International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

# Examining Student Engagement Dynamics in Blended Secondary Classrooms through an Action Research Approach

**Usman Ali**

Master of Education, Jamia Millia Islamia, Delhi
ORCID ID: https://orcid.org/0009-0003-1115-3213
Email: *usmanaliedn[at]psyforu.com*

**Abstract:** ***Student engagement in blended secondary classrooms is neither uniform nor static. Learners may participate actively in face-to-face discussions but remain silent in digital forums; they may complete online assignments without deep understanding; or they may show interest in multimedia resources while avoiding collaborative tasks. Such uneven engagement patterns require systematic classroom inquiry rather than general assumptions about student motivation or technology use. This paper examines how action research can be used to explore student engagement patterns in blended secondary classrooms. Drawing upon reflective practice, teacher professional development, technological pedagogical content knowledge, constructivist curriculum theory, inclusive education, differentiated instruction, and Indian educational policy frameworks, the paper argues that action research enables teachers to identify behavioural, cognitive, emotional, social, and self-regulated engagement patterns. It further explains how teachers can use classroom observation, digital participation records, student feedback, reflective journals, formative assessment, and learner work samples to understand engagement more precisely. The paper concludes that action research helps teachers move from a general concern with "student engagement" to a more nuanced understanding of who participates, how they participate, why they disengage, and what pedagogical adjustments are required in blended learning environments.***

**Keywords:** student engagement, action research, blended learning, secondary classrooms, reflective practice, digital pedagogy, learner participation

## 1. Introduction

Blended learning has introduced new possibilities and new complexities in secondary education. It allows teachers to combine face-to-face instruction with digital resources, online assignments, multimedia explanations, learning management systems, online quizzes, recorded lessons, peer collaboration tools, and digital feedback mechanisms. However, the presence of both physical and digital learning spaces also makes student engagement more difficult to understand. In a conventional classroom, teachers may judge engagement through attendance, eye contact, note-taking, oral responses, or participation in classroom activities. In blended classrooms, engagement is distributed across several spaces and modes. A student may appear passive in class but respond thoughtfully in an online discussion. Another may submit every online task but remain conceptually weak. A third may participate in group work but avoid individual reflection. A fourth may watch recorded lessons but fail to ask questions.

These variations suggest that student engagement should be studied as a pattern rather than as a single behaviour. Engagement patterns refer to recurring forms of learner participation, withdrawal, interaction, completion, reflection, collaboration, and self-regulation across classroom and digital contexts. Understanding such patterns is important because secondary students differ in confidence, access, motivation, digital fluency, academic readiness, peer relationships, language ability, and home support. Therefore, a teacher cannot assume that all students engage in the same way or disengage for the same reason.

Action research provides a practical method for exploring these engagement patterns. Singh (2014a) explained action research as a classroom-based process through which educators identify problems, plan interventions, observe results, and reflect for improvement. In the context of blended classrooms, action research enables teachers to ask focused questions such as: Which students participate more in face-to-face settings and which participate more online? Do online quizzes produce conceptual engagement or only task completion? Does peer discussion increase participation among hesitant learners? Are students with limited digital access being excluded from engagement? Which blended activities produce sustained attention, questioning, collaboration, and self-regulated learning?

The need for such inquiry is strengthened by the distinction between emergency remote teaching and well-designed online or blended learning. Hodges, Moore, Lockee, Trust, and Bond (2020) argued that emergency remote teaching is a temporary response to crisis, while online learning requires planning, design, support, and evaluation. Many classrooms use digital tools, but their actual effects on engagement remain unclear unless teachers examine student responses systematically. Action research helps teachers move beyond technological optimism and investigate what is really happening in the learning process.

The National Education Policy 2020 emphasises learner-centred pedagogy, technology integration, holistic development, flexibility, critical thinking, creativity, and inclusion (Ministry of Education, Government of India, 2020). The National Curriculum Framework 2005 also supports active learning, learner experience, classroom dialogue, and constructivist knowledge-building (National

Council for Educational Research and Training [NCERT], 2005). These frameworks suggest that engagement should not be limited to attendance or assignment completion. It should include meaningful participation in the construction of knowledge. This paper argues that action research is a valuable tool for exploring such engagement patterns in blended secondary classrooms and for guiding reflective pedagogical improvement.

