction, project-based learning, and co-created rubrics emerged as strategies that heightened engagement.

"We got to choose how we presented our group project. That made it more exciting and meaningful." — Student participant.

Student-centered learning not only enhances academic inclusion (SDG 4.5) but also recognizes student diversity and promotes equality in classroom participation, thus serving SDG 10.

4.1.4. Theme 1: Enhancing Classroom Dynamics through Ongoing Adjustments

Teachers reported that regular review of classroom engagement metrics (e.g., attendance, participation) allowed for real-time adjustments. This iterative process improved the pacing and clarity of lessons, made classroom environments more inclusive, and ensured that disengaged students were re-engaged early.

"I could quickly see what activities lost students' interest and change direction without waiting for exam results." — Teacher participant.

4.2. Theme 2: Collaborative Strategies to Boost Engagement

4.2.1. Theme 2: Co-Designing Learning Activities

Students felt more motivated when involved in designing classroom tasks. They expressed excitement and ownership over assignments that reflected their interests or allowed creative freedom.

"Planning the debate topic together made me more invested. It felt like our classroom, not just the teacher's." — Student participant.

Co-creation of content supports SDG 4.7 by promoting inclusive and participatory educational experiences that foster critical thinking and civic responsibility.

4.2.2. Theme 2: Peer Feedback and Collaborative Problem-Solving

Students engaged in structured peer review sessions and group reflections. This helped improve metacognitive skills and accountability. Teachers observed increased willingness to revise and improve work based on peer input.

"Giving feedback made me think more deeply about what I was learning." — Student participant.

Such collaboration also reflects the cooperative learning ideals of theory and supports SDG 16 through fostering peaceful, inclusive learning spaces built on respect and dialogue.

4.2.3. Theme 2: Shared Responsibility and Collective Goal-Setting

Teachers introduced collective classroom goals co-created with students. These included participation benchmarks, noise-level agreements, and joint deadlines. This shared accountability model strengthened community values and deepened student commitment.

"Knowing we all agreed on the goals made me want to stick to them. It was our agreement." — Student participant.

Such practices exemplify SDG 16.6, promoting accountable and transparent institutional processes even at the classroom level.

4.3. Theme 3: The Impact of Student Involvement on Engagement and Motivation

4.3.1. Theme 3: Ownership of Learning

Students reported a heightened sense of responsibility when their ideas and preferences were incorporated into lessons. Many described feeling more "in control" of their learning paths, which translated into greater effort and improved behavior.

"When I choose how to learn something, I feel like it's my responsibility to do well." — Student participant.

This directly supports SDG 4.1, which calls for effective learning outcomes and increased motivation across all levels of education.

4.3.2. Theme 3: Increased Motivation Through Reflection

Reflective activities (such as learning journals, self-assessment rubrics, and goal-setting) allowed students to visualize their progress and develop a growth mindset.

"Seeing my old work and how I've improved makes me want to keep going." — Student participant.

This approach fosters intrinsic motivation and resilience, both aligned with SDG 4.7, which emphasizes cognitive and social development through reflective education.

4.3.3. Theme 3: Critical Thinking and Problem-Solving Skills

Participation in planning and assessing activities increased students' critical thinking and creative problem-solving abilities. Teachers observed that students posed more questions, suggested alternative approaches, and explored deeper meanings in texts and concepts.

"We started asking more questions, even challenging the teacher sometimes—in a good way." — Student participant.

These are key 21st-century competencies directly aligned with SDG 4.4.

4.4. Theme 4: Benefits and Challenges of Implementing Collaborative Action Research

4.4.1. Theme 4: Challenges: Time, Planning, and Resource Constraints

Both teachers and students reported that action research, though rewarding, required significant time investment. Teachers struggled to balance data collection, lesson planning, and administrative tasks. Students felt pressured when collaborative tasks were layered over exam preparation.

"Some weeks, I had to choose between planning the next cycle and grading my tests." — Teacher participant.

