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Teachers' Motivation as a Mediation Mechanism in Self-Directed Learning-Conducive Primary School Environments

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Abstract

Although self-directed learning (SDL) is widely recognised as the foundation for learner autonomy and lifelong learning, limited empirical research has examined how teachers' motivation mediates the cultivation of SDL-conducive learning environments in primary schools. Guided by Self-Determination Theory and Long's dimensions of SDL (motivation, metacognition, and self-regulation), this qualitative interpretive study explored how teachers' motivation shapes supportive learning environments. Eleven (11) purposively selected primary school teachers from the North-West Province participated in semi-structured face-to-face individual interviews. Data were analysed inductively using thematic analysis. The findings suggest that teachers' autonomous motivation operates through two interconnected pathways: (1) climate-building teaching practices that foster psychological safety, competence, autonomy and belonging; and (2) lead-by-example modelling that makes goal setting, reflection, and self-monitoring visible to learners. In contrast, lower motivation and limited support were associated with a reversion to more teacher-centred practices that restrict the autonomy of the learner. This study contributes to SDL scholarship by conceptualising teachers' motivation not as a static trait, but as an enacted professional resource that mediates between instructional design and the development of learner SDL in primary education settings.

Keywords: Autonomous, empowered, intrinsic motivation, learning environment, motivation, self-directed learning, self-efficacy

Introduction

Education is arguably one of our most profound human endeavours. Typically, teachers enter learning spaces with lesson plans, high hopes, demanding curricula, and the expectations of parents to nurture curiosity and ability in their children. Imagine a lively primary classroom, walls adorned with learners' work, engaged groups clustered around tasks, and an attentive teacher whose motivation cultivates a safe, autonomy-supportive learning environment climate. In such spaces, learners inquire, make mistakes, monitor their progress, and develop increasing autonomy. By nurturing curiosity and inviting learners to lead elements of their learning, teachers help them chart their own educational paths with confidence, responsibility, and self-direction (cf. Adinda & Mohib, 2020; Du Toit-Brits, 2020).

Self-directed learning enables learners to define their objectives, assess their progress, and reflect on their achievements (Ahammad, 2023; Guglielmino, 2013) and is increasingly important in contemporary schooling (Collier, 2022a, 2022b). Self-directed learning does not emerge in isolation; in primary learning environments, it is cultivated when teachers' motivation helps to create warm, interactive climates where autonomy can develop (Van Deur, 2017). In this context, teachers' motivation is regarded as an important enabling condition rather than as the outcome of the argument itself. Teachers' motivation in teaching is more than wearing smiling faces or showing a high level of energy. Education underpinned by teachers' motivation represents resilience, purpose, and belief in the transformational power of education (Du Toit-Brits, 2018; Han & Yin, 2016). This study therefore examines how such motivation is

enacted in practice within primary school classrooms. Motivated teachers organise learning for inquiry, accountability, responsibility, ownership, persistence through setbacks, and self-reliance, all imperative qualities to SDL (Cronin-Golomb & Bauer, 2023; Zhu, Bonk, & Doo, 2020).

Although research has established the importance of both SDL and teacher motivation as distinct constructs, their relationship remains insufficiently theorised in primary education. In particular, limited empirical research has examined how teachers' motivation functions as a mediating mechanism in cultivating SDL in primary school learning environments. Much of the SDL literature focuses on higher education and adult learners, leaving this relationship in the early years of schooling comparatively under-theorised. Furthermore, although motivation is frequently acknowledged as important, the processes through which teachers' motivation translates into classroom practices that cultivate learner autonomy are not adequately explained. Consequently, there is limited understanding of how teachers' motivation operates as a mediating mechanism between instructional practices and the development of learner self-directedness in primary classrooms. This conceptual and empirical gap warrants closer examination.

The article aims to investigate how teachers' motivation influences the creation of supportive learning environments that foster SDL in primary education. To guide the empirical investigation of this relationship within primary school contexts, the following research question was formulated: How does motivation influence the cultivation of supportive learning environments that foster SDL in primary education? Therefore, this question seeks not only seek to confirm that motivation matters, but to explore the processes through which teachers' motivation shapes classroom climate, instructional practices, and the participation of learners in SDL.

