

**Teacher Cognition as Route-Building: Explaining DMC-Like Engagement with
Learner-Side Evidence****Abstract****Article Type:****Original Research****Authors:****Mojtaba Teimourtash¹**ORCID: [0009-0002-8469-9551](https://orcid.org/0009-0002-8469-9551)**Massood****Yazdanimoghaddam²**ORCID: [0000-0002-1020-6569](https://orcid.org/0000-0002-1020-6569)**Gholam-Reza Abbasian³**ORCID: [0000-0003-1507-1736](https://orcid.org/0000-0003-1507-1736)**Article History:****Received:** 2025.11.02**Accepted:** 2026.02.14**Published:** 2026.03.10

Directed Motivational Currents (DMCs) refer to periods of sustained motivational momentum characterized by clear direction, structured pathways, and ongoing feedback. This study examined how teacher cognition shapes DMC-like engagement in exam-driven EFL classrooms and how these processes appear in learners' moment-to-moment engagement. Using a longitudinal multiple-case design, we followed five upper-secondary EFL teachers in public schools over one academic year. Data collection included repeated teacher interviews, classroom observations and field notes, teacher reflections, focus groups, including a follow-up session, learner interviews, and paper-based motometers tracking within-lesson engagement trajectories. Data were managed in MAXQDA (2022) for coding and organization and analyzed through reflexive thematic analysis guided by Braun and Clarke's (2006) six-phase model, with systematic triangulation across teacher- and learner-side sources. The findings showed that teachers valued DMC principles but often saw full DMCs as hard to sustain under exam cycles and pacing demands. Instead, their cognition centered on route-building practices, i.e., clarifying direction, sequencing subgoals, maintaining routines, and providing frequent low-stakes feedback, which supported episodic DMC-like engagement as shown in motometers and observation field notes. However, institutional route-change events and learner-level fragility repeatedly disrupted continuity, shifting engagement toward exam-framed persistence, reducing learner-owned momentum. The study sharpens the boundary between DMC-like engagement and exam-driven persistence and offers practical guidance for designing flexible motivational routes that protect continuity in constrained school contexts. By linking teacher accounts to learner-side engagement signals, the study provides a mechanism-level explanation of the interplay between teacher cognition and learner engagement trajectories across a school year.

Key Words: Directed Motivational Currents (DMC); DMC-like Engagement; Longitudinal Multiple-case Study; Motometers; Teacher Cognition (TC)

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1. Introduction

English language teaching is a central component of public secondary education in many countries. In these settings, teachers often work with large classes, limited instructional time, and strongly exam-oriented curricula. Under such conditions, sustaining engagement across weeks and months becomes a practical and emotional challenge (Yuan et al., 2022). While learner motivation has been widely examined, less attention has been given to how teachers understand motivation, how they interpret sustained engagement, and how their beliefs and perceived agency shape what is possible in real classrooms (Hosseini & Jafari, 2014; Isaei & Barjesteh, 2025). When teachers operate under pressure to complete syllabi and prepare students for high-stakes exams, their own cognitions and emotional resources inevitably influence how motivational conditions are designed, maintained, or interrupted.

Motivation research in second language acquisition (SLA) has increasingly shifted from static, trait-like views toward dynamic perspectives that emphasize change across time (Al-Hoorie, 2017; Boo et al., 2015; Ushioda, 2016). Influenced by complex dynamic systems theory (Chang & Zhou, 2023; Larsen-Freeman, 2012), recent work conceptualizes motivation as context-sensitive and shaped by interacting personal, social, and institutional factors. Within this socio-dynamic turn, Directed Motivational Currents (DMCs) are proposed to describe periods of unusually strong and sustained motivation oriented toward a valued end state and supported by a structured pathway (Dörnyei et al., 2016; Muir, 2020). Rather than short-term interest, DMCs involve coordinated vision, routinized action, and emotionally meaningful progress. This framework offers a useful lens for examining high-quality engagement that extends beyond isolated classroom moments.

However, two limitations in the DMC literature are particularly relevant for public-school contexts. First, most empirical studies have focused on learners, often treating teachers as background facilitators rather than as active designers of motivational structure (Murillo-Miranda, 2019; Pietluch, 2018, 2021; Sak, 2022; Yazawa, 2020; Zarrinabadi & Khajeh, 2021). Yet in school systems, teachers define goals, sequence tasks, establish routines, and manage assessment demands. If DMCs depend on direction and structure, teacher cognition cannot be peripheral (Borg, 2003, 2011, 2024a). Second, scholars have raised concerns regarding construct clarity and empirical boundaries (Al-Hoorie & Jahedizadeh, 2021; Sak & Gürbüz, 2022). Questions remain about whether all proposed DMC features should be present in every case and about potential negative consequences, such as stress or exhaustion in constrained environments. These critiques highlight the need for careful construct use and context-sensitive interpretation.

At the same time, research on teacher cognition has demonstrated that teachers' beliefs, identities, emotions, and perceived agency shape classroom practice (Borg & Burns 2008; Beauchamp & Thomas, 2009; Cross, 2018; Johnson & Golombek, 2020; Pennington & Richards, 2016). Teachers interpret curricular expectations, adapt tasks, and negotiate institutional pressures through their own professional lenses (Banegas & del Pozo Beamud, 2022; Borg & Parnham, 2020). Importantly, teacher beliefs do not operate in isolation; they are filtered through contextual constraints such as exams, pacing requirements, and administrative supervision. In exam-driven public-school environments, these constraints may redirect engagement toward short-term performance goals, even when teachers value deeper, sustained learning.

This study brought DMC research and teacher cognition research into direct dialogue. Rather than asking only whether learners experience full DMCs, it examined how public secondary-school English teachers conceptualized DMC-related constructs and how their cognitions shaped classroom conditions for sustained engagement (Borg, 2024b; Dörnyei et al., 2016; Muir, 2020). To strengthen construct validity and avoid over-claiming, the study distinguished among DMC, DMC-like engagement, and long-term engagement (Muir, 2020; Sak, 2021). DMC was used to refer to a strong and sustained motivational current driven by a valued end state, supported by a facilitative structure, and accompanied by positive emotionality linked to meaningful progress. Long-term engagement referred to sustained participation that might rely on exams, routines, or external pressure without necessarily reflecting a full DMC pattern. DMC-like engagement referred to classroom engagement that displayed some DMC mechanisms, such as clear goals, routinized progress, and visible momentum, but remained partial, shorter in duration, or interrupted under institutional constraints. These distinctions aimed to maintain conceptual precision while remaining aligned with the realities of public-school teaching.

The study addressed an empirical gap by examining how teachers define these constructs, how they recognize indicators of sustained engagement, and how their beliefs and perceived agency support or constrain route-building practices such as goal clarification, task sequencing, and feedback loops (Dörnyei & Ushioda, 2009). It further considered how exam-driven pressures may function as route-change events that redirect engagement toward assessment-framed persistence. By linking teacher accounts with learner-side indicators and classroom observations, the study adopted a convergent logic of evidence that supports cautious and context-sensitive interpretation (Henry et al., 2015; Muir & Gümüş, 2020).

