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Student Clubs as Reciprocal Learning Environments: Lifelong Learning and Teacher Professional Learning

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Abstract: Lifelong learning is widely recognised as a central educational objective, yet limited attention has been paid to how its foundations develop during secondary schooling. This study examines student clubs in Greek Model and Experimental General High Schools as institutionalised non-formal learning environments. It investigates their contribution to students' lifelong learning dispositions and teachers' professional learning. A qualitative interpretive design was employed. Data were collected through semi-structured interviews with 27 teachers across all nine Model and Experimental General High Schools in Attica and 12 focus groups involving 72 students from seven of these schools. The findings indicate that voluntary participation, pedagogical flexibility, collaborative inquiry, authentic activity, shared responsibility and facilitative teaching support the development of students' autonomy, intrinsic motivation, learning to learn, reflection and learner agency. The same environments provide opportunities for teachers' professional learning through pedagogical experimentation, reflective practice and selective transfer of learner-centred approaches to classroom teaching. These processes appear interdependent: increased student responsibility requires changes in teachers' pedagogical roles, while teacher experimentation expands opportunities for student initiative and agency. The study proposes the Institutionalised Dual Learning Ecosystem Model (IDLEM) as a heuristic framework for interpreting this

reciprocal relationship. It highlights the potential of institutionalised non-formal learning to connect lifelong learning, student agency and school-based teacher professional learning.

Keywords: lifelong learning dispositions, institutionalised non-formal learning, student clubs, teacher professional learning, learner agency, secondary education.

Introduction

Lifelong learning has become a central principle of contemporary educational policy in response to rapid technological, social, environmental and demographic change. International policy discourse increasingly emphasises individuals' capacity to continue learning, adapt to changing circumstances and participate meaningfully in social and professional life (International Commission on the Futures of Education, 2021; OECD, 2023). However, lifelong learning is still frequently associated with post-compulsory education, adult learning and employability. Comparatively less attention has been given to how its foundations may begin to develop during secondary schooling through everyday pedagogical experiences.

From this perspective, lifelong learning involves more than continued participation in education or the acquisition of transferable competences. It also depends on developing dispositions that enable individuals to engage actively and responsibly with learning across changing contexts. Recent research in secondary education highlights learner agency, self-assessment, self-regulation and reflective engagement as processes through which students can assume increasing responsibility for their learning (Fletcher, 2024; Torres et al., 2024). Such dispositions are unlikely to develop through direct instruction alone. They require educational environments in which learners have opportunities to make meaningful choices, collaborate with others, engage in authentic inquiry and reflect on their learning.

This raises an important question about the kinds of pedagogical environments schools provide for developing such orientations. Research on student participation and learner-centred education suggests that environments characterised by collaboration, inquiry, authentic participation and shared responsibility can create favourable conditions for meaningful engagement and learning (Berti et al., 2023; Liljestrand, 2024; Wijnia et al., 2024). However, conventional schooling is often organised around curricular requirements, predetermined learning objectives, assessment structures and teacher-directed instructional routines. Consequently, it is valuable to examine educational settings within schools that allow greater flexibility in participation, pedagogical organisation and learner responsibility.

Institutionalised non-formal learning environments offer a particularly relevant context for such investigation. Non-formal learning is not defined simply by occurring outside formal educational institutions; it can also be understood through characteristics such as voluntary participation, learner motivation, organisational flexibility and alternative forms of educational engagement (Johnson & Majewska, 2024). This perspective is especially relevant to educational activities formally embedded within schools but operating through pedagogical arrangements that differ from conventional classroom instruction.

Student clubs operating within Greek Model and Experimental High Schools provide such a context. Institutionally embedded in public secondary education, these clubs create structured opportunities for voluntary participation, interdisciplinary activity, collaborative inquiry and project-oriented learning. Their hybrid position—formally recognised within the school system while incorporating characteristics associated with non-formal learning—makes them particularly suitable for examining how alternative forms of participation may contribute to learning within formal educational institutions.

The educational significance of these environments may, however, extend beyond students. When learners assume greater responsibility, make decisions and influence the direction of educational activity, teachers must also reconsider conventional pedagogical roles. Student clubs may therefore provide teachers with opportunities to experiment with learner-centred approaches, observe students working under different pedagogical conditions, reflect on their own practice and selectively transfer successful approaches to formal classroom teaching. This possibility shifts attention from student clubs as environments that produce outcomes for learners alone to their potential as settings in which student learning and teacher professional learning develop in relation to one another.

Despite growing research on lifelong learning, learner agency, non-formal education and teacher professional learning, these areas have often been examined through separate analytical perspectives. Comparatively less attention has been given to institutionalised non-formal environments within public secondary schools and, in particular, to the possibility that the same pedagogical conditions may simultaneously support students' lifelong learning dispositions and teachers' professional learning. Examining these processes together may contribute to a more integrated understanding of how schools can function as learning environments not only for students but also for the professionals who work within them.

Against this background, the present study investigates student clubs in Greek Model and Experimental High Schools as institutionalised non-formal learning environments. It examines how participation in these environments contributes to the development of students' lifelong learning dispositions, how it supports teachers' professional learning, and which pedagogical and institutional conditions enable these processes to develop reciprocally. By bringing student and teacher learning within a common analytical frame, the study seeks to extend current understandings of lifelong learning as a process whose foundations may be cultivated within compulsory schooling and through the pedagogical relationships embedded in everyday educational practice.

Accordingly, the study addresses the following research questions:

- RQ1. How does participation in institutionalised student clubs contribute to the development of students' lifelong learning dispositions?
- RQ2. How does participation in institutionalised student clubs support teachers' professional learning?
- RQ3. Which pedagogical and institutional conditions enable these reciprocal learning processes to develop within public secondary education?