Despite extensive literature on SDL and learning environments, limited empirical research explores teachers' motivation as a mediating mechanism in SDL-conducive primary education contexts. This study addresses this gap by examining how teachers' motivation is enacted through climate-building and modelling practices in primary school classrooms.

Literature review

Designing primary learning environments favourable to Self-Directed Learning through teachers' motivation

Purpose and central aim

This article contributes to this growing literature by examining the relationship between supportive learning environments, SDL, and teacher motivation in primary education. In the view of Van Deur (2017) and Dabbagh and Kitsantas (2012), learning environments represent contexts where educators and learners interact and work together to cultivate and co-construct knowledge. It may be a specially structured physical setting that enhances learning, but beyond place, effective learning environments prioritise active interaction with resources (Adinda & Mohib, 2020; Schweder & Raufelder, 2024). Prior work shows that an effective learning environment cultivates a climate of teachers' motivation and commitment towards SDL (Bodkyn & Stevens, 2015; Song & Bonk, 2016; Zhu, Bonk & Berri, 2022). Consistent with these findings, teachers and learners who exhibit confidence in their capability to acquire knowledge and who are motivated and committed to SDL, are more likely to remain engaged and achieve success. They actively manage their teaching and learning, build inclusive learning environment climates, and assume responsibility for growth (Ahammad, 2023; Dabbagh & Kitsantas, 2012; Robinson & Persky, 2020).

Scope and components of a learning environment

In this article, "learning environment" is used inclusively to encompass different physical spaces, conditions, and cultural contexts in which education occurs (Serhan & Yahaya, 2022), as well as the social climate that shapes interactions and teachers' motivation (Cohen, 1994). It also includes pedagogical strategies and learning environment structures to foster effective learning (Koper, 2014; Piskurich, 1993; Murniati, Hartone & Nugroho, 2022). Effective learning environments promote active participation, with

teachers and learners positioned as self-directed participants (Prameswari & Budiyanto, 2017; Vanslambrouck, Zhu, Lombaerts, Philipsen & Tondeur, 2018). When learners co-plan goals, manage, monitor and evaluate their learning, learning environments become explicitly SDL conducive (Adib, Ghiyasvandian, Varaei & Roushan, 2019; Prameswari & Budiyanto, 2017; Yurdal & Toraman, 2023).

Designing principles and Autonomy Supporting Practices

Learning environments can either hinder or facilitate SDL (Serhan & Yahaya, 2022; Vero & Puka, 2017), depending on how it is constructed. To foster SDL, teachers should pair conducive learning environments with self-directed teaching-learning strategies (Adinda & Mohib, 2020; Collier, 2022a; Knowles, 1975; Loeng, 2020; Morris, 2019). Fostering expectations requires teachers' interest, enthusiasm, and motivation for SDL (Bardach & Klassen, 2021; Louws, Meirink, Van Veen & Meijer, 2017b). Teachers' autonomous motivation is strongest when teachers enact SDL support practices for autonomous reasons (interest, perceived value, professional purpose), co-planning goals, offering meaningful choices, guiding self-assessment and scaffolding reflection.

Teachers' motivation, modelling, and support

Teachers' motivation sustains effort and improvement (Louws, Meirink & Van Veen, 2017a; Sukkamart et al., 2023). Within this study, teachers' motivation is conceptualised through Self-Determination Theory (SDT) as an autonomous, self-determined orientation towards teaching, characterised by intrinsic interest, perceived professional value, and a sense of purpose in supporting learners' development (Ryan & Deci, 2000; 2020). Such autonomous motivation relates to teachers' willingness to enact autonomy-supportive practices that cultivate learners' sense of competence, autonomy and relatedness in their classrooms. Because these practices are visible, authentic enthusiasm operates as modelling that makes self-direction tangible, alongside efforts to motivate participation, empower learners, and build cooperative norms, conditions for SDL are strengthened (Cronin-Golomb & Bauer, 2023; Tokan & Imakulata, 2019). Teachers' motivation, autonomy-supportive methods, and high expectations of the learner's independence underpin SDL in primary school settings (Albrecht & Karabenick, 2018; Sukkamart et al., 2023; Van Deur, 2017). Through these practices, learning environments evolve into models and facilitators of SDL, accommodating diverse needs (Louws et al., 2017a; Loeng, 2020). While teachers' motivation establishes the learning environment climate, sustained SDL requires deliberate teacher support that converts motivational resources into learners' confidence, willingness, and capacity for SDL. Purposefully designed systems are needed to scaffold progression toward an authentic self-directed.