In doing so, the study intended to make three contributions. First, it proposed a mechanism-level account of how teacher cognition shaped the building and redirection of sustained

engagement in exam-oriented classrooms (Borg, 2024a). Second, it sharpened construct boundaries by differentiating DMC-like engagement from exam-framed persistence through transparent indicators (Muir, 2020). Third, it strengthened interpretive warrant by tracing engagement patterns across teacher accounts, learner perspectives, and observed classroom events (Zarrinabadi & Khodarahmi, 2023). Together, it is hoped that these contributions extend DMC research toward a more ecological understanding in which teacher cognition and institutional context are integral to the mechanism of sustained engagement.

2. Literature Review

2.1. Directed Motivational Currents within the Dynamic Turn in SLA

Motivation research in SLA has gradually shifted from viewing motivation as a stable internal trait to conceptualizing it as dynamic, context-sensitive, and evolving across time (Al-Hoorie, 2017; Ushioda, 2014). Influenced by complex dynamic systems perspectives (Chang & Zhou, 2023; Larsen-Freeman, 2012), recent scholarship emphasizes that motivational patterns emerge through the interaction of personal, relational, and institutional factors rather than through simple linear cause-effect relations. In classroom settings, this implies that motivation may intensify, weaken, stabilize, or change direction depending on task design, feedback practices, peer interaction, and assessment pressures (Gümüş, 2019). Such a view is particularly relevant in exam-oriented school systems, where institutional structures strongly shape classroom activity.

Within this dynamic perspective, Directed Motivational Currents (DMCs) were proposed to account for episodes of unusually strong and sustained motivation lasting weeks or months (Dörnyei et al., 2016; Muir, 2020). A DMC is typically described as a coordinated process in which a valued end state, a structured pathway, and emotionally meaningful progress reinforce one another (Dörnyei & Kubanyiova, 2014; Muir & Dörnyei, 2013). Vision provides direction, proximal goals make the endpoint actionable, and routinized practices reduce uncertainty and support self-regulation. Emotional experience, often characterized by satisfaction, ownership, and a sense of momentum, binds these elements together across time (Muir, 2016). In this way, DMC theory moves beyond short-term engagement and offers a framework for understanding extended motivational trajectories.

At the same time, DMC scholarship faces conceptual and empirical challenges (Jahedizadeh & Al-Hoorie, 2021; Sak & Gürbüz, 2022). Questions remain about whether all proposed core features must co-occur in every instance labeled as a DMC and about how clearly

DMCs can be distinguished from other forms of sustained effort. Concerns have also been raised regarding potential costs of intense motivational currents, including stress or exhaustion in contexts with limited institutional support. These critiques underscore the importance of construct precision and cautious interpretation, especially in classroom-based research where continuity may be frequently disrupted.

Another limitation is that most DMC studies have centered on learners (Murillo-Miranda, 2019; Pietluch, 2018, 2021; Sak, 2022; Yazawa, 2020), often treating classroom structure as a background condition rather than as an actively designed system. Yet in school environments, teachers determine goals, pacing, routines, and feedback structures (Borg, 2003, 2011, 2024a). If DMCs depend on sustained direction and facilitative structure, then the beliefs and decisions of teachers are central to how such conditions are created or constrained. For this reason, a teacher-centered perspective is necessary for examining DMC-related engagement in public secondary education.

2.2. Teacher Cognition, Agency, and Sustained Engagement

Teacher cognition refers to teachers' knowledge, beliefs, interpretations, and emotional understandings about teaching and learning (Borg, 1999, 2003, 2006, 2024b). Research consistently shows that these cognitive and affective resources shape instructional decisions, including task selection, feedback practices, classroom interaction patterns, and assessment approaches (Borg et al., 2022; Johnson & Golombek, 2020). Teachers are not passive implementers of curriculum; they interpret and adapt pedagogical ideas in ways that align with their professional identities and perceived possibilities (Beauchamp & Thomas, 2009; Cross, 2018; Pennington & Richards, 2016).

However, teacher cognition operates within context. Beliefs may not fully translate into practice when institutional constraints intervene (Banegas, 2024; Borg & Sanchez, 2020). Exam schedules, pacing requirements, administrative expectations, large classes, and limited autonomy can redirect classroom priorities toward short-term performance outcomes. In such conditions, teachers may value communicative or long-term developmental goals but feel compelled to focus on test preparation. This tension between professional vision and contextual constraint directly affects the feasibility of sustained engagement trajectories.

The concept of teacher selves further clarifies this dynamic (Kubanyiova, 2009; Dörnyei, 2009). Future-oriented professional visions influence how teachers frame their roles and responsibilities. Teachers who see themselves as facilitators of growth may invest in structured,

goal-oriented classroom design, whereas those who experience strong external pressure may prioritize compliance with institutional demands. Thus, teacher cognition and perceived agency function as mediating mechanisms between structural constraints and classroom practice.

Bringing teacher cognition into dialogue with DMC theory addresses a gap in both fields. DMC research has articulated features of sustained motivational currents but has paid limited attention to how classroom structures are intentionally built (Dörnyei et al., 2016; Muir, 2020). Teacher cognition research, in turn, has examined beliefs and identity but has rarely used DMC as a lens for understanding extended engagement patterns. Integrating these perspectives allows sustained engagement to be examined not merely as a learner-internal experience but as an outcome of teacher-mediated design within institutional constraints (Borg, 2024a; Dörnyei & Ushioda, 2009).

In exam-oriented public schools, full long-term DMC conditions may be difficult to maintain because curricular and assessment demands frequently alter the pathway of instruction. Consequently, it may be more conceptually accurate to investigate DMC-like engagement: structured, goal-directed momentum sustained over shorter cycles, such as textbook units or project phases, rather than across entire academic terms (Muir, 2020). This perspective aligns theoretical precision with contextual realism. It recognizes that teachers may build temporary but meaningful engagement trajectories even when institutional continuity is limited.

By framing DMC-related engagement through teacher cognition and agency, the present study adopted an ecological view in which sustained engagement emerged from the interaction of teacher beliefs, classroom design practices, learner responses, and institutional pressures (Borg, 2024a; Yuan et al., 2022). This integrated perspective may provide a more context-sensitive foundation for examining engagement in exam-driven public-school environments. Hence, the study addressed the following questions:

RQ1. How do public secondary-school EFL teachers conceptualize and distinguish DMC, DMC-like engagement, and long-term engagement, and what indicators do they use to mark boundaries between these constructs in their classroom context?

RQ2. How do teachers' cognitions and role-framing shape the ways they support DMC-like engagement through goals, routines, tasks, and feedback?

RQ3. What contextual and personal factors do teachers perceive as enabling or constraining their agency to sustain DMC-like engagement in exam-oriented public-school classrooms?

3. Methodology

3.1. Research Design

This study employed a qualitative multiple-case design to investigate how English as a Foreign Language (EFL) teachers conceptualize Directed Motivational Current (DMC)-related constructs and how their cognitions shape or constrain sustained learner engagement in exam-oriented public upper secondary classrooms. The design was longitudinal, following the same teachers and their Grade 11 classes over one academic year. Data collection was organized across five planned points (T1-T5), allowing for tracking change and stability in teachers' beliefs, emotions, and classroom practices over time. Each teacher and their Grade 11 class was treated as a single case, with the classroom functioning as an embedded unit of analysis. This approach enabled both within-case tracing of developments across time and cross-case comparison of recurring patterns and boundary conditions.