The study contributes to the literature in three related ways. First, it examines lifelong learning from a developmental perspective by focusing on dispositions cultivated during secondary schooling rather than primarily on participation in learning during adulthood. Second, it investigates institutionalised non-formal learning within the organisational boundaries of public education, thereby challenging a simple spatial distinction between formal and non-formal learning. Third, it considers student and teacher learning as potentially interdependent processes developing through shared pedagogical conditions. The empirical analysis identifies a reciprocal relationship that informs the Institutionalised Dual Learning Ecosystem Model (IDLEM), introduced in the Discussion as a heuristic conceptual framework for interpreting how institutionalised non-formal learning environments may simultaneously support learner development and teachers' professional learning.

Literature Review

Lifelong Learning as a Developmental Perspective

Although lifelong learning is firmly established in international educational policy, its significance extends beyond participation in education across the lifespan. It represents a developmental understanding of learning as a continuous process through which individuals interpret experience, construct meaning and respond to changing personal, social and professional circumstances.

Several theoretical traditions support this perspective. Jarvis (2006) conceptualises learning as the transformation of human experience, while Illeris (2007) emphasises the interaction of cognitive, emotional and social dimensions. Alheit and Dausien (2002) similarly describe lifelong learning as a biographical process through which individuals reinterpret experience and reconstruct identity. Despite their different emphases, these approaches converge in treating learning as continuous development rather than as a succession of isolated educational episodes.

Contemporary international policy increasingly positions schools as environments that should equip learners not only with knowledge but also with the capacity to adapt, collaborate and continue learning throughout changing social and professional contexts (International Commission on the Futures of Education, 2021; OECD, 2023). This shift reframes lifelong learning from a policy objective associated primarily with adulthood into a pedagogical process beginning during schooling.

Biesta (2006, 2020, 2022) similarly argues that the purposes of education extend beyond qualification and knowledge acquisition to include socialisation, subjectification and the development of a world-centred orientation, thereby directing attention to how learners come to act as responsible subjects within and through education. The central question therefore becomes not only what students should know, but what kinds of learners educational environments enable them to become.

A continuing tension nevertheless exists between approaches that define lifelong learning through measurable competences and those that emphasise learner identity, agency and dispositions. The latter perspective directs attention towards the pedagogical environments in which enduring orientations towards learning develop. If the foundations of lifelong learning are established through everyday school experiences, research must examine the conditions that enable students to become active, reflective and increasingly self-directed learners. The following section therefore focuses on lifelong learning dispositions as the study's principal analytical lens.

Lifelong Learning Dispositions

Contemporary perspectives conceptualise lifelong learning not simply as the accumulation of knowledge but as the development of enduring learner dispositions that influence how individuals engage with learning across contexts (Carr & Claxton, 2002; Perkins et al., 1993). These dispositions include orientations towards autonomy, motivation, reflection, self-regulation and agency, which shape learners' willingness and capacity to participate actively in learning.

Dispositions differ from discrete skills because they concern not only what learners can do but also their inclination to engage those capacities in meaningful situations (Carr & Claxton, 2002; Perkins et al., 1993). Learner autonomy refers to learners' capacity to assume increasing responsibility for decisions concerning their learning (Holec, 1981; Little, 1991). Closely related is intrinsic motivation, which Self-Determination Theory associates with sustained engagement when educational environments support autonomy, competence and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2020).

Reflection is another dimension of lifelong learning. Reflective learning enables individuals to interpret experience critically, evaluate their actions and revise future practice (Boud et al., 1985; Schön, 1983). Recent evidence from secondary education indicates that structured peer observation and self-feedback can strengthen students' reflection and self-regulated learning (Torres et al., 2024), while self-assessment can operate as an agentic process involving goal-setting, monitoring and adaptation of learning strategies (Fletcher, 2024). Longitudinal evidence further suggests that self-regulated learning follows differentiated developmental trajectories during secondary schooling, reinforcing the need for sustained pedagogical support rather than assuming self-regulation to be a stable learner characteristic (Sáez-Delgado et al., 2023).

Learner agency extends individual self-regulation by referring to learners' capacity to influence educational processes through meaningful participation. Recent systematic evidence identifies the development of student agency as an important curriculum aim in secondary education. It highlights the interaction of multiple pedagogical conditions through which it can be supported (Schoots-Snijders et al., 2025).

Taken together, these perspectives suggest that lifelong learning dispositions develop through participation in educational environments characterised by meaningful responsibility, collaboration and authentic engagement rather than through direct instruction alone. Recent evidence similarly shows that substantive student participation can enhance engagement when learners exercise meaningful roles in educational processes (Berti et al., 2023), while problem-, project- and case-based approaches are positively associated with student motivation across educational settings (Wijnia et al., 2024).

Accordingly, the present study conceptualises lifelong learning dispositions as pedagogically developed orientations that emerge through participation in institutionalised non-formal learning environments. This perspective provides the analytical basis for examining how student clubs support learner development within public secondary education.

Institutionalised Non-formal Learning Environments

Non-formal learning occupies an intermediate position between formal education and informal learning. Although it typically involves organised educational activity, it tends to allow greater flexibility in participation, content and pedagogical organisation than conventional curricular instruction. Recent scholarship emphasises that non-formal learning cannot be defined solely by its location outside formal institutions. It is more usefully distinguished through characteristics such as voluntarism, learner motivation, flexibility of organisation and the nature of participation (Johnson & Majewska, 2024).