Learner Help

Learner assistance is therefore vital (Lubicz-Nawrocka, 2018; Schweder & Raufelder, 2024; Steinmayr, Weidinger, Schwinger & Spinath, 2019). Providing well-structured support systems can improve confidence and willingness to navigate learning paths self-directedly (Dogan, 2015; Louws et al., 2017b; Lubicz-Nawrocka, 2018). Support goes beyond delivering content to intentionally developing SDL (Du Toit-Brits, Blignaut & Wirth, 2024). By modelling and embracing SDL, teachers not only enhance their professional growth but also create a ripple effect that influences their learners' ability and willingness to become self-directed (Collier, 2022a, 2022b). To explain how support and motivation foster SDL, we adopt Long's (2000) three dimensions: motivation, metacognition, and self-regulation, which specify the capacities targeted by support.

Defining Long's three dimensions

Long (2000:16-20) identifies "motivation", "metacognition", and "self-regulation" as SDL's primary dimensions. "Motivation" is the "energy, or desire that encourages individuals to accomplish a goal or task" (p. 16). Metacognition is "thinking about thinking", awareness of one's cognitive activities (p. 18). Self-regulation, a prerequisite for metacognition, allows individuals to monitor and adjust their thinking (p. 19). These dimensions are interconnected, and holistic teaching can enhance

all three. Notable elements of self-regulation comprise selecting among options, "attributing values to the consequences of the chosen alternative," "choosing between immediate and delayed consequences" (p. 20). Equipping learners with these capacities is increasingly important; motivated teachers enact SDL practices that expand learner responsibility (Ryan & Deci, 2000; Sukkamart et al., 2023; Van Deur, 2017).

Guided by Self-Determination Theory (SDT), teachers' motivation is expected to shape classroom conditions that satisfy primary school learners' basic psychological needs for autonomy, competence and relatedness, thereby strengthening these learners' willingness to engage and persist in SDL. In Long's (2000) framework, these conditions primarily consolidate the motivation dimension and create an enabling learning climate in which self-direction and self-regulation can develop. Accordingly, we provide a first pathway, namely climate-building, which reflects the enactment of teachers' motivation through teaching practices that cultivate psychological safety, autonomy support, competence and belonging. The second pathway, lead-by-example modelling, and this is derived from Long's metacognition and self-regulation dimensions where teachers make goal setting, reflection and self-monitoring visible to learners. Together, SDT explains why these pathways matter, while Long specifies which SDL capabilities are targeted.

Mechanisms linking teachers' motivation to self-directed learning

Teachers' motivation is thus the mechanism through which teacher participation translates into a learning environment that enables responsibility and fosters SDL. In early years, teachers' motivation strongly shapes learning environments (Han & Yin, 2016; Lan, 2022; Ryan & Deci, 2020). Research further indicates that learning environments characterised by autonomy, competence and relatedness are more likely to emerge when teachers' autonomous motivation is present (Bardach & Klassen, 2021; Deci & Ryan, 2020; Han & Yin, 2016; Lan, 2022). Promoting SDL in primary education depends on teachers' motivation and professional commitment of teachers, modelling (e.g., goal setting, self-monitoring) and sound instructional choices (scaffolding, timely feedback, meaningful choice). Although curriculum, pedagogy, and engagement strategies receive attention, teachers' motivation is often undervalued, the cornerstone of teacher engagement with the learning environment for SDL (Bardach & Klassen, 2021; Loeng, 2020; Lubicz-Nawrocka, 2018). Evidence consistently links teachers' well-being, enthusiasm, and intrinsic motivation with learning outcomes and the initiation of SDL (Cronin-Golomb & Bauer, 2023; Loeng, 2020; Morris, 2019; Ryan & Deci, 2000). Recognising its role highlights motivation's capacity to drive environments in which SDL flourishes, even as its influence remains underexplored (Cronin-Golomb & Bauer, 2023). However, what remains underexplored in the literature is how teachers' motivation operates as a mediating mechanism that translates motivational dispositions into classroom practices that cultivate SDL, particularly in primary school contexts where foundational learning habits and learner autonomy are first developed.