3.2. Participants

The study was conducted in public upper secondary schools in Tehran during the 2024-2025 school year. All participating teachers taught Grade 11, and five volunteered to complete the study (three females, two males), with teaching experience ranging from three to eight years. For confidentiality, teachers are referred to as T1-T5. Teacher profiles are summarized in Table 1.

Table 1.

Teacher Profile

Teacher ID	Gender	Experience	Main grade	School type	City / region	Extra role
T1	F	4	11	Public	Tehran	No
T2	F	7	11	Public	Tehran	No
T3	M	3	11	Public	Tehran	No
T4	F	8	11	Public	Tehran	No
T5	M	5	11	Public	Tehran	No

The sample size was determined to balance depth of insight and feasibility within the longitudinal design. Five cases allowed detailed within-case analysis and meaningful cross-case comparison while supporting repeated observations and interviews. Teachers were recruited through voluntary participation coordinated via school-level communication. The primary inclusion criterion was willingness to participate throughout the academic year and to allow classroom observations. All five teachers who completed the planned stages were included in the final dataset, enabling both within-case longitudinal analysis and cross-case exploration of patterns.

To reduce reliance on teacher self-report, short learner interviews (15-20 minutes each) were conducted with a subset of motometer participants. Because access depended on school scheduling and parental availability, the number of interviewed learners varied across classes (from 2 to 5). In total, 16 learners were interviewed across the five classes (out of 25 motometer participants). Learners were selected from the motometer group in each class based on availability and consent rather than achievement level, to avoid pressure and to reduce selection bias in a school context. Interviews explored how learners experienced engagement over time, what helped them persist, what caused loss of momentum, and how they interpreted teacher actions related to goals, structure, feedback, and emotional support. Learner interviews were used for contextualization and triangulation rather than representativeness. The characteristics of learner participants were displayed in Table 2.

Table 2.*Learner Participation Sum*

Teacher ID	Approx. class size	Motometer participants	Learners interviewed	Consent (parents + students)
T1	23	5	5	Yes
T2	35	5	3	Yes
T3	36	5	3	Yes
T4	29	5	2	Yes
T5	31	5	3	Yes

3.3. Data Sources and Collection Procedure

To ensure rigor and reduce reliance on a single source, multiple types of data were collected in alignment with the research questions, distributed across the academic year. These included semi-structured teacher interviews (five per teacher), classroom observations (five per teacher), motometers (five learners per class), teacher reflections (five per teacher), focus group discussions (five sessions across the year including follow-up), and learner interviews (two to five learners per class). This multi-source design enabled triangulation and strengthened the trustworthiness of findings.

3.3.1. Teacher Interviews

Each teacher participated in five semi-structured interviews (35-50 minutes each) throughout the data collection period. This interview protocol was developed based on the theoretical framework of Directed Motivational Currents (Muir & Dörnyei, 2013) and later empirical studies that highlight the central role of vision, structured pathways (Muir, 2020), and routinized behavior in sustaining long-term motivational engagement in language learning (Dörnyei &

Kubanyiova, 2014). The questions were designed to explore how teachers support learners in forming a vivid L2 vision, how they structure goal-oriented progression, and how they foster stable routines that contribute to motivational momentum. In addition, recent research emphasizes the importance of classroom dynamics, the teacher's guiding role, observable behavioral indicators of sustained motivation, and potential barriers that may interrupt the flow of engagement; therefore, the interview items also addressed collective classroom processes, challenges encountered, and perceived learning outcomes. The guiding principle was to ensure that the protocol captured both pedagogical practices and teachers' reflective interpretations of motivational change over time (see Appendix E).

3.3.2. Classroom Observations, Motometers, and Field Notes

Classroom observations were conducted in five naturally occurring sessions for each Grade 11 class. Structured field notes were maintained focusing on lesson goals, task sequencing, routines, feedback, classroom climate, and visible signs of DMC-like engagement. Motometers, adapted from Gardner et al. (2004) and Pawlak (2012), provided a visual, paper-based measure of learner engagement at fixed 5-minute intervals during observed lessons. These captured within-lesson engagement fluctuations for triangulation against teacher reflections and interview accounts (de Bot, 2015).

3.3.3. Teacher Reflections

Following each observation, teachers completed structured reflections describing intentions, emotions, perceived learner responses, and constraints experienced during the lesson. Reflection prompts guided teachers to note tensions between intended practice and systemic limitations, linking observed events to teacher cognition close in time. The reflection prompts for teachers were carefully developed in alignment with the theoretical principles of Directed Motivational Currents (Dörnyei, et al., 2016). They encouraged educators to critically examine how their instructional choices contributed to sustained motivational flow in the classroom, especially through fostering a vivid learner vision, building structured goal pathways, and establishing routine patterns that maintain engagement over time. Each prompt invited teachers to connect observed student behaviors and classroom dynamics to these core elements of DMC theory, enabling a deeper understanding of both successful motivational practices and areas that might require further refinement. This reflective component was designed not only to elicit personal insights but also to provide pedagogical evidence of how DMC-oriented strategies translated into real classroom experiences.

3.3.4. Teacher Focus Group Interviews

Five focus group sessions were conducted across the study period, including early sessions, mid-year sessions, and a follow-up at the start of the following academic year. The interview protocol, grounded in Directed Motivational Currents theory (Muir & Dörnyei, 2013) and studies on vision, structured pathways, and routinized behavior (Dörnyei & Kubanyiova, 2014), explored how teachers foster L2 vision, structure progression, and build motivational momentum. It also incorporated recent research on classroom dynamics, teacher guidance, behavioral indicators, and engagement barriers, addressing collective processes, challenges, and outcomes. This approach, informed by five iterative focus groups (45-60 minutes each) examining institutional pressures and exam demands, captured pedagogical practices and teachers' interpretations of motivational change (see Appendix E).

3.3.5. Learner Interviews

Short interviews were conducted with a subset of motometer participants, contingent on parental consent and availability. Interviews captured learners' experiences of engagement, factors supporting persistence, and their interpretations of teacher practices related to goals, structure, feedback, and emotional support. These data provided triangulation rather than representativeness.

Table 3.

Timeline and Data Corpus Transparency

Teacher ID	Observation months (5)	Teacher interview months (5)	Reflection count	Notes	Focus group sessions (5 total)
T1	Nov, Dec 2024; Feb, Mar, May 2025	Nov, Dec 2024; Feb, Mar, May 2025	5	Final-term pressure near Obs2 and Obs5	Sep-Oct 2024; Jan, Apr, Sep 2025
T2	Nov, Dec 2024; Feb, Mar, May 2025	Nov, Dec 2024; Feb, Mar, May 2025	5	Final-term near Obs2 and Obs5; event disruption near Obs4	Sep-Oct 2024; Jan, Apr, Sep 2025
T3	Nov, Dec 2024; Feb, Mar, May 2025	Nov, Dec 2024; Feb, Mar, May 2025	5	Final-term near Obs2 and Obs5	Sep-Oct 2024; Jan, Apr, Sep 2025
T4	Nov, Dec 2024; Feb, Mar, May 2025	Nov, Dec 2024; Feb, Mar, May 2025	5	Final-term near Obs2 and Obs5	Sep-Oct 2024; Jan, Apr, Sep 2025

T5	Nov, Dec 2024; Feb, Mar, May 2025	Nov, Dec 2024; Feb, Mar, May 2025	5	Final-term near Obs2 and Obs5; event disruption near Obs3	Sep-Oct 2024; Jan, Apr, Sep 2025
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3.3.6. Data Management

All data were linked using consistent identifiers, i.e., teacher codes, observation numbers, interview rounds, months. Audio recordings were transcribed with removal of identifying details, and all files were securely stored with restricted access.