## 2. Understanding Engagement Patterns in Blended Classrooms

Student engagement is multidimensional. In a blended secondary classroom, it may be behavioural, cognitive, emotional, social, and self-regulated. Behavioural engagement includes attendance, punctuality, task completion, participation in classroom activities, and response to online assignments. Cognitive engagement includes attention, questioning, conceptual understanding, problem solving, analysis, application, and reflection. Emotional engagement includes interest, curiosity, confidence, belongingness, enjoyment, and positive attitude toward learning. Social engagement includes peer interaction, collaborative learning, discussion, and respectful participation. Self-regulated engagement includes planning, monitoring, independent study, use of feedback, and responsibility for learning.

Such patterns are important because they reveal that engagement is not a simple yes-or-no condition. A student may be engaged in one mode and disengaged in another. A classroom may have high overall participation but unequal participation across gender, academic level, socio-economic background, or access to technology. Singh (2014e, 2014f) argued that inclusive education requires attention to learner diversity and the removal of barriers to participation. This principle is highly relevant to blended learning because digital systems may create hidden patterns of exclusion. Students who lack devices, stable internet, digital confidence, or family support may appear disengaged when the actual issue is unequal access.

Differentiated instruction also becomes important in understanding engagement patterns. Singh (2014c, 2014d) emphasised that classroom instruction should respond to different learning styles and learner needs. In blended classrooms, differentiated engagement may occur when students are offered varied resources, flexible pacing, multiple modes of response, and scaffolded activities. A reflective teacher observes which formats support which learners. Some students may respond better to videos, some to teacher explanation, some to peer work, some to visual summaries, and some to practice quizzes. These responses form meaningful engagement patterns.

The policy context also supports this broader understanding. NCERT (2005) viewed learning as active construction rather than rote reception. NEP 2020 similarly encourages experiential, inquiry-based, discussion-based, and flexible learning (Ministry of Education, Government of India, 2020). Therefore, teachers must explore whether blended activities actually create active engagement or merely produce digital compliance. A student who clicks through a learning module is not necessarily engaged. A student who submits an assignment is not necessarily thinking deeply. Action research helps teachers make these distinctions.

## 3. Action Research as a Method for Exploring Engagement Patterns

Action research is especially suitable for studying engagement patterns because it begins with classroom realities. Unlike large-scale research conducted from outside the classroom, action research allows the teacher to study specific learners, specific lessons, specific tools, and specific participation behaviours. Singh (2014a) presented action research as a practical process through which educators can solve classroom problems and improve teaching. In this paper, action research is understood not only as an intervention method but also as an exploratory method for identifying engagement patterns.

Schön's (1983) concept of the reflective practitioner provides the professional foundation for this process. Teachers reflect in action when they adjust strategies during instruction and reflect on action when they analyse classroom evidence after the lesson. In blended classrooms, both forms of reflection are necessary. A teacher may notice during class that students who completed the online task are unable to discuss it. Later, the teacher may reflect on whether the online task required enough thinking or whether students needed guided prompts.

Action research also connects with teacher professional development. Avalos (2011) argued that teacher professional development involves learning, context, identity, and transformation of practice. Darling-Hammond (2006) emphasised that teacher education must prepare teachers for complex classrooms and professional judgment. Desimone (2009) highlighted the need to connect professional development with classroom outcomes, while Guskey (2002) argued that teacher change often occurs when teachers observe improvement in student learning. Action research supports these conditions because it enables teachers to connect their own professional learning with evidence of student engagement.

In blended learning, action research must also be informed by technological pedagogical content knowledge. Mishra and Koehler (2006) argued that effective technology integration requires interaction among technological, pedagogical, and content knowledge. Shulman's (1987) pedagogical content knowledge framework similarly emphasised the transformation of subject matter into teachable forms. When teachers explore engagement patterns, they must ask whether the digital tool, pedagogical method, and content objective are aligned. For example, if students do not engage with an online simulation, the issue may not be student disinterest; it may be that the simulation was not linked with prior knowledge, guided questions, or classroom discussion.

## 4. Sources of Evidence for Identifying Engagement Patterns

Action research requires systematic evidence. In blended classrooms, evidence of engagement can come from multiple sources. The teacher should avoid relying only on visible classroom behaviour or online completion data. Instead, engagement should be examined through triangulation, where different forms of evidence are compared.

Digital participation records provide another source. These may include login frequency, assignment submission, quiz attempts, discussion posts, video viewing records, and platform activity. Such data can help identify patterns of online engagement. However, digital records must be interpreted carefully. A high number of clicks does not necessarily mean deep learning, and low digital activity may reflect access problems rather than lack of interest. Hodges et al. (2020) warned against assuming that digital delivery automatically equals designed learning.