Teachers' motivation and the making of Self-directed learning-conducive learning environments

Teachers' motivation as a mediating mechanism

Primary schooling occupies a critical position for this study because primary school learners' autonomy, learning habits, and SDL routines are still developing, making classroom climate and teacher-enacted support especially important for the cultivation of SDL. Teachers' motivation catalyses the cultivation of SDL by shaping classroom climate, deepening instruction and inspiring learner ownership (Cronin-Golomb & Bauer, 2023; Han & Yin, 2016; Lan, 2022; Van Deur, 2017). This dynamic requires learners to participate actively (Dogan, 2015; Koca, 2016; Urhahne & Wijnia, 2023). Teachers' motivation also operates through modelling, when teachers display enthusiasm, persistence, and growth-mindset responses to challenge, learners emulate these behaviours (Bandura, 1977; Du Toit-Brits, Blignaut, & Wirth, 2024). Such modelling can actively shape learners' understanding of being a self-directed learner (Collier, 2022b).

Psychological safety and risk-taking

Teachers' motivation, therefore, links modelling to learning environment climates where SDL can flourish. In supportive learning environments, learners experience psychological safety to explore, make mistakes, and learn, conditions that foster SDL (Vero & Puka, 2017; Yurdal & Toraman, 2023). By contrast, traditional high-stakes environments can suppress risk-taking and reinforce dependence (Prameswari & Budiyanto, 2017). Teachers' motivation fosters curiosity and exploration, encourages goal setting and autonomous knowledge seeking (Han & Yin, 2016; Morris, 2019; Song & Bonk, 2016), and shapes how teachers design and approach instruction (Schweder & Raufelder, 2024).

Instructional approaches and relationships

Learner-centred approaches (such as research-based learning, project-based learning and differentiated instruction) are more likely to be implemented when teachers maintain strong professional commitment to SDL-oriented teaching practices (Adinda & Mohib, 2020; Louws et al., 2017a; Prameswai & Budiyanto, 2017; Sukkamart et al., 2023). These approaches cultivate self-regulation, time management, and reflective thinking (Louws et al., 2017b). However, consistent implementation is not automatic; it depends on teachers' motivation. Primary schooling is a critical phase for the emotional and relational foundations of learning (Van Deur, 2017). Strong teacher-learner relationships form a core component of SDL development (Bardach & Klassen, 2021; Bardach & Klassen, 2021), which increase engagement, initiative, and confidence (Collier, 2022a; Dweck, 2006; Ryan & Deci, 2020). Teachers' motivation also improves school culture and drives innovation (Bardach & Klassen, 2021; Schweder, 2025), enabling cross-curricular projects and shared practices. Its leverage is pronounced in the early years, building autonomy, competence, and relatedness (Bardach & Klassen, 2021; Ryan & Deci, 2020; Song & Bonk, 2016; Sukkamart et al., 2023).

Finally, although curricula and pedagogy rightly receive attention, teachers' motivation remains under-recognised as a driver of transformational learning environments (Bardach & Klassen, 2021; Lubicz-Nawrocka, 2018). Substantial evidence links teachers' well-being, enthusiasm, and intrinsic motivation to learner performance and SDL development (Cronin-Golomb & Bauer, 2023; Loeng, 2020; Morris, 2019).