3.4. Data Analysis

Transcripts and field notes were analyzed using MAXQDA (version 2022) following Braun and Clarke's (2006) six-phase thematic analysis. Analysis aimed to produce explanatory insights rather than simple description. Coding combined concept-driven codes (e.g., teacher beliefs, goals, routines, feedback, emotional support, institutional constraints) with data-driven codes emerging from the dataset (e.g., exam pressure episodes, routine disruption, sudden school demands). Themes were developed iteratively, refined against the full dataset, checked for negative cases, and compared across the five cases to identify shared patterns and boundary conditions. Motometer data were digitized to produce within-lesson engagement trajectories aligned with time-stamped field notes. These were used for triangulation and to inform coding of DMC-like versus exam-framed engagement segments.

The analysis draws on five teacher cases followed across one school year, including 25 classroom observations, repeated teacher interviews and written reflections, and learner-side evidence. In focal interview sessions, five learners per class completed paper-based motometers at regular intervals; learner interviews supported contextualization and triangulation (Appendices B-C).

3.4.1. Decision Rules and Construct Boundaries

Segments were coded as DMC-like engagement only when three conditions were met: a shared direction or goal, facilitative structure (subgoals, routines), and observable momentum. Long-term engagement was coded when persistence was driven mainly by exams, habit, or compliance without learner-owned sense of meaningful progress. Member checking and peer debriefing were applied to selected interpretations. Delphi method was not used; justification is

provided in the text: the design relied on iterative interviews, focus group interviews, and reflections to ensure conceptual clarity without requiring expert panel rounds.

3.4.2 Data Integration, Rigor, and Methodological Alignment

Data integration was conducted within and across cases by comparing teacher interviews, reflections, and classroom observations with learner-side evidence, including motometer trajectories and learner interviews. This approach supported explanatory insights while reducing reliance on a single data source. Credibility and rigor were ensured through an audit trail of coded extracts, peer debriefing, and negative-case analysis. Thick contextual descriptions further supported the transferability of findings. Ethical procedures were strictly followed: all participants provided informed consent, learner data were anonymized, and identifying information was removed from transcripts. Interviews were conducted in participants' preferred language to capture natural expression, and all quotations presented in English were carefully translated and verified for fidelity to intended meaning. Finally, methodological choices were explicitly linked to the research questions, ensuring that data collection, coding, and analysis aligned with the study's explanatory goals and the investigation of DMC-like engagement under exam-driven public-school conditions.

4. Results

This section reports the main patterns identified across interviews, focus group interviews, teacher reflections, classroom observations, and learner-side data. Teachers and learners are reported using anonymized codes (T1-T5; learner codes within each class). To strengthen construct clarity, we distinguish between: (a) **group-level DMC indicators**, defined as shared vision, subgoals, and a feedback loop that generates momentum; and (b) **DMC-like engagement**, where some indicators are present but the overall pattern is fragile or repeatedly interrupted. We also differentiate DMC-like engagement from **long-term engagement** that is primarily maintained by exam pressure rather than learner-owned direction.

Table 4.

Themes and Evidence Sources (See Appendix B for a snapshot of the codebook)

Theme	Core finding (one sentence)	Linked RQ(s)	Main evidence sources
1. Group-level DMC indicators	In a focal session, learners displayed a shared goal and subgoals, with visible momentum	RQ1	Composite motometer display; observation

	and fluctuations in motometers and classroom behavior.		notes; learner interview/diary excerpts
2. DMC is valued but “not doable”	Teachers valued DMC as an ideal, yet often framed it as unrealistic in exam-driven public schools.	RQ2	Teacher interviews; focus groups; reflections
3. Teachers as route-builders	Teachers positioned their role as building a practical route through structure, routines, and step-by-step planning.	RQ2	Interviews; reflections; field notes
4. Engagement becomes exam-framed	Sustained participation was often redefined as exam-driven persistence rather than a learner-owned “current”.	RQ2	Interviews; classroom observations
5. Institutional forces as current-breakers	Curriculum demands, exams, and school regulations produced route-change events that reduced continuity and teacher agency.	RQ3	Interviews; reflections; field notes
6. Fragility and negative cases	Even in strong sessions, engagement could drop for some learners; group momentum could split into “small waves”.	RQ1/RQ3	Motometers; learner excerpts; observations; teacher accounts
7. Follow-up confirmation	A follow-up focus group showed stability of constraints and small shifts toward more realistic strategies.	RQ2/RQ3	FG5 follow-up (Sep 2025)

Theme 1. Group-level DMC indicators (RQ1)

To address RQ1, we first present a composite data display from one observed lesson. In this focal session, five learners were invited to complete a paper-based motometer, and five complete motometers (S-A to S-E) were available for analysis. Motometers were completed at regular intervals during the lesson without interrupting instruction.

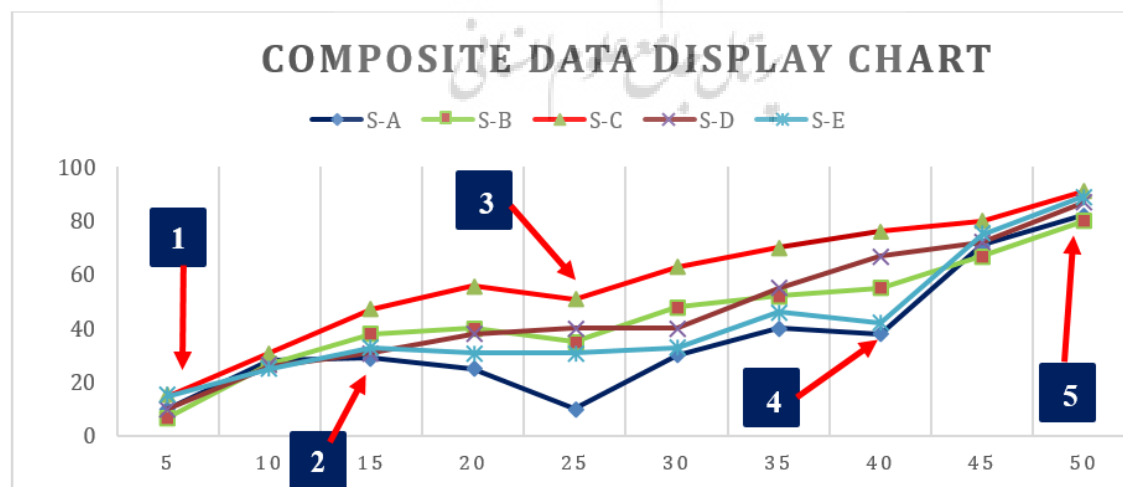


Figure 1. *Composite data display: learner motometers (S-A to S-E) from a focal observed session (see Appendix A for figure information).*

Selection note: Figure 1 presents data from Teacher 3, Observation 4. This session was selected because it provides a complete evidence chain (five focal learners' motometers aligned with observation notes) and represents a typical lesson rather than a best-case performance. To reduce selection bias, a contrasting route-change episode (Teacher 2, Observation 3; see Table 2) is also reported, and variability across sessions is summarized in the Appendices (Appendices B-C).