Student work samples are useful for studying cognitive engagement. Teachers can examine whether student responses are original, analytical, reflective, application-based, or superficial. If students complete tasks but produce low-quality responses, the pattern may indicate behavioural engagement without cognitive engagement. This distinction is important because meaningful learning depends on thought, not only task completion.

Formative assessment also provides evidence. Short quizzes, oral checks, exit tickets, reflection prompts, and peer feedback can show whether students understand the content. Singh (2015a) discussed examination reform in relation to educational improvement, and this idea can be extended to classroom-based formative assessment. In action research, assessment should not only grade learners but also provide evidence for pedagogical adjustment.

Teacher reflective journals are also valuable. Schön (1983) viewed reflection as central to professional practice, and journals make reflection systematic. A teacher may record observations such as: “Students were active in the online quiz but could not explain their answers,” or “Low-achieving students participated more when they first discussed in pairs.” Such notes help identify recurring patterns over time.

## 5. Types of Engagement Patterns in Blended Secondary Classrooms

The second pattern is high online completion with low cognitive depth. Students may submit assignments and attempt quizzes but show limited understanding. This pattern indicates that digital tasks may be too mechanical or that students may be copying answers. The teacher may need to redesign tasks to require explanation, application, comparison, or reflection.

The third pattern is high multimedia interest with low sustained engagement. Students may enjoy videos, animations, or presentations but fail to participate in follow-up discussion or written tasks. This suggests that multimedia may capture attention but not automatically produce learning. The teacher must connect multimedia resources with guided questions, collaborative tasks, and formative assessment.

The fourth pattern is selective participation. Some students may participate only in activities that are graded, while others may participate only in group work or only in individual tasks. This pattern helps the teacher understand motivation and task preference. Singh and Gera (2015d) discussed life skills and global competencies, and selective participation may show where students need support in responsibility, collaboration, or self-direction.

The fifth pattern is socially dependent engagement. Some students may participate only when supported by peers. This is not necessarily negative. Peer support can be a bridge toward confidence and independent learning. The teacher may use collaborative strategies while gradually developing individual accountability.

The sixth pattern is silent cognitive engagement. Some students may not speak frequently but may produce thoughtful written or digital responses. This pattern reminds teachers not to equate silence with disengagement. Blended classrooms can provide alternative participation channels for such learners.

The seventh pattern is hidden exclusion. Some students may appear disengaged because they lack devices, connectivity, language support, or confidence. Singh (2014e, 2014f) emphasised the need to rethink inclusive education in relation to participation and access. In blended classrooms, action research can uncover these hidden barriers.

The eighth pattern is emerging self-regulation. Some students may begin to use recorded lessons, digital notes, quizzes, and feedback independently. This pattern is important because blended learning can promote self-directed learning when properly guided. NEP 2020’s emphasis on flexibility and lifelong learning supports this direction (Ministry of Education, Government of India, 2020).

## 6. Pedagogical Responses Based on Engagement Patterns

The value of identifying engagement patterns lies in using them for pedagogical improvement. Once teachers understand how students engage, they can redesign blended learning more effectively.

For students with low online engagement, teachers may provide clearer instructions, orientation to digital platforms, shorter tasks, offline alternatives, peer support, and structured follow-up. For students who complete tasks without cognitive depth, teachers may introduce application-based questions, reflective prompts, oral explanation, peer review, and feedback-based revision. For students who enjoy multimedia but do not sustain engagement, teachers

may use guided viewing sheets, concept checks, and classroom discussion linked to digital content.

For selective participants, teachers may vary task formats and gradually build participation responsibility. For socially dependent learners, collaborative learning may be used as a scaffold while individual accountability is strengthened. For silent but thoughtful learners, teachers may provide written discussion forums, reflective journals, and digital response tools. For students facing hidden exclusion, teachers may differentiate resources, provide flexible access, simplify language, and avoid making digital participation the only route to success.

These responses are consistent with differentiated instruction. Singh (2014c, 2014d) argued that teachers must adapt instruction to learner diversity. They are also consistent with inclusive education, where the aim is to remove barriers to participation (Singh, 2014e, 2014f). The teacher's role is not merely to observe engagement patterns but to respond to them ethically and pedagogically.