Methods

Basic Qualitative Approach and Interpretivism as a Research Paradigm

This research employed a basic qualitative research approach to interpret and give meaning to the experiences collected and explore the concept from all participants. Also, interpretivism was used as an interpretive lens. This interpretive research was intended to gain perspective on a specific situation, analysed to give meaning to a particular experience, as argued by Nieuwenhuis (2016). The responses collected during the interviews were explored, analysed, interpreted, and explained to obtain a new understanding of this experience. The aim was to investigate how teachers' motivation influences the creation of supportive learning environments that foster SDL in primary education, by exploring the insights the participants concerning the guiding research question.

Sampling

This qualitative research was based on non-statistical approaches and small, purposively chosen samples (Creswell & Creswell, 2017). Six schools in the Northwest province of the Meepong Circuit were intentionally selected. The population was limited to all primary school teachers in Meepong Circuit (including schools in Klerksdorp, Jouberton, Stilfontein, and Khuma). Eleven participants participated in this study, from which real-life experiences were collected. The six primary schools within the Meepong Circuit were based on the permission granted by the Department of Basic Education (DBE). Through an independent person, the researcher recruited 11 primary school teachers from different South African schools of the Meepong Circuit in the Northwest province who participated in this study. Ethical approval was obtained from the Ethics Committee of the Faculty of Education and the

gatekeepers, specifically the principals and chairs of the school governing bodies (SGB), to investigate and explore the teachers' experiences. When permission was obtained from relevant stakeholders, considering the average number of primary school teachers per school, 11 teachers (one to two per school) expressed their willingness to participate in this investigation. The inclusion criteria were primary school teachers in the Meepong Circuit with CAPS training. The exclusion criteria included novice teachers (beginner teachers) because they have learnt the knowledge but have not yet acquired the required experience and skills. An independent person addressed the teachers about the informed consent form and assisted teachers who consented to partake. Participation in this investigation was voluntary, and teachers were free to decide whether to take part. Participants provided informed consent before participating in this study. The independent person secured the consent forms, after which the researcher was available to ask questions and provide further clarification.

Data Collection process

Semi-structured face-to-face individual interviews featuring open-ended questions regarding: *How does teacher motivation influence the creation of supportive learning environments that foster self-directed learning in primary education?* These were carried out so that the researcher could gain insights from the specific participants. Following the participants' consent, the semi-structured individual face-to-face interviews were recorded and then transcribed.

Thematic Analysis

A comprehensive analysis, comparison, and interpretation of the data was performed before reporting the research findings. Subsequently, these data were organised into consistent and meaningful themes supported by verbal explanations to describe the study experience. The undertaking of interpreting and making sense of the data was a critical step for the researcher in gaining an objective and holistic understanding of the experience. Finally, the researcher used inductive reasoning to analyse and interpret the data.

Trustworthiness of Data

Various measures, including credibility, dependability, transferability and conformability, were implemented to guarantee the trustworthiness (Nieuwenhuis, 2016). The researchers ensured the study's trustworthiness by employing the following strategies:

a) Reliability: The in-depth descriptions showed how motivation influences SDL.

b) Dependability: The researchers used the same interview questions.

c) Usability: Researchers could use what they learnt by looking at how motivation influences how things were done in various primary schools. It was also possible to confirm that the data showed how motivation influences SDL-friendly environments because it was unbiased and exact transcriptions of the participants' answers.

Ethical conduct

The EduREC ethically approved this low-risk research. The researchers took the following ethical steps:

a) Informed consent: Participants knew the risks and goals of the study. Participants signed consent papers after approval of EduREC and DBE. Participants could with draw at any time without being exploited.

b) Institutional ethics: Safe and voluntary research was conducted. After approval from EduREC at NWU, a formal study request was submitted to the provincial DBE (ethic number: NWU-01023-21-A2). The empirical part of this study began after DBE approval.

c) Protect privacy: Participants' identities were kept secret throughout and after this study. To maintain anonymity throughout data processing and dissemination, all participants received pseudonyms (Smith, 2003).

d) Personal Information Protection Act: This study strictly followed POPIA laws to notify participants and protect their personal data. If they withdraw, the participants could request that their data be removed from this study.

e) Avoid violating the privacy of the participants: To protect the privacy and data of the participants, every precaution was taken. The research approach was based on mutual respect, and all participants were firmly encouraged to realise that any material disclosed during the group discussion, including their identities, would be kept confidential (Creswell & Creswell, 2017).