Figure 1 shows a coordinated engagement pattern. After an initial phase, engagement tended to rise during group problem-solving, dip during moments of difficulty or conflict, and recover following feedback and role re-assignment within the group. Two points are supported by this pattern. First, engagement was not uniformly high; rather, it was sustained through a shared route (subgoals and checkpoints) and a feedback loop that enabled the group to regain momentum after dips. Second, the "current" was dynamic: fluctuations were part of the process rather than evidence that engagement was absent.

Observation notes from the same session helped interpret these motometer changes. Dips aligned with moments when learners struggled with a puzzle, negotiated responsibility, or corrected errors. Recoveries aligned with peer feedback, teacher guidance, and clarification of the next step. Learners also displayed behavioral signs associated with group momentum, such as persisting despite mental fatigue, consulting the process sheet, and re-focusing after setbacks.

Table 5.

Evidence-chain Episodes (belief, practice, learner signal)

Episode (case)	Teacher cognition (quote)	Observed practice (field note)	Learner-side signal (motometer / behavior)	Learner voice (excerpt)	Interpretation (boundary + mechanism)
A. Group-level route-building (T3, Obs. 4)	"I always paint the final image... This makes small failures lose their meaning." (T3, Interview 1)	The teacher externalized the project route (shared goal → subgoals → checklist roles) and used checkpoint feedback.	Motometers showed a steady rise after route clarification and remained high through output.	"I volunteered to contact parents as the group representative." (S8, Nov.)	Belief in a vivid end-state supported route-building practices, producing shared direction and momentum. Code as DMC-like (not full DMC) due to fragility and exam framing.
B. Institutional	"Sometimes we have to change our	A lesson shifted from collaborative	Increased risk-avoidance;	—	Institutional forces functioned as current-breakers,

route-change (T5, mid-year)	approach because of regulations.” (T5, Interview 1)	production to test-style practice after an exam-related prompt.	reduced peer interaction.		reframing engagement as exam-driven persistence.
C. Route-building with fragility (T2, Obs. 3)	“I set a checklist with three milestones.” (T2, Interview 1)	Task tables and explicit roles reduced uncertainty across lessons.	Gradual growth in motometers (Start=3 → End=5).	“This project is ours.” (S6, Dec.)	Route-building supported engagement, but continuity remained vulnerable to disruption.

To clarify how DMC features appeared in this focal session, Table 6 links core features to observed signs.

Table 6.

DMC Features and Observed Signs in the Focal Session

DMC feature		Observed signs of group-level engagement
1	Goal setting	Learners focused on reaching an agreed outcome rather than memorizing points.
2	Subgoals	Learners negotiated roles and re-aligned after checkpoints.
3	Systematic feedback	Peer and teacher feedback helped re-energize the group after setbacks.
4	Behavioral routines	Learners persisted despite fatigue and monitored progress using a process sheet.
5	Group-level experience	Engagement fluctuated but remained connected to the shared task route.

Learner-side excerpts were consistent with this interpretation. Early diary entries reflected low confidence, whereas later notes described improvement and surprise at higher grades. Observation excerpts also captured peer-support behaviors, such as explaining key points to teammates. Taken together, motometer curves, learner voices, and observation notes provide triangulated support for **group-level DMC-like engagement** in focal episodes. Importantly, the evidence supports a cautious claim: the whole school year is not treated as one stable current for all learners. Instead, group-level DMC indicators are reported within bounded episodes and interpreted as DMC-like because trajectories were fragile and context-sensitive.

Theme 2. DMC is valued but “not doable” (RQ2)

Across cases, teachers described DMC as attractive yet difficult to sustain under public-school conditions. While teachers endorsed the value of vision and momentum, they questioned feasibility in exam-driven systems and large classes. T2 captured this tension directly: “*When I read about DMC, I thought this was perfect... But in our schools, the system kills this dream very*

quickly" (T2, Interview 1). T4 linked the idea to constant institutional demands: *"DMC is like a nice theory... but here is a new exam, a new form to fill, a new problem"* (T4, Interview 1).

In early focus groups, teachers used strong metaphors to describe the gap between theory and context, portraying DMC as desirable yet misaligned with public-school realities. Importantly, this did not reflect rejection of the construct, but an evaluation based on feasibility under time pressure, exam expectations, and classroom management demands. T5 connected feasibility directly to the dominance of the exam vision: *"If a current exists, it is exam-driven, not learning-driven"* (T5, Interview 1).

These accounts show that teachers often reframed their goals toward maintaining partial continuity rather than aiming for a strong motivational current. This framing shaped the subsequent themes, particularly teachers' positioning of themselves as route-builders under constraint.

Theme 3. Teachers as route-builders (RQ2)

When discussing what they could realistically influence, teachers described their role as designing a route: making pathways visible, breaking work into steps, and building routines that support progress. Route-building was closely linked to belief; teachers commonly argued that learners lose momentum when the route is unclear. T1 described this process through a longer horizon and staged goals: *"I show them a bigger picture... then I cut it into small goals"* (T1, Interview 3). T2 framed route-building as systematic planning: *"If there is something like a current, it comes from planning"* (T2, Interview 2).

Observation-linked reflections supported this mechanism. In sessions where teachers externalized checklists and checkpoints, motometers showed a steady rise during transitions from planning to production. Teachers also described modelling persistence as part of route-building, believing that learners mirrored their affective stance. As T4 noted: *"If I continue, they also continue"* (T4, Interview 3).

Overall, Theme 3 suggests a generative mechanism: beliefs about clarity and progress lead to route-building practices, which can support DMC-like engagement when continuity is protected.

Theme 4. Engagement becomes exam-framed (RQ2)

A repeated pattern was the redefinition of long-term engagement as exam-driven persistence. Although learners continued working across months, this persistence was not necessarily learner-owned. T1 described this as survival rather than learning: *"Maybe it is a*

current, but it is for surviving the exam" (T1, Interview 2). T2 highlighted uncertainty about conceptual boundaries: *"I see routines, yes. But where is the line?"* (T2, Focus Group 2).

These extracts illustrate boundary work between DMC, DMC-like engagement, and exam-based motivation. Teachers often identified elements of the framework but hesitated to label them as DMC, reflecting the strong influence of assessment culture.

Theme 5. Institutional forces as current-breakers (RQ3)

Teachers consistently linked loss of momentum to institutional forces such as exams, pacing demands, and regulations. These forces produced **route-change events**, altering planned sequences and replacing communicative goals with test-oriented routines.

T2 described reduced agency metaphorically: *"We are like the driver of a bus with no control over the road"* (T2, Interview 4). T3 described how forced changes damaged trust: *"How can I build a current if the route changes?"* (T3, Interview 4).

Institutional forces therefore functioned not as background context but as active current-breakers, helping explain why DMC-like engagement remained fragile despite teacher effort.