These findings underscore the need for institutional support, aligned with SDG 4. a (safe, inclusive, and effective learning environments) and SDG 16.6 (efficient, accountable systems).

4.4.2. Theme 4: Managing Diverse Learning Needs

Teachers found it challenging to cater to students with varying levels of readiness and learning preferences during collaborative projects. Some students preferred guided instruction, while others thrived in open-ended tasks.

"Balancing everyone's needs is hard. But action research helped me try different things until something clicked." — Teacher participant.

These efforts reflect the spirit of SDG 10.2, which promotes empowerment and inclusion across all groups.

4.4.3. Theme 4: Improved Engagement and Classroom Climate

Despite challenges, the action research process improved class climate significantly. Classrooms became more respectful, enthusiastic, and goal-oriented. Students reported stronger relationships with peers and teachers, while teachers noted fewer behavioral disruptions.

"The classroom feels more like a team now, not just a teacher and students." — Teacher participant.

These benefits contribute to SDG 4.5, which focuses on eliminating disparities in education and promoting inclusive experiences.

4.4.4. Theme 4: Professional Development and Collaborative Growth

Teachers noted that participation in collaborative inquiry enhanced their professional skills, critical thinking, and pedagogical flexibility. Engaging with students as co-researchers shifted their mindset from authority to facilitator.

"I feel like I'm growing as a teacher every cycle we run." — Teacher participant.

This aligns strongly with SDG 4.c, promoting teacher capacity-building through research-driven practice.

4.5. Synthesis: Action Research as a Vehicle for Sustainable Education Reform

The findings demonstrate that collaborative action research is not merely a pedagogical technique but a transformative framework that integrates teaching, learning, and development into a cohesive process. It aligns directly with the UN's 2030 Agenda for Sustainable Development, particularly:

- (i) SDG 4: By fostering inclusive, participatory, and equitable education through reflective, student-centered practices.
- (ii) SDG 10: By promoting educational equity and access for students of diverse learning backgrounds.
- (iii) SDG 16: By encouraging democratic processes, dialogue, and accountability within classrooms.

These outcomes highlight the broader relevance of action research beyond individual schools, suggesting its potential for policy-level integration and systemic reform. Finally, this adds new information regarding SDGs, as reported elsewhere (Nurramadhani *et al.*, 2024; Krishnan *et al.*, 2024; Djirong *et al.*, 2024; Waardhani *et al.*, 2025; Yustiarini *et al.*, 2025; Merzouki *et al.*, 2025; Nmoussa *et al.*, 2025; Glovatskii *et al.*, 2025; Kerans *et al.*, 2024).

4.6. Summary of the Findings

For Theme 1: Action Research as a Tool for Engagement, it is summarized:

- (i) Empowers teachers to reflect and adapt teaching methods → aligns with SDG 4.c (teacher development).
- (ii) Promotes teacher-student collaboration for shared learning decisions → supports SDG 16.7 (inclusive decision-making).
- (iii) Fosters student-centered learning, enhancing inclusivity and motivation → links to SDG 4.5 and SDG 10.
- (iv) Enables dynamic adjustments to teaching strategies based on real-time feedback → promotes responsiveness and equity.

For Theme 2: Collaborative Strategies for Engagement, it is summarized:

- (i) Co-designing learning tasks increases student investment and ownership → aligns with SDG 4.7 (active citizenship).
- (ii) Peer feedback and group problem-solving strengthen critical thinking and social learning → supports SDG 16.
- (iii) Shared responsibility through goal-setting builds classroom community and mutual accountability → promotes SDG 16.6.

For Theme 3: Impact on Motivation and Learning, it is summarized:

- (i) Student ownership of learning boosts intrinsic motivation and engagement → supports SDG 4.1.
- (ii) Reflective practices foster a growth mindset and perseverance → aligns with SDG 4.7.
- (iii) Critical thinking and problem-solving skills are enhanced through inquiry → links to SDG 4.4 (relevant skills for life/work).