Reflective action research supports this process because it allows teachers to test whether the response works. After implementing a strategy, the teacher can observe whether participation changes. For example, if guided video questions are introduced, the teacher can examine whether students come better prepared for discussion. If peer support is introduced, the teacher can observe whether hesitant learners participate more. If digital tasks are differentiated, the teacher can examine whether low-achieving students improve completion and confidence.

## 7. Implications for Teacher Professional Development

Exploring engagement patterns through action research has strong implications for teacher professional development. Teachers need to be trained not only in using digital tools but also in interpreting learner engagement. Technical training alone cannot prepare teachers to understand why students participate differently across blended spaces.

Avalos (2011), Darling-Hammond (2006), Desimone (2009), and Guskey (2002) collectively indicate that effective teacher professional development must be practice-based, evidence-informed, connected with student learning, and sustained over time. Action research on engagement patterns fulfils these conditions because it requires teachers to study their own classrooms, collect evidence, interpret learner responses, and revise practice.

The National Curriculum Framework for Teacher Education 2009 emphasised professional and humane teacher preparation (National Council for Teacher Education [NCTE], 2009). The NPST guiding document 2023 also supports professional standards and continuous teacher growth (NCTE, 2023). Understanding engagement patterns should be included in teacher education programmes, especially in relation to blended learning. Prospective and practising teachers should learn how to observe engagement, use digital data responsibly, collect student feedback, maintain reflective journals, and conduct small action research projects.

School leadership must also support this work. Fullan (2007) argued that educational change requires supportive conditions and sustained meaning-making. Teachers cannot conduct meaningful action research if they have no time, institutional support, or collaborative space. Schools should create professional learning communities where teachers discuss engagement patterns, share strategies, and review evidence together. Singh and Gera (2015c) discussed pedagogical rejuvenation and quality deliverance for effective teaching; action research on engagement patterns can contribute to such pedagogical renewal.

## 8. Discussion

This paper has argued that student engagement in blended secondary classrooms should be studied as a pattern. Engagement is not uniform across students or learning modes. Some students may be behaviourally engaged but cognitively passive. Some may be digitally active but socially withdrawn. Some may be silent in class but reflective online. Some may be excluded due to access barriers rather than lack of motivation. Therefore, teachers need systematic inquiry to understand engagement more accurately.

Action research provides such inquiry. It enables teachers to identify specific engagement questions, collect evidence, interpret learner responses, design interventions, and revise practice. This process is supported by Schön's (1983) reflective practice, Singh's (2014a) action research orientation, Shulman's (1987) pedagogical content knowledge, and Mishra and Koehler's (2006) technological pedagogical content knowledge. It is also supported by professional development literature that connects teacher learning with classroom outcomes (Avalos, 2011; Darling-Hammond, 2006; Desimone, 2009; Guskey, 2002).

The Indian policy context further strengthens the argument. NEP 2020 and NCF 2005 support learner-centred, active, flexible, inclusive, and meaningful education (Ministry of Education, Government of India, 2020; NCERT, 2005). NCFTE 2009 and NPST 2023 support reflective teacher professionalism (NCTE, 2009, 2023). Action research allows these policy ideals to be translated into classroom-level practice.

The most important implication is that teachers should not ask only whether students are engaged; they should ask how different students are engaging, where they are disengaging, and what classroom design can improve participation. This shift from general judgement to pattern analysis makes teaching more precise, inclusive, and evidence-informed.

## 9. Conclusion

Exploring student engagement patterns in blended secondary classrooms is essential for improving the quality of teaching and learning. Blended learning creates multiple participation spaces, but it also creates uneven and sometimes hidden patterns of engagement and disengagement. Teachers need

systematic methods to understand these patterns rather than relying only on assumptions or surface-level indicators.

This paper has shown that action research is a valuable tool for identifying and responding to engagement patterns. Through classroom observation, digital records, student feedback, formative assessment, work samples, and reflective journals, teachers can understand behavioural, cognitive, emotional, social, and self-regulated engagement more accurately. They can then design differentiated, inclusive, and pedagogically meaningful interventions.

In conclusion, action research helps teachers transform blended classrooms into reflective learning environments where engagement is continuously studied, supported, and improved. It positions teachers as professional inquirers who can connect digital pedagogy, learner diversity, classroom evidence, and educational reform. When engagement patterns are understood through action research, blended secondary classrooms can become more inclusive, interactive, learner-centred, and educationally effective.

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