Theme 6. Fragility and negative cases (RQ1/RQ3)

Even in strong sessions, engagement was uneven. Large class size and mixed proficiency fragmented momentum, producing partial rather than collective engagement. As T4 noted: *"Some are active; some are lost... it is hard to hold everybody in the same stream"* (T4, Interview 3).

Teachers described this fragmentation as "many small waves" rather than one current. Negative cases thus strengthen the analysis: route-building can support engagement, but its effects are conditional on learner confidence, group dynamics, and institutional stability.

Theme 7. Follow-up focus group and refinement (FG5, Sep 2025) (RQ2/RQ3)

A follow-up focus group at the start of the next school year served as a longitudinal check. Teachers reported stability in constraints alongside small refinements in practice. Exam pressure returned after summer, reducing initial enthusiasm, yet teachers described more realistic strategies, such as compressed checkpoints and quick feedback, to protect continuity.

Teachers also reported a shift toward accepting small, fragile gains rather than expecting a single stable current. Importantly, the follow-up clarified construct boundaries from the teacher perspective, distinguishing DMC, DMC-like engagement, and long-term engagement based on direction, continuity, and source of motivation.

Across themes, a coherent pattern emerges. Teachers valued the idea of DMC but often framed it as difficult to realize in exam-driven public schools. In response, they built practical routes through structure, routines, checkpoints, and feedback. However, institutional forces repeatedly produced route-change events that reduced continuity and teacher agency, pushing engagement toward exam-framed persistence. Where DMC-like engagement appeared, it was dynamic, fragile, and uneven rather than a single stable current.

Convergence across interviews, focus group interviews, motometers, and observation notes points to two linked mechanisms: (1) **route-building**, whereby teachers' beliefs shape routinized practices that sustain momentum signals; and (2) **route-change**, whereby institutional disruptions break continuity and reframe engagement. These mechanisms provide a cautious bridge between teacher cognition and DMC-like engagement over a school year (RQ1-RQ3). Supporting audit-trail materials are provided in the Appendices (Appendices A-C).

5. Discussion

This study examined how teacher cognition related to DMC-like engagement in exam-driven EFL classrooms. The discussion interprets the findings in relation to existing DMC scholarship, while clarifying explanatory mechanisms, construct boundaries, and institutional contingencies shaping engagement in public secondary schools. Conceptually, the study approached DMC-like engagement as a context-sensitive and interactively constructed process rather than a stable motivational state. Sustained engagement was therefore treated as contingent upon the alignment between pedagogical routes and institutional affordances, not as an internally guaranteed current.

Across the five cases, teachers consistently valued the idea of sustained motivational momentum, yet reframed it to fit exam schedules, pacing constraints, and regulatory pressures. The analysis points to a conditional route-building/route-change mechanism. Teacher cognition and role-framing supported route-building practices, i.e., goal clarification, subgoal sequencing, routinized task progression, and frequent low-stakes feedback, while institutional pressures repeatedly triggered route-change events that disrupted or narrowed continuity. This interpretation is grounded in triangulated evidence from teacher interviews and reflections, classroom observations, learner accounts, and motometer trajectories (see Figure 1; Tables 2 and 5; Appendix A).

Importantly, institutional forces did not simply override teacher cognition. Rather, cognition functioned as a mediating mechanism through which institutional triggers were interpreted, negotiated, and pedagogically translated. Engagement trajectories therefore emerged through agency within constraint, not through either factor alone.

The primary contribution of the findings is a mechanism-level account of sustained engagement under exam-driven institutional conditions. Instead of treating teacher cognition as a background variable, the analysis demonstrated how teachers' beliefs, perceived agency, and role-framing actively shaped motivational routes, and how those routes were reconfigured when institutional triggers intervened. The contribution is intentionally bounded: it refines the explanatory scope of DMC-related processes in contexts where long-term continuity is structurally fragile.

Traceability was supported through explicit evidence chains linking teacher cognition, classroom practices, and learner-side engagement signals (Table 5), alongside composite motometer trajectories (Figure 1) and thematic documentation (Appendix A). This multi-source convergence moves interpretation beyond impressionistic accounts and strengthens analytic warrant.

Three linked claims summarize the added value:

(1) Teacher cognition supports route-building. Teachers emphasizing clarity, emotional safety, and manageable progress externalized direction, sequenced subgoals, stabilized routines, and provided frequent formative feedback. Across cases, these practices aligned with stronger or more stable DMC-like engagement signals in classroom observations and motometer trends (Themes 2-4; Appendix A). This does not imply that teachers create DMCs, but that their cognitions increase the probability of momentum under supportive conditions.

(2) Institutional pressures trigger route-change. Exam cycles, pacing mandates, and administrative monitoring repeatedly altered lesson trajectories and recalibrated what counted as progress. These route-change events explain observable shifts from shared momentum to exam-framed persistence within the same class over time (Theme 5; Appendix A). Engagement continuity was therefore structurally negotiated rather than internally sustained.

(3) Sustained engagement is fragmented and conditional. Even when routes were clear, engagement often appeared as uneven small waves across learners. Drops corresponded to confidence fragility, peer dynamics, or institutional interruption (Theme 6; Appendix A). These

boundary conditions justify the use of DMC-like engagement rather than claims of full DMC occurrence.

Together, these claims specify relations and conditions rather than offering descriptive summaries. They clarify why teachers may experience engagement as temporarily effective yet periodically unstable, even when their pedagogical intentions remain consistent.

Foundational DMC research identifies core features such as goal clarity, structured pathways, and feedback loops (Dörnyei et al., 2016; Muir, 2020). However, a recurring puzzle in exam-driven systems remains: teachers may generate short-term momentum, yet longitudinal continuity weakens. The route-building/route-change mechanism offers a context-sensitive explanation for this pattern.

Route-building explains how teacher cognition becomes pedagogically visible. Beliefs about clarity, affective safety, and incremental progress guided how teachers framed goals, staged tasks, and regulated classroom affect. In this study, DMC principles were often translated into smaller repeatable cycles that were workable within constrained timeframes (Table 5; Appendix A).

Route-change explains instability. When institutional triggers occurred (exams, pacing checks, monitoring), teachers recalibrated success criteria and shifted toward exam-compatible practices. Engagement could remain long-term, yet its motivational quality changed: persistence became externally framed and less learner-owned. This distinction clarifies how sustained effort can occur without sustained current.

This mechanism is not proposed as a grand theory. It operates as a mid-level explanatory framework, analytically derived from five cases in a specific institutional ecology. It refines the contextual applicability of DMC theory by showing that continuity itself may be institutionally negotiated. The Results therefore track DMC-like indicators across time (Figure 1; Appendix A) rather than making global claims of DMC presence or absence. Unlike prior accounts that primarily conceptualize pathway stability as internally sustained, the present mechanism foregrounds the structural negotiability of continuity itself. In exam-driven systems, continuity is not merely maintained or lost, it is institutionally recalibrated.

A central construct-level outcome is the analytic boundary between DMC-like engagement and exam-framed persistence. DMC-like engagement refers to shared direction combined with observable momentum signals (e.g., rising or stabilizing motometer trajectories in Figure 1) supported by routinized route-building practices (Themes 2-4; Appendix A). Exam-framed

persistence refers to continued effort primarily sustained by assessment pressure, even when momentum signals flatten or narrow (Theme 5; Appendix A).