Findings and Discussion

The findings are interpreted through Long's three dimensions of SDL (motivation, metacognition, and self-regulation). These dimensions provide an analytical framework for understanding how teachers' motivation translates into specific pedagogical practices and how these practices support the development of SDL capabilities among learners. In reporting the findings, we distinguish between the participants' data, the interpretive statements about how teachers' motivation operates in primary school classrooms, and the implications for SDL-conducive classrooms.

Semi-structured individual face-to-face interviews were conducted to explore how primary school teachers perceive and experience the influence of their motivation on creating supportive learning environments that foster SDL. The data set for this study comprises 11 participants who remained engaged until the end of the empirical process. Only the most valuable and pertinent responses from the collected data were used. The question asked of the participants was: "How do you perceive and experience the role of teacher motivation in creating supportive learning environments that foster self-directed learning?

Theme: Improving self-directed learning in primary school settings: Exploring the significance of teachers' motivation

Teachers who are inherently driven to implement SDL into their learning environments contribute significantly to the advancement and triumph of their learners. This theme examines and explores how teacher motivation influences the cultivation of SDL, showing how teachers' motivation shapes themselves, their learning environment climates and practices that cultivate learner autonomy. Through an exploration of participant responses, contemporary perspectives, and pertinent literature, the researcher gained insights into how these qualities influence teachers' capability to facilitate the growth of self-directed learners.

Written against Long's conceptualisation of SDL, the findings suggest that teachers' motivation becomes educationally consequential when it not only energises participation but also shapes how learners engage more deliberately with their learning and assume greater responsibility its direction. Rather than presenting the dimensions as discrete components, the analysis illustrates how engagement, reflective awareness and emerging self-management develop in relation to one another within motivated classroom practice. The discussion that follows traces how participants' experiences illuminate this developmental progression in primary school learning environments.

Analysis of the responses from interview participants (highlighted below) foregrounds teachers' motivation as a necessary enabling condition for the enactment and progressive deepening of SDL in their learning environment practice. Figure 1 illustrates participants quotes supporting this theme. The interpretive analysis and theoretical linkage of these quotes are provided in the accompanying text.

Based on Participant 2, purposeful teachers' motivation and promotion af an "I-can" attitude by the teacher functions as a key enabling condition for SDL by elevating learners' self-efficacy and autonomous motivation, thereby initiating and sustaining the SDL cycle of goal setting, strategic engagement, and self-regulation. Teachers' motivation is reflected in autonomously motivated teachers, who are more likely to enact autonomy supportive and competence building teaching practices rather than relying on teacher-centred teaching practices. In this sense, teachers' motivation operates as a mediating mechanism by shaping how a teacher cultivates SDL in their classroom. This will influence also learners' willingness to take more responsibility for their learning. Critically, the "I-can" framing functions as an efficacy cue, it shifts learners' perceived

competence form externally evaluated performance to self-belief in capacity, increasing persistence and willingness to attempt autonomous tasks. In SDT terms, this supports the competence need, which makes SDL participation more likely to be self-initiated. In terms of Long's first dimension (motivation), the emphasis of Participant 2 on an "I can" attitude directly strengthens the learner's internal drive and goal-directed energy.

Figure 1: The central quotes and arguments for this theme:

Participant 2:
"The teacher must promote an 'I can' attitude. They must give current and frequent feedback… motivation is necessary. Create opportunities for problem-solving… Create a pleasant class atmosphere… Must be enthusiastic." — P2.Q4:35–41.
"……Inspirational – Enhance learners' capabilities through motivation." — P2.Q4:47.