This distinction is particularly important when non-formal learning practices are embedded within formal educational institutions. Their educational significance derives not simply from operating outside conventional lessons but from the alternative forms of participation and pedagogical relationships they enable. Similarly, research on innovative learning environments cautions against treating organisational or spatial arrangements as inherently transformative; their educational significance depends on the pedagogical relationships, interactions and conceptions of teaching and learning enacted within them (Liljestrand, 2024).

Within such environments, interdisciplinary and project-based activities can give students opportunities to engage with complex problems that cross conventional subject boundaries. Research on integrated STEM projects in secondary education illustrates how interdisciplinary project work can organise learning around authentic problems, collaborative activity and the integration of disciplinary knowledge (McLure et al., 2022). Meta-analytic evidence further indicates that project-based learning can

positively affect academic achievement, affective outcomes and thinking skills. However, its effects vary according to educational level, subject area, group size and duration of implementation (Zhang & Ma, 2023).

Taken together, these strands of research point to the importance of voluntary participation, pedagogical flexibility, authentic inquiry and collaborative responsibility. However, they are rarely examined together within institutionalised non-formal environments embedded in compulsory public schooling. Research on non-formal learning frequently focuses on settings outside formal schooling, while studies of innovative or project-based learning generally examine pedagogical approaches implemented within formal curricular structures. The intersection between these domains therefore remains comparatively underexplored.

Student clubs in Greek Model and Experimental High Schools occupy precisely this intersection. They are institutionally recognised within the public education system while retaining characteristics commonly associated with non-formal learning, including voluntary participation, flexible organisation, interdisciplinary inquiry and greater scope for learner initiative. They therefore provide an analytically distinctive context for examining how non-formal pedagogical conditions can operate within formal schooling.

From this perspective, the analytical value of student clubs lies not in their extracurricular status but in their hybrid institutional position. They make it possible to investigate whether pedagogical characteristics commonly associated with non-formal learning can be incorporated into public schooling and, if so, how these characteristics shape both student learning and teachers' professional practice.

Analytical Framework

The literature reviewed suggests three complementary conclusions. First, lifelong learning can be understood as a developmental process whose foundations begin to emerge during compulsory schooling. Second, lifelong learning dispositions develop through participation in pedagogical environments characterised by autonomy, collaboration, authentic engagement and reflection rather than through direct instruction alone. Third, institutionalised non-formal learning environments embedded within formal schooling may create conditions that support both learner development and teachers' professional learning.

Despite these advances, an important gap remains. The literature reviewed here reveals limited integration among research on lifelong learning dispositions, non-formal education and teacher professional learning. Studies commonly foreground either student learning or teachers' professional development. At the same time, comparatively less attention has been given to how these processes may interact within institutionalised non-formal learning environments embedded in public schools. Recent empirical evidence similarly suggests that teachers' professional learning is closely associated with their efforts to support students' self-regulated learning and with their capacity to adapt pedagogical practices to changing learning environments (Hirt et al., 2025). At the same time, research on professional learning communities in secondary education highlights the importance of collaborative practices, shared responsibility and collective learning processes in shaping teachers' professional development (Olmo-Extremera et al., 2025).

The present study addresses this gap by examining student clubs in Greek Model and Experimental High Schools as pedagogical settings in which student and teacher learning may develop through shared institutional conditions. This analytical perspective subsequently informs the development of the Institutionalised Dual Learning Ecosystem Model (IDLEM), presented in the Discussion as a heuristic interpretation of the empirical findings.

Materials and Methods

Research Design

The study adopted a qualitative interpretive design to explore how students and teachers experienced participation in institutionalised student clubs and how they perceived its contribution to learning. This approach was appropriate because the research focused on participants' meanings, experiences and interpretations rather than on measuring predetermined outcomes or establishing causal relationships.

Data were generated through semi-structured interviews with teachers and focus group discussions with students. Combining the two sources enabled the phenomenon to be examined from complementary perspectives and supported comparison between student and teacher accounts across the common institutional context of Model and Experimental General High Schools.

Research Context

The study was conducted across all nine Model and Experimental General High Schools operating in Attica at the time of the research. Including the full population of these schools enabled the study to encompass institutional settings serving communities with diverse socio-demographic characteristics.

Student clubs constitute formally recognised educational activities within Model and Experimental Schools and operate alongside the regular curriculum. Participation is voluntary, while their organisation allows greater pedagogical flexibility than conventional classroom instruction, including interdisciplinary inquiry, collaborative projects and creative activity. The term institutionalised non-formal learning is therefore used to describe these formally recognised school-based environments that incorporate characteristics commonly associated with non-formal learning.

Sample and Participants

The study involved 27 teachers and 72 students from Model and Experimental General High Schools in Attica. The teacher sample comprised three teachers from each of the nine schools, all of whom had direct experience of organising or implementing student clubs.

The 72 students participated in 12 focus groups conducted in seven of the nine schools. One focus group was conducted in each of the seven schools and included students from both the first and second grades of upper-secondary education. In one of these schools, five additional grade- and class-specific focus groups were conducted: three with first-grade students and two with second-grade students, one for each class section. This design provided student perspectives from both grades while allowing more detailed exploration of similarities and differences across age groups and classroom contexts.

Table 1

Participants and Data Sources

Participant group	Number	Schools represented	Data source
Teachers	27	9	27 semi-structured interviews
Students	72	7	12 focus groups

Data Collection

Data were collected through 27 semi-structured individual interviews with teachers and 12 focus group discussions with students. Teacher interviews explored experiences of organising and implementing student clubs, perceptions of student participation and learning, changes in pedagogical roles, and the perceived influence of club-based practices on formal classroom teaching.