For Theme 4: Benefits and Challenges, it is summarized:

- (i) Challenges: Time constraints, diverse learning needs, resource limitations → call for institutional support (SDG 4. a, SDG 10.2).
- (ii) Benefits: Increased engagement, better classroom climate, stronger teacher-student relationships → supports SDG 4, SDG 16.
- (iii) Professional growth for teachers through collaborative inquiry → directly contributes to SDG 4.c.

Based on the findings of this study, the following recommendations are proposed to enhance student engagement in secondary education through collaborative action research, with emphasis on advancing SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice, and Strong Institutions):

- (i) Integrate Action Research into Professional Development Programs. Teachers should be trained in action research methodologies as part of their professional development. Workshops, coaching, and reflective practice groups should be established to help educators learn how to identify problems, implement interventions, and analyze results. It is aligned with SDG 4.c – Increase the supply of qualified teachers through training.
- (ii) Foster Student Voice and Participation in the Learning Process. Schools should create formal channels for students to contribute to curriculum design, classroom rules, and assessment strategies. This promotes ownership, engagement, and a stronger sense of inclusion. It is aligned with SDGs: 4.7 – Promote learner participation; 16.7 – Ensure participatory decision-making.
- (iii) Promote Cross-Disciplinary Collaboration Among Educators. Teachers from different subjects should be encouraged to conduct interdisciplinary action research projects that address common engagement challenges. Such collaboration supports innovation and knowledge sharing. It is aligned with SDG 17.17 – Encourage multi-stakeholder partnerships.
- (iv) Provide Institutional Support for Action Research Cycles. School administrators should allocate time within academic calendars for teachers to plan, implement, and reflect on action research activities. Additional support, such as reduced teaching loads or collaborative planning periods, will enable sustainable practice. It is aligned with SDGs: 4. a – Provide effective learning environments; 16.6 – Develop effective, accountable institutions.
- (v) Encourage Reflection and Feedback Among Students. Students should regularly engage in self-assessment and peer feedback. This reflective process cultivates metacognitive awareness and intrinsic motivation, essential for sustained engagement. It is aligned with SDG 4.4 – Promote relevant skills, including problem-solving and critical thinking.

- (vi) Scale Up and Share Best Practices Across Schools. Effective strategies identified through action research should be documented and shared across school networks to build a repository of engagement practices. District-level support can help scale successful interventions. It is aligned with SDG 4.b – Expand access to quality innovations and reforms.

5. CONCLUSION

This study demonstrates that collaborative action research is an effective strategy for enhancing student engagement in secondary education. By fostering a participatory, student-centered learning environment, action research promotes increased motivation, deeper critical thinking, and stronger student ownership of the learning process. Teachers benefit as well, gaining greater professional insight through reflection, adaptation, and partnership with students.

The process aligns powerfully with several Sustainable Development Goals. It advances SDG 4 (Quality Education) by ensuring inclusive and equitable practices, responsive teaching strategies, and opportunities for lifelong learning. By embracing student diversity and allowing learners of varying backgrounds and abilities to co-create their educational experiences, the approach supports SDG 10 (Reduced Inequalities). Furthermore, the collaborative and reflective nature of action research mirrors the principles of SDG 16 (Peace, Justice, and Strong Institutions) by encouraging transparent, participatory decision-making within school systems.

Despite challenges such as time constraints, resource limitations, and the need for professional development, the benefits significantly outweigh the difficulties. Teachers and students reported improved classroom dynamics, greater mutual respect, and heightened academic enthusiasm. Importantly, this research confirms that when students are treated as co-researchers and co-constructors of knowledge, engagement transforms from compliance to commitment.

Collaborative action research is more than an instructional method; it is a transformative educational practice that addresses both pedagogical and developmental goals. It prepares students not only to succeed academically but also to become active, reflective, and responsible participants in society, fulfilling the broader vision of education as outlined in the United Nations' 2030 Agenda.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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