Participant 3:
"They must encourage curiosity. They must motivate exploration and work independently." — P3.Q5:56–59.
Participant 5:
"Om hulle nogsteeds elke dag te motiveer." — P5.Q2:33–36
"…Jy moet hulle self-dissipline leer… So vorder hulle… en word meer selfgerig… Jy moet hulle motiveer." — P5.Q6:89–95
"Weereens motivering… Gee verantwoordelikheid vir hul werk… Maak hulle leiertjies… sodoende mekaar motiveer." — P5.Q7:99–102
Participant 8:
"I motivate learners to explore topics on their own and ask questions to challenge me… they take learning into their own hands." — P8.Q3:33–36
"They must promote an environment for SDL and influence others to take responsibility for their learning." — P8.Q4:45–46
"I like to do research and to lead by example… I differentiate tasks and ask more critical and in-depth questions." — P8.Q4:62–65
"Creating an environment for self-directed learning needs motivation, to boost their confidence." — P8.Q6:69–72
Participant 7:
"'n klaskameratmosfeer te skep wat 'SDL' ondersteun… 'n leeromgewing wat kinders motiveer… 'n positiewe omgewing…" — P7.Q4:44–51
Participant 3:
"They must… motivate exploration and work independently." — P3.Q5:56–59
"Give positive feedback and encourage curiosity." — P3.Q3:35–39).

The data also further suggest movement beyond affective encouragement. When learners are guided to set goals and reflect on their learning progress, the second dimension (metacognition) is activated, as learners begin to think about their thinking and evaluate their learning strategies. Within Long's framework, this shift is read as movement from the motivation dimension toward metacognition, with self-regulation. The reference to sustained engagement and monitoring also signals the development of self-regulation (dimension three) and self-direction, where learners take more control over pacing, persistence, and the adjustment of their learning. The emphasis on frequent feedback and problem solving suggests also that learners are not merely encouraged but are guided to consider how they approach learning tasks and how their learning progress is evaluated. In this way, teachers' motivation provides opportunities for learners to persist with more self-aware and self-managed learning engagements.

Participant 5 emphasised the need for teachers to possess an intrinsic motivation, conceived as a sustained, self-determined professional commitment, to enhance their teaching and learning practices through SDL, as a purposeful mechanism for cultivating learning and teacher autonomy and agency. The same participant added that teachers can explore new ways of teaching that are contextually responsive, that promote SDL by scaffolding goal setting, engagement in the learning environment. Similarly, Participant 3 agreed that teachers' motivation is imperative since they can potentially motivate and inspire learners in their journey toward becoming and being self-directed learners.

Critically, inspiration alone does not constitute SDL. When Participant 3 speaks of encouraging curiosity and independent learning, this aligns with the cultivation of metacognitive awareness, as learners question, explore, and reflect. Independent learning also presupposes self-regulatory competence, including initiation, monitoring, and completion of learning tasks. Teachers' motivation therefore becomes visible in how it reshapes classroom interaction to make such shifts possible.

Based on this, we believe that the decisive variable is not more SDL activities, but the motivational climate created through teachers' motivation. When teachers' motivation sets an "I-can" norm, learners appropriate that norm as their own control belief, which cultivates and preserves SDL. Also, Participant 8 highlighted differentiation and leading by example, explicitly linking teachers' motivation to SDL cultivation as learners "take learning into their own hands". Based on the above, we also believe that the motivation of teachers is a resource within the learning environment.

More specifically, teachers' motivation functions as both psychological and pedagogical resource. It sustains teachers' commitment and willingness to cultivate SDL-supportive teaching practices, and it can shape the instructional conditions through which learners are motivated to take more responsibility for their own learning. When Participant 8 refers to differentiation, critical questioning, and leading by example, these make visible how strategies are selected and how understanding is evaluated. Through such modelling, learners gain access to processes that would otherwise remain implicit. Over time, the visibility of these processes enables learners to appropriate them, strengthening their capacity to organise, monitor, and sustain their own learning.