Student focus groups explored participants' reasons for joining the clubs and their experiences of collaboration, decision-making, responsibility for learning, inquiry, reflection and interaction with teachers. The semi-structured format ensured coverage of common themes while allowing participants to elaborate on experiences they considered significant.

Interviews and focus groups were recorded with participants' consent and transcribed for analysis. Participant codes were used throughout the analysis and reporting to preserve anonymity.

Data Analysis

The data were analysed through an iterative thematic process involving repeated reading, initial coding, category development, comparison across interviews and focus groups, and theme refinement. Teacher and student data were initially examined separately and subsequently compared to identify convergences, differences and relationships between the two participant groups.

The analysis combined inductive engagement with the data and theoretically informed interpretation. Concepts associated with lifelong learning — particularly autonomy, motivation, learning to learn, reflection and learner agency — were used as sensitising analytical lenses rather than predetermined coding categories, allowing theoretically relevant patterns to be explored while remaining open to themes emerging from participants' accounts.

The analysis identified five interconnected student dispositions: autonomy, intrinsic motivation, learning to learn, reflection and learner agency. Teacher data revealed three dimensions of professional learning: pedagogical experimentation, reflective professional learning and selective transfer to classroom practice. Cross-analysis of the two datasets subsequently identified the pedagogical and institutional conditions associated with these learning processes.

Trustworthiness and Ethical Considerations

Trustworthiness was supported through systematic comparison of teacher and student accounts, repeated engagement with the dataset and attention to both convergent and divergent perspectives. Triangulation across interviews and focus groups enabled interpretations to be examined across participant groups rather than relying on a single source of evidence. An audit trail of coding and category development was maintained throughout the analytical process.

Participation was voluntary, and principles of informed consent, confidentiality and anonymity were observed throughout the study. Participants were informed about the purpose of the research and their right to withdraw. Identifying information was removed from the dataset, and participant codes were used when reporting quotations.

Results

Analysis of the teacher interviews and student focus group discussions revealed two interconnected learning processes within the student clubs. Students described experiences associated with increasing autonomy, intrinsic motivation, learning to learn, reflection and learner agency. At the same time, teachers reported pedagogical experimentation, reflection on their professional practice and selective transfer of

club-based approaches to formal classroom teaching. Across both participant groups, these processes were associated with recurring pedagogical and institutional conditions, particularly voluntary participation, pedagogical flexibility, collaborative inquiry, authentic activity, shared responsibility and facilitative teaching.

The findings are presented according to the three research questions. Section 4.1 examines students' lifelong learning dispositions, Section 4.2 presents teachers' professional learning, and Section 4.3 identifies the conditions associated with these reciprocal learning processes.

Development of Lifelong Learning Dispositions

Analysis of the student focus groups and teacher interviews identified five interconnected dimensions associated with lifelong learning: autonomy, intrinsic motivation, learning to learn, reflection and learner agency. These dimensions were not reported as discrete outcomes but appeared across participants' accounts as related orientations emerging through sustained participation in club activities.

Table 2

Lifelong Learning Dispositions Identified in Student Clubs

Disposition	Empirical indicators
Autonomy	Choice of tasks and roles; decision-making; increasing responsibility for learning
Intrinsic motivation	Voluntary participation; sustained engagement; interest-driven activity
Learning to learn	Planning; problem-solving; strategy adjustment; managing learning processes
Reflection	Evaluation of experience; recognition of difficulties; reconsideration of approaches
Learner agency	Initiative; influence on project direction; contribution to collective decisions

Note: The categories were developed through qualitative analysis of student focus groups and teacher interviews. Source: Authors' analysis of research data.

Autonomy

One of the most consistent patterns concerned students' increasing responsibility for their participation and learning. Teachers described club activities as providing greater scope for students to make decisions, organise activities and contribute to project development. As one teacher explained:

“...students should be given opportunities for free creative expression and active participation because these are often restricted in everyday school life.” (T20)

Students' accounts similarly emphasised the importance of choice. One participant contrasted club participation with compulsory educational activity:

“...club activities are voluntary, we are not graded, and we participate because we genuinely want to.” (A2στ)

Autonomy therefore appeared in the data not as the absence of teacher guidance but as increased opportunity for students to exercise choice and assume responsibility within a structured collaborative environment.

Intrinsic Motivation

Voluntary participation was also closely associated with students' motivation. Participants described their involvement in terms of interest, enjoyment and willingness to contribute rather than grades or formal assessment. One student highlighted the social and motivational character of participation:

"...everyone is there because they enjoy it; you exchange ideas more easily and you feel that you belong to the group." (S4ε)

Such accounts were recurrent in descriptions of sustained engagement. The absence of grading was frequently contrasted with ordinary classroom experiences, while personal interest and belonging to the group were associated with continued participation.

Learning to Learn

Participants also described learning processes requiring inquiry, information seeking, collaborative problem-solving and adjustment of strategies as projects developed. Teachers emphasised opportunities for students to investigate questions beyond examination requirements. As one teacher stated:

"...school should not be only about university entrance examinations; students also need opportunities for inquiry and research." (T19)

Students similarly described a learning process in which solutions were not provided in advance:

"...there are no ready-made answers; we investigate together and we actually have the time to search." (S3ε)

These accounts indicate that students engaged not only with the substantive content of projects but also with processes of searching, investigating and organising learning.

Reflection

Reflection appeared in participants' accounts in connection with dialogue, feedback, evaluation of experience and reconsideration of action. Students described the club environment as allowing forms of expression that they associated less readily with formal classroom settings:

"...here I can express myself freely; in class I am usually thinking about grades." (B1β)

Teacher accounts also indicated that the altered learning environment prompted reflection on educational relationships and practice. One teacher noted:

"...the atmosphere was completely different from the classroom and this changed me as a teacher." (T4)

Although the latter quotation also anticipates the teacher-learning findings examined in Section 4.2, it illustrates how reflective processes were embedded in interactions between students, teachers and the learning environment rather than occurring only through formal evaluation.