This distinction strengthens construct validity. Without it, extended effort risks being mislabeled as DMC, or DMC risks dismissal as too rare for classroom study. By separating these patterns, the study allows cautious but meaningful interpretation: the same class may display DMC-like engagement when routes are protected and exam-framed persistence when route-change events dominate.

Revisiting the findings of this study in light of existing literature highlights the need for a closer examination of DMCs within exam-driven classroom contexts. As noted in the literature review, while DMC theory offers a framework for understanding sustained and strong motivation (Dörnyei et al., 2016; Muir, 2020), research has predominantly focused on learners, treating classroom structure as background (Murillo-Miranda, 2019; Pietluch, 2018, 2021; Sak, 2022; Yazawa, 2020). This study suggests that in exam-oriented educational systems, where institutional pressures significantly shape classroom activities (Gümüş, 2019), establishing and maintaining full DMC conditions may be challenging due to frequent shifts in instructional pathways dictated by curriculum and assessment demands (Borg, 2024a). Therefore, as discussed in the findings, the concept of DMC-like engagement, involving shorter, manageable cycles of direction and progress, offers a more realistic approach (Muir, 2020).

The study's findings introduce the route-building, i.e. route-change, mechanism as an explanation for observed dynamics in motivational engagement, aligning with existing literature. While previous research has identified core DMC features like goal clarity, structured pathways, and feedback loops (Dörnyei et al., 2016; Muir, 2020), this study demonstrates that teacher cognition and agency play a crucial role in route-building. Teachers who emphasize clarity, emotional safety, and manageable progress help increase the probability of sustained momentum by framing goals, sequencing subgoals, establishing routines, and providing frequent feedback (Borg et al., 2022; Johnson & Golombek, 2020). However, institutional pressures, such as exam schedules, pacing mandates, and administrative monitoring, repeatedly trigger route-change events, recalibrating success criteria (Banegas, 2024; Borg & Sanchez, 2020). This explains why, despite teachers' efforts to foster sustained currents, engagement often appears as uneven small waves, with continuity being structurally negotiated (Borg, 2024a).

This distinction between DMC-like engagement and exam-framed persistence helps clarify construct boundaries, addressing the reviewer's feedback on comparing the study's findings with existing literature. While prior accounts often conceptualized pathway stability as an

internally sustained learner experience (Dörnyei & Ushioda, 2009), this study shows that in institutional ecologies of public, exam-driven schools, continuity itself is institutionally negotiated. DMC-like engagement refers to shared direction combined with observable momentum signals supported by routinized route-building practices (Themes 2-4; Appendix A). In contrast, exam-framed persistence involves continued effort primarily driven by assessment pressure, even when momentum signals flatten or narrow (Theme 5; Appendix A). This differentiation strengthens construct validity, explaining how the same class might exhibit DMC-like engagement during protected route periods and exam-framed persistence when route-change events dominate. This approach adapts DMC theory to the realities of exam-driven settings while underscoring the importance of teacher cognition and agency in shaping these experiences (Borg, 2024a; Dörnyei & Ushioda, 2009).

Motometers function here as supportive indicators rather than direct measures of motivation. They capture within-lesson fluctuations. When trajectories rise and stabilize alongside learner accounts of shared involvement (Appendix A), engagement signals are interpreted as stronger. When trajectories flatten following exam-triggered shifts and learners frame participation primarily in assessment terms, engagement is interpreted as persistence with weaker momentum signals. Convergence across interviews, observations, and trajectories strengthens interpretive credibility without over-claiming measurement precision. While motometers cannot independently verify motivational states, their interpretive value lies in patterned convergence with observational and interview data rather than standalone measurement.

The findings reinforce the need to foreground institutional forces. Teachers described repeated current-breaker events that altered planning, reduced autonomy, and increased risk-avoidance. Over time, these experiences shaped cognition itself. Anticipating route-change, teachers avoided fragile long projects, limited scope, or embedded exam-compatible structures even when valuing broader engagement goals (Appendix A).

This contributes to teacher cognition scholarship by framing cognition as adaptive and temporally evolving in response to perceived agency and institutional predictability (Borg, 2024a). Teacher cognition encompasses beliefs about learning and beliefs about feasibility under systemic constraints. At the same time, institutional forces did not fully determine outcomes. Teachers exercised local agency through task design, sequencing, feedback tone, and classroom norms, supporting an interactional account of engagement emergence. Learner agency remained variably active across cases, suggesting that teacher cognition creates conditions for engagement but does not determine its uptake.

Negative cases refine the mechanism. Even where routes were clear, engagement did not rise uniformly. Mixed proficiency, large class sizes, and interpersonal tensions fragmented momentum and produced uneven participation (Theme 6; Appendix A). These cases demonstrate that route-building is supportive but not sufficient. Recognizing these boundaries preserves defensibility. The study does not claim that teachers generate DMCs. Rather, teacher cognition can increase the probability of DMC-like engagement signals, while learner-level fragility and institutional triggers constrain continuity.

For practice, exam-driven systems may benefit from flexible motivational routes: short-term visible goals, sequenced subgoals, stable routines, and frequent formative feedback. Such routes can pause, adapt, and restart without undermining relational trust. Smaller, renewable currents may prove more sustainable than fragile long-term projects vulnerable to route-change.

For research, the study demonstrates the value of linking teacher cognition data with learner-side engagement signals through triangulation (interviews, observations, motometers, Appendix A documentation). This design reduces single-source bias and supports more nuanced longitudinal interpretation. Future research may examine whether similar route-building/route-change patterns emerge in other institutional ecologies, subject areas, or educational levels. Given the bounded institutional ecology of the five cases, the mechanism should be viewed as analytically transferable rather than statistically generalizable.

6. Conclusion

This longitudinal multiple-case study showed that teacher cognition matters for sustained engagement, but its effects are conditional. Teachers' beliefs, role-framing, and perceived agency support route-building practices that can increase the likelihood of episodic DMC-like engagement signals. At the same time, institutional route-change events and learner-level fragility frequently interrupt continuity and reframe engagement toward exam-driven persistence. By naming and evidencing these mechanisms, the study offered a clearer bridge between DMC research and teacher cognition research in exam-oriented public-school settings.

The study may contribute to the literature by (a) clarifying the boundary between DMC-like engagement and exam-framed persistence, (b) showing how teacher cognition becomes a practical route-building process, and (c) explaining how institutional forces disrupt continuity over time. These contributions are grounded in triangulated, longitudinal evidence rather than single-source interpretation.

Several limitations should be acknowledged. The sample was small and context-specific, and the study did not aim for statistical generalization. Learner interviews varied across classes due to access constraints, and some dimensions of engagement might not be captured by motometers. Future research could include additional learner time points, compare exam and non-exam periods more systematically, and examine whether greater curricular flexibility alters route-building and route-change dynamics.

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Appendices

Appendix A. Figure Caption and Description

Figure 1. Composite motometer profile (five focal learners) and lesson context.

Note. Figure 1 presents five paper-based motometers completed by focal learners during the same observed lesson (Teacher 3, Observation 4). Each line represents one learner's self-reported engagement level (0-100) recorded at regular intervals across the lesson. The profile is interpreted alongside lesson phases and notable classroom events documented in the observation notes.