When teachers' motivation is implemented through responsive role modelling, it can serve as a mechanism for agency transfer. In other words, learners adopt teachers' SDL behaviour, which enhances competence and control, thus cultivating SDL as a lasting disposition rather than a temporary skill. Participant 7 agreed that teachers might need to change or adapt their traditional teaching methods and apply new teaching-learning strategies and linked this move to the cultivation of a *"positive, motivating"* learning environment climate. These responses underscore that the force behind this shift needs to be the teachers/motivation in action. Teachers' motivation needs to be consistent, visible enactment of purpose that fosters learners' sense of competence, autonomy, persistence, and accountability for their self-directed growth and builds trust in a learning environment. The findings suggest that where such enactment is sustained, learners' participation becomes more intentional and reflective, strengthening their capacity to manage their own learning. In primary school contexts, where self-regulatory habits are still emerging, this sustained modelling and climate-building appear to bridge the space between initial engagement and autonomous learning. Teachers' motivation thus shapes the conditions under which learners begin to learn with greater awareness and control.

From a dimensional perspective, competence beliefs reinforce motivation, autonomy supports metacognitive decision-making, and accountability consolidates self-regulation. Accordingly, the findings suggest not three isolated constructs, but a developmental sequence in which teachers' motivation activates, scaffolds, and stabilises the progression of learners in the three dimensions of SDL. This shift is the pathway through which SDL takes root. Additionally, the researchers contend that, as Participant 8 emphasised, when teachers take ownership of SDL in their learning environments, investing time to understand it and making SDL visible, "*lead by example",* learners can internalise SDL, turning responsibility for learning into shared learning environment ownership, rather than a learner burden.

The implications of the above findings:

Aligned to the study's aim, we re-specify teacher motivation from a fixed disposition to an agency-framing practice. This reframing sharpens causal claims by locating efficacy framing as the psychological precondition that precedes and predicts the commencement and permanency of SDL practices in learning environments. In short,

teachers' motivation functions as a proximal mechanism that activates SDL through two enactment pathways: climate-building with raising competence, autonomy, and belonging, and lead-by-example modelling, making SDL procedures visible with a planned delivery of responsibility to learners.

Taken together, these findings indicate a progressive mechanism where teachers' autonomous motivation forms classroom practices, which then provide conditions through which learners begin to develop the SDL capacities named by Long. These pathways correspond directly to Long's framework. Specifically, climate-building aligns with SDT's need-supportive conditions (autonomy, competence and relatedness) and strengthens Longs' motivation dimension by nurturing psychological safety and commitment in the learning environment. In turn, lead-by-example modelling strengthens Longs' metacognition and self-regulation by making SDL processes visible and transferrable to learners. Lead-by-example modelling operationalises metacognition by externalising reflective thinking and strategic decision-making. The planned transfer of responsibility consolidates learners' capacity to manage their own learning. Together, these processes demonstrate how teachers' motivation mediates the development of engagement, reflective awareness, and self-management in primary school learning environments.

In alignment with self-determination theory (Deci & Ryan, 2020), it is suggested that fostering teachers' autonomous motivation will result in enhanced and more enduring learner ownership. Importantly, the findings demonstrate that the SDL- associated capabilities do not spontaneously emerge in primary school but are progressively cultivated through the implementation of teachers' motivation, which makes engagement intentional and encourages learners to take more responsibility for their own learning.

Conclusion and Recommendations

This study shows that SDL takes root when teachers' motivation is enacted through (i) lead-by-example modelling and (ii) climate-building that lifts competence, autonomy, and belonging. These pathways create shared ownership of learning and explain varied results across similar classrooms.

Recommended actions

Teacher development: Prioritise motivated enactment—adaptive differentiation with planned handover, plus routine, visible modelling of SDL.

a) School practice: Use PLC lesson study to track climate shift and learner uptake (students set goals, choose/switch strategies, monitor progress, justify adjustments).

b) Policy: Treat teacher motivation as a structural resource: reduce administrative burden, grant meaningful classroom autonomy to teachers, and ensure equitable working conditions.

Authors' contributions

The first author conceptualized and structured the article, drafted the manuscript, and completed the final revisions. The second author conducted and collected the data with the support of the first and third author. All authors have approved the final article.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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