Learner Agency

Agency became particularly visible when students were positioned as contributors to educational activity rather than solely as recipients of teacher direction. Teachers described students taking active roles in producing, presenting and shaping activities:

“...students do the talking, the acting and the presenting; the process is much less teacher-centred and much more collaborative.” (T21)

This was also reflected in students' accounts:

“...we actively participate and create things in an area that genuinely interests us.” (B2β)

Agency was therefore associated with meaningful participation in collective activity. Students' involvement extended beyond completing assigned tasks to contributing actively to processes and products that they regarded as their own.

Taken together, the findings addressing RQ1 indicate that the five dispositions developed through overlapping forms of participation. Choice was associated with responsibility; voluntary involvement with motivation; inquiry with learning to learn; and collaborative participation with opportunities for expression and agency. The evidence therefore suggests that student clubs contribute not by directly teaching isolated lifelong learning competences, but by providing repeated opportunities for students to enact dispositions associated with continued learning.

Teachers' Professional Learning

Teacher interviews revealed a second learning process developing within the same educational environment. Three recurring dimensions were identified: pedagogical experimentation, reflective professional learning and selective transfer to classroom practice. Teachers' accounts indicated that these processes were closely connected with changes in their pedagogical role as students assumed greater responsibility within club activities.

Table 3

Dimensions of Teachers' Professional Learning

Dimension	Empirical indicators
Pedagogical experimentation	Trial of collaborative, interdisciplinary and project-based approaches; flexible organization of learning
Reflective professional learning	Reconsideration of teacher role; observation of student responses; adaptation of pedagogical decisions
Transfer to classroom practice	Selective use of club-based strategies in formal lessons; increased use of collaboration and learner responsibility

Note: Dimensions were developed through qualitative analysis of teacher interviews.

Source: Authors' analysis of research data.

Pedagogical Experimentation

Teachers frequently described student clubs as spaces in which they could explore pedagogical approaches that were more difficult to implement within conventional classroom constraints. Greater organisational flexibility enabled project-based, interdisciplinary, collaborative and inquiry-oriented activity. One participant described this explicitly:

“...the club became a space where I could try ideas that I would hesitate to implement immediately in my regular classes.” (T17)

Experimentation therefore emerged from the practical organisation of club activity rather than from a formally structured professional-development programme. Teachers described adjusting activities in response to students' interests, contributions and emerging project needs.

The altered pedagogical context was also associated with changes in the teacher's role. One teacher explained:

"...my role gradually shifted from providing answers to creating the conditions for students to discover solutions themselves." (T14)

Another reflected on the consequences of giving students greater responsibility:

"...I realised that students were capable of much more than I had initially expected when I allowed them to take responsibility." (T3)

These accounts show that experimentation involved not only using different activities but also changing how teachers positioned themselves in relation to students' learning.

Reflective Professional Learning

Teachers also described an iterative process of observing students' responses, evaluating pedagogical decisions and adapting subsequent practice. Reflection was therefore embedded in the implementation of club activities rather than confined to formal professional-development settings.

One participant described this process directly:

"...after every meeting I reflected on what had worked, what had not, and how I should approach the next session differently." (T8)

Such accounts indicate that professional learning developed through repeated cycles of action, observation and reconsideration. Students' responses provided teachers with information that influenced subsequent pedagogical decisions, while unexpected outcomes prompted reassessment of assumptions about students' capabilities and the teacher's role.

Transfer to Classroom Practice

A third dimension concerned the reported transfer of practices developed within student clubs to formal classroom teaching. Teachers acknowledged that curriculum requirements, examination pressures and limited instructional time constrained direct replication of club practices. Nevertheless, several described selectively incorporating elements of collaboration, inquiry, student initiative and facilitative teaching into regular lessons.

One teacher reported:

"...many of the approaches that proved successful in the club gradually became part of my classroom teaching as well." (T22)

Another similarly stated:

"...working in the club changed the way I organize learning, even when I teach the formal curriculum." (T5)

The evidence therefore indicates reported selective transfer rather than wholesale adoption of club-based pedagogies. Teachers described adapting particular practices to the constraints of formal instruction rather than reproducing the club environment unchanged.

The findings addressing RQ2 thus indicate that teachers' professional learning developed through interconnected processes of experimentation, reflection and reported transfer. Importantly, these processes were associated with changes in student participation. As students assumed greater responsibility, teachers described reconsidering how much direction they needed to provide and experimenting with more facilitative pedagogical roles.

Pedagogical and Institutional Conditions Enabling Reciprocal Learning

Cross-analysis of student and teacher accounts identified conditions associated with both forms of learning described above. The most recurrent were voluntary participation, pedagogical flexibility, collaborative inquiry, authentic and interdisciplinary activity, shared responsibility and facilitative teaching. Rather than operating independently, these conditions combined to shape the character of participation within the clubs.

Table 4

Conditions Supporting Student and Teacher Learning

Condition	Student learning	Teacher learning
Voluntary participation	Interest, engagement and persistence	Greater responsiveness to learner interests
Pedagogical flexibility	Choice, exploration and strategy adjustment	Opportunity for pedagogical experimentation
Collaborative inquiry	Communication, problem-solving and shared learning	Observation of collaborative learning processes
Authentic/interdisciplinary activity	Meaningful application of knowledge	Experimentation beyond disciplinary routines
Shared responsibility	Autonomy and agency	Redistribution of classroom authority
Facilitative teaching	Increased learner initiative	Reflection on and transformation of teacher role

Note: The table synthesises recurring patterns identified across student focus groups and teacher interviews. Source: Authors' analysis of research data.

Voluntary Participation

Voluntary participation was repeatedly identified as a distinguishing feature of club activity. Teachers associated students' decision to participate with differences in engagement:

“...students come because they want to participate; they are not obliged to be there, and this changes the quality of their engagement.” (T11)

Students similarly connected voluntary participation with responsibility towards the group:

“...here everyone has chosen to be part of the group, so we work differently and take greater responsibility.” (S2γ)

Voluntary participation therefore functioned not merely as an administrative characteristic but as part of the learning environment within which motivation, responsibility and ownership were experienced.

Pedagogical Flexibility

Teachers also emphasised the possibility of modifying activities in response to emerging ideas and project developments. One teacher explained:

“...the club gives us the freedom to change direction whenever students' ideas lead somewhere unexpected.” (T15)

This flexibility enabled student contributions to shape activity development while giving teachers opportunities to adapt their pedagogical decisions. It therefore connected student initiative with teacher experimentation.

Collaborative Inquiry and Shared Responsibility

Both participant groups described collaboration as central to club activity. One student characterised the process as collective creation:

“...everyone contributes different ideas, and together we create something that none of us could have produced alone.” (S58)

A teacher similarly emphasised the redistribution of problem-solving responsibility:

“...students learn to listen, negotiate and solve problems collectively rather than waiting for solutions from the teacher.” (T9)

These accounts show that collaboration involved more than working alongside peers. It required negotiation, shared problem-solving and collective responsibility, while simultaneously reducing dependence on teacher-provided solutions.

Authentic and Interdisciplinary Activity

Across participants' accounts, collaborative work was frequently organised around projects, inquiry and creative production rather than predetermined sequences of classroom tasks. Students' description that “there are no ready-made answers” and teachers' emphasis on opportunities for inquiry illustrate a learning environment in which knowledge was mobilised in response to developing problems and project purposes.

Authenticity and interdisciplinarity therefore worked alongside flexibility: project development created opportunities to draw on different forms of knowledge. At the same time, the absence of predetermined answers required students and teachers to respond to emerging needs.

Facilitative Teaching

A shift towards facilitative teaching accompanied the redistribution of responsibility. The teacher's account of moving from “providing answers” to “creating the conditions for students to discover solutions themselves” captures this shift particularly clearly.

Facilitative teaching was therefore linked simultaneously with student and teacher learning. For students, reduced teacher direction created greater scope for initiative, decision-making and responsibility. For teachers, responding to increased student agency required experimentation with alternative pedagogical roles.

Institutional Constraints

Participants also identified boundaries to these processes. Teachers referred particularly to curriculum requirements, examination pressures and limited instructional time as constraints on the wider use of club-based practices in conventional lessons. One teacher stated:

“...the examination system leaves little room for implementing these approaches systematically during ordinary lessons.” (T6)

This qualification is important because the findings do not portray the transfer between club and classroom as automatic. The institutional flexibility of the clubs enabled forms of participation that teachers regarded as more difficult to sustain within examination-oriented formal instruction.

Taken together, the findings addressing RQ3 indicate that student and teacher learning were associated with a common set of pedagogical and institutional conditions. Voluntary participation supported engagement; flexibility enabled student ideas and teacher experimentation; collaborative inquiry distributed responsibility; authentic activity provided meaningful purposes; and facilitative teaching expanded students' opportunities for initiative while requiring teachers to reconsider established pedagogical roles.

The evidence therefore reveals a reciprocal pattern rather than two independent learning processes. Increased student responsibility was accompanied by changes in teacher practice, while teachers' willingness to experiment created further opportunities for student participation and agency. This empirical relationship provides the basis for the theoretical interpretation developed in the Discussion.

Discussion

The findings indicate that student clubs in Greek Model and Experimental High Schools function as more than complementary or extracurricular activities. Their educational significance lies primarily in the pedagogical conditions they create: voluntary participation, flexible organisation, collaborative inquiry, authentic activity, shared responsibility and facilitative teaching. Within these conditions, students described processes associated with lifelong learning dispositions, while teachers reported pedagogical experimentation, reflection and selective transfer of practices to formal classroom teaching.

The discussion therefore considers student and teacher learning not as separate outcomes but as interconnected processes developing within the same institutionalised non-formal learning environment.

Lifelong Learning Dispositions and Learner Agency

The findings indicate that student clubs provide conditions in which dispositions associated with lifelong learning can be developed and enacted during secondary schooling. Autonomy, intrinsic motivation, learning to learn, reflection and learner agency emerged not as isolated competences but as interconnected orientations fostered through voluntary participation, collaborative inquiry and increasing responsibility for learning. This supports developmental perspectives that conceptualise lifelong learning as grounded in dispositions cultivated through meaningful educational participation rather than as a process beginning only in adulthood (Carr & Claxton, 2002; Deakin Crick et al., 2004).

The findings also align with recent research emphasising the importance of autonomy-supportive and participatory environments for student engagement and self-directed learning (Berti et al., 2023; Fletcher, 2024; Wijnia et al., 2024). However, this study extends this perspective by situating these processes within institutionalised non-formal environments embedded in public secondary schools. The clubs' voluntary and flexible character appears particularly significant: students could exercise choice,

participate in collaborative inquiry and assume responsibility without the immediate pressures of grading and examination.

Learner agency represents an important synthesis of these processes. Agency became visible when students moved beyond completing teacher-defined tasks and participated in shaping activities, making decisions and contributing to collective outcomes. This supports conceptions of agency as relational and context-dependent rather than as a fixed individual attribute (Fletcher, 2024; Torres et al., 2024). The findings therefore suggest that lifelong learning dispositions are strengthened through environments that enable students to practise responsibility and participation, rather than through explicit instruction alone.

Teachers' Professional Learning

The same environments also supported teachers' professional learning. Teachers described experimenting with learner-centred pedagogies, reconsidering their roles, reflecting on students' responses and selectively transferring successful approaches to formal classroom teaching. These findings align with perspectives that conceptualise professional learning as embedded in practice, experimentation and reflection rather than confined to externally organised professional development.

Importantly, professional learning emerged through teachers' engagement with altered patterns of student participation. As students assumed greater responsibility, teachers moved from directing activity towards facilitating inquiry, creating conditions for collaboration and responding to student initiative. The clubs thus functioned as low-risk spaces for pedagogical experimentation, where teachers could observe students under conditions less constrained by curriculum coverage and assessment.

Transfer to formal classroom teaching was nevertheless selective rather than automatic. Participants identified examination pressures, curricular requirements and limited instructional time as barriers to reproducing club-based practices in conventional lessons. The findings therefore support a situated understanding of pedagogical transfer: professional learning generated in flexible environments can influence classroom practice, but its enactment remains conditioned by the institutional structures of formal schooling.

Reciprocal Learning and the Institutionalised Dual Learning Ecosystem Model

The study's principal contribution is bringing student and teacher learning into a common analytical frame. The findings suggest that these processes were not merely parallel. Increased student responsibility required teachers to reconsider established pedagogical roles, while teachers' willingness to experiment with more facilitative approaches expanded opportunities for student initiative, autonomy and agency. This relationship can be understood as pedagogical interdependence.

The six conditions identified across the data—voluntary participation, pedagogical flexibility, collaborative inquiry, authentic activity, shared responsibility and facilitative teaching—formed the common environment within which both learning processes developed. Their significance lies less in any single condition than in their interaction. Flexibility enabled experimentation; shared responsibility redistributed pedagogical authority; collaborative inquiry created opportunities for both student agency and teacher reflection; and facilitative teaching reinforced students' capacity to act with increasing independence.

On this basis, the Institutionalised Dual Learning Ecosystem Model (IDLEM) is proposed as a heuristic framework for interpreting reciprocal student and teacher learning within institutionalised non-formal environments. The model conceptualises the school not simply as a site where teachers facilitate student learning, but as an environment in which changes in student participation can generate professional learning for teachers and changes in teacher practice can, in turn, expand students' learning opportunities.

IDLEM should not be interpreted as a validated or universally generalisable model. It represents an interpretive synthesis derived from the present qualitative dataset and requires examination in other educational contexts before broader theoretical claims can be made. Its value lies in directing attention to the relational processes through which institutional and pedagogical conditions can support learning on both sides of the educational relationship.

Theoretical and Practical Implications

The findings have implications for conceptualisations of lifelong learning, non-formal education and teacher professional learning. First, they support a developmental understanding of lifelong learning by demonstrating how foundational dispositions can be enacted during secondary schooling. Second, they challenge a strict institutional separation between formal and non-formal learning. The clubs examined here were formally embedded within public schools while incorporating voluntary participation, pedagogical flexibility and learner-centred engagement. Non-formality may therefore be understood partly as a pedagogical configuration rather than solely as an institutional location.

Third, the findings suggest that teacher professional learning can emerge through participation in environments that redistribute responsibility and enable pedagogical experimentation. This connects student learning and professional learning more closely than approaches that treat them as separate educational processes.

For educational policy and school practice, the findings indicate the potential value of creating protected spaces within public schools for voluntary participation, interdisciplinary inquiry, collaborative project work and pedagogical experimentation. This does not imply transferring club practices wholesale into conventional classrooms. Rather, selected conditions—greater student choice, shared responsibility, inquiry and facilitative teaching—may inform efforts to strengthen learner engagement and teacher learning within formal education.

Conclusions

This study examined student clubs in Greek Model and Experimental General High Schools as institutionalised non-formal learning environments. It explored their contribution to students' lifelong learning dispositions and teachers' professional learning. The findings indicate that voluntary participation, pedagogical flexibility, collaborative inquiry, authentic activity, shared responsibility, and facilitative teaching create conditions in which students can enact autonomy, intrinsic motivation, learning to learn, reflection and learner agency. The same conditions provide opportunities for teachers to experiment with learner-centred pedagogies, reflect on their practice and selectively transfer approaches to formal classroom teaching.

The study's principal contribution is identifying the reciprocal relationship between these two learning processes. Increased student responsibility was associated with changes in teachers' pedagogical roles, while teachers' experimentation expanded opportunities for student initiative and agency. The Institutionalised Dual Learning Ecosystem Model (IDLEM) conceptualises this pedagogical interdependence and suggests that institutionalised non-formal environments can function simultaneously as spaces for student development and school-based teacher professional learning.

The findings also suggest that lifelong learning should not be viewed exclusively as a post-school objective. Its foundations can be cultivated during secondary education through pedagogical environments that enable meaningful participation, responsibility and reflection. For educational practice, this highlights the potential value of protected spaces within public schools that support pedagogical flexibility and experimentation.

The study is limited by its qualitative and context-specific design. Although the teacher component covered all nine Model and Experimental General High Schools in Attica, student focus groups were conducted in seven schools, and the findings do not permit statistical generalisation. Moreover, voluntary participation may have attracted students already inclined towards engagement and autonomous learning, while reported transfer to classroom practice was based on teachers' accounts rather than direct observation. Future comparative and longitudinal research should examine whether similar reciprocal learning processes emerge in mainstream schools and other educational systems and whether the identified lifelong learning dispositions persist over time.

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Conflict of Interest

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References

- Alheit, P., & Dausien, B. (2002). The “double face” of lifelong learning: Two analytical perspectives on a “silent revolution.” *Studies in the Education of Adults*, 34(1), 3–22. <https://doi.org/10.1080/02660830.2002.11661458>
- Berti, S., Grazia, V., & Molinari, L. (2023). Active student participation in whole-school interventions in secondary school: A systematic literature review. *Educational Psychology Review*, 35, 52. <https://doi.org/10.1007/s10648-023-09773-x>
- Biesta, G. (2006). *Beyond learning: Democratic education for a human future*. Paradigm Publishers.
- Biesta, G. (2020). *Educational research: An unorthodox introduction*. Bloomsbury.
- Biesta, G. (2022). *World-centred education: A view for the present*. Routledge.
- Boud, D., Keogh, R., & Walker, D. (Eds.). (1985). *Reflection: Turning experience into learning*. Kogan Page.
- Carr, M., & Claxton, G. (2002). Tracking the development of learning dispositions. *Assessment in Education: Principles, Policy & Practice*, 9(1), 9–37. <https://doi.org/10.1080/09695940220119148>
- Deakin Crick, R., Broadfoot, P., & Claxton, G. (2004). Developing an effective lifelong learning inventory: The ELLI project. *Assessment in Education: Principles, Policy & Practice*, 11(3), 247–272. <https://doi.org/10.1080/0969594042000304582>

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Fletcher, A. K. (2024). Self-assessment as a student-agentic zone of proximate competence development. *Educational Review*, 76(4), 956–978. <https://doi.org/10.1080/00131911.2022.2103520>
- Hirt, C. N., Eberli, T. D., Jud, J. T., Rosenthal, A., & Karlen, Y. (2025). One step ahead: Effects of a professional development program on teachers' professional competencies in self-regulated learning. *Teaching and Teacher Education*, 159, Article 104977. <https://doi.org/10.1016/j.tate.2025.104977>
- Holec, H. (1981). *Autonomy and foreign language learning*. Pergamon Press.
- Illeris, K. (2007). *How we learn: Learning and non-learning in school and beyond*. Routledge.
- International Commission on the Futures of Education. (2021). *Reimagining our futures together: A new social contract for education*. UNESCO.
- Jarvis, P. (2006). *Towards a comprehensive theory of human learning*. Routledge.
- Johnson, M., & Majewska, D. (2024). What is non-formal learning (and how do we know it when we see it)? A pilot study report. *Discover Education*, 3, Article 148. <https://doi.org/10.1007/s44217-024-00255-y>
- Liljestrand, J. (2024). (Non-)Conceptualisations of teaching and learning in innovative learning environments – A meta-narrative review. *SN Social Sciences*, 4, Article 57. <https://doi.org/10.1007/s43545-024-00856-2>
- Little, D. (1991). Learner autonomy 1: Definitions, issues and problems. Authentik.
- McLure, F. I., Tang, K.-S., & Williams, P. J. (2022). What do integrated STEM projects look like in middle school and high school classrooms? A systematic literature review of empirical studies of iSTEM projects. *International Journal of STEM Education*, 9, Article 73. <https://doi.org/10.1186/s40594-022-00390-8>
- OECD. (2023). *OECD skills outlook 2023: Skills for a resilient green and digital transition*. OECD Publishing. <https://doi.org/10.1787/27452f29-en>
- Olmo-Extremuera, M., Domingo Segovia, J., Khalil, M., & De La Hoz Ruíz, J. (2025). Professional learning communities in secondary schools and improvement of learning in challenging contexts. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1598133>
- Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly*, 39(1), 1–21. <https://psycnet.apa.org/record/1993-20281-001>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, Article 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Sáez-Delgado, F., Mella-Norambuena, J., López-Angulo, Y., Sáez, Y., & León-Ron, V. (2023). Invariant and suboptimal trajectories of self-regulated learning during secondary school: Implications focused on quality in higher education. *Frontiers in Psychology*, 14, Article 1235846. <https://doi.org/10.3389/fpsyg.2023.1235846>

- Schoots-Snijder, A. J. M., Tigelaar, E. H., & Admiraal, W. F. (2025). Curriculum guidelines for the development of student agency in secondary education: A systematic review. *The Curriculum Journal*, 36(4), 541–573. <https://doi.org/10.1002/curj.318>
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.
- Torres, A. C., Duarte, M., Pinto, D., & Mouraz, A. (2024). Self-regulated learning in secondary school: Students' self-feedback in a peer observation programme. *Studies in Educational Evaluation*, 83, Article 101407. <https://doi.org/10.1016/j.stueduc.2024.101407>
- Vasileiou, D., & Bagakis, G.(2026). Learning beyond the classroom: A qualitative study of Student Clubs in Greek Model and Experimental High Schools. *Futurity Education*, 6(1),19–31. <https://doi.org/10.57125/FED.2026.03.02>
- Wijnia, L., Noordzij, G., Arends, L. R., Rikers, R. M. J. P., & Loyens, S. M. M. (2024). The effects of problem-based, project-based, and case-based learning on students' motivation: A meta-analysis. *Educational Psychology Review*, 36, 29. <https://doi.org/10.1007/s10648-024-09864-3>
- Zhang, L., & Ma, Y. (2023). A study of the impact of project-based learning on student learning effects: A meta-analysis study. *Frontiers in Psychology*, 14, Article 1202728. <https://doi.org/10.3389/fpsyg.2023.1202728>