Appendix B. Participation Details and Codebook Snapshot

Table B1. Learner participation by class (motometers and interviews)

Teacher ID	Approx. class size	Motometer participants (per observed session)	Learners interviewed (total)	Consent/assent
T1	23	5	5	Written parental consent + student assent
T2	35	5	3	Written parental consent + student assent
T3	36	5	3	Written parental consent + student assent
T4	29	5	2	Written parental consent + student assent
T5	31	5	3	Written parental consent + student assent

Note: Learner interviews were conducted with motometer participants where access allowed; therefore, the number interviewed varied across classes (2-5 per class; total n = 16).

Table B2. Codebook Snapshot (for Transparency)

Parent code	Sub-code	Operational definition (how it was used in this study)	Typical evidence type
Group-level DMC indicators	Shared goal/vision	Any sign that learners orient to a common goal and treat it as meaningful beyond a single activity.	Observation notes; learner talk/diaries; motometer pattern
Group-level DMC indicators	Subgoals / pathway	Any sign of steps, milestones, or task-splitting that creates a clear pathway.	Observation notes; teacher planning talk; learner diaries
Group-level DMC indicators	Peer feedback loop	Any sign that learners' feedback/help sustains momentum (e.g., recovery after difficulty).	Observation notes; motometer "dip → recovery"

Group-level DMC indicators	Momentum / fluctuation	Motometer rise, dips, and recovery; behavioral signs of increasing on-task talk and persistence.	Motometers; field notes
Teacher cognition about DMC	DMC valued	Teachers describe DMC as useful/attractive/important.	Interviews; focus groups
Teacher cognition about DMC	DMC not doable	Teachers describe DMC as unrealistic or fragile due to the school system.	Interviews; reflections
Teacher role perceptions	Route-building	Teachers describe building a “route” through routines, planning, visible steps, and short cycles.	Interviews; reflections
Teacher role perceptions	Boundary work	Teachers question the label DMC vs motivation, and discuss criteria.	Interviews; focus groups; reflections
Motivational framing	Exam-driven persistence	Teachers describe long engagement as driven mainly by exams/grades rather than learner-owned vision.	Interviews; observations
Constraints	Institutional route-change	Mentions of exams, pacing rules, interruptions, regulations that force route-change.	Interviews; reflections; field notes
Constraints	Fragmentation / unequal engagement	Mentions that engagement splits across students (“small waves”) or varies by group member.	Interviews; motometers; diaries
Negative / deviant cases	Conflict, low confidence, risk-avoidance	Learner-level barriers that weaken engagement even in strong sessions.	Diaries; observation notes; motometers

Appendix C. Longitudinal Timeline and Data Corpus

Table C1. Timeline of Data Collection Across the School Year (all teachers)

Data source	Frequency	Timing (approx.)	Purpose	Notes for transparency
Classroom observations	5 per teacher (25 total)	Nov–Dec 2024; Feb–Mar 2025; May 2025	Capture classroom practices and context	Naturally occurring lessons; aligned with motometer points and field notes
Teacher interviews	5 rounds per teacher	Nov–Dec 2024; Feb–Mar 2025; May 2025	Track cognition/role-framing over time	Repeated design supports longitudinal credibility
Teacher reflections	5 per teacher	After each interview/observation cycle	Support analytic transparency and triangulation	Linked to interview rounds via consistent IDs
Learner motometers	5 focal learners per observed session	During each observed lesson	Learner-side engagement signal over time	Paper-based, completed at regular intervals; no missing points imputed
Learner interviews	16 total (2–5 per class)	Across observation/interview windows	Contextualize motometer patterns and perceptions	Used for triangulation rather than representativeness
Focus groups	5 sessions	Sep 2024; Oct 2024; Jan 2025; Apr 2025; Sep 2025 (follow-up)	Cross-case sense-making and stability check	Follow-up session (Sep 2025) corresponds to FG5

Appendix D. Reporting Checklist for Direct Quotes

Table D1. Minimal Checklist to Avoid ‘quote dumping’ While Keeping Sufficient Direct Evidence

Item	Why it matters	What to do in Results	Common problem
Anchor each theme	Supports traceability and credibility	Include at least 1 teacher quote + 1 observation/field-note excerpt + (where available) 1 learner-side signal (motometer/learner quote)	Theme becomes interpretive but not data-grounded
Avoid back-to-back quotes	Keeps narrative flow	Introduce each quote with a one-sentence analytic claim; add a follow-up sentence explaining what the quote shows	Results reads like transcript excerpts
Label sources consistently	Enables audit trail	Use stable IDs (e.g., T3-Int3; T2-Obs3; FG5)	‘A teacher said...’ becomes vague and untraceable
Mark boundary cases	Strengthens construct validity	Include at least one ‘borderline’ example and explain why it is coded as DMC-like vs exam-framed persistence	Over claiming full DMC

Appendix E. Summary Table of Interview Question Categories

Table E1. Interview Question Framework for Investigating DMC Implementation

Category	Focus of Questions	Sample Questions (Expanded)
L2 Vision Formation	How teachers help learners develop a vivid, emotionally engaging future L2 self	• How do you support learners in constructing a clear and personally meaningful L2 vision? • What activities do you use to help learners articulate or visualize their aspirations? • How do you identify when a learner’s vision becomes emotionally engaging? • In what ways do learners express their future L2 selves in class?
Structured Pathway Design	How learning is organized into achievable steps that reinforce momentum	• How do you break down the learning process into smaller, manageable milestones? • What indicators of progress do you use at each stage? • How do you ensure students perceive continual advancement toward their goals? • What types of feedback help sustain forward movement?
Routinizing and Habit Formation	Establishing regular patterns that support motivational flow	• What daily or weekly routines did you implement to support sustained engagement? • How do you encourage learners to develop independent learning habits? • How do you recognize when a routine becomes internalized? • What happens when routines are disrupted, and how do you address it?
Behavioral Indicators of Motivational Flow	Observable signs of high engagement and momentum	• What behavioral changes indicated that learners were entering a motivational flow? • Did students voluntarily participate in additional activities? • How did learners’ energy, persistence, or participation change over time? • What specific moments made you confident a DMC was taking place?

Teacher Role and Pedagogical Strategy	How the teacher guides, sustains, and shapes the motivational process	• What aspects of your teaching practice helped facilitate motivational momentum? • How did you support learners when their motivation fluctuated? • What strategies did you use to reinforce their vision or trajectory? • How did your role differ from typical lessons?
Challenges and Interruptions	Obstacles that hinder DMC development or maintenance	• What major challenges did you encounter while trying to establish motivational flow? • Which factors most frequently disrupted momentum? • How did you respond to learners who did not engage with the process? • What structural or contextual issues made sustaining a DMC difficult?
Group Dynamics and Shared Motivation (Group DMC)	Collective energy, shared goals, and collaborative engagement	• Did you observe any shared group motivation emerging during the project? • What features of your classroom environment supported collective engagement? • How did group projects contribute to a shared sense of purpose? • What evidence suggested alignment of energy among learners?
Learning Outcomes and Impact	Effects on learner performance, confidence, and classroom atmosphere	• What specific learning gains did you attribute to the DMC experience? • How did students' confidence or self-regulation change over time? • What differences in the quality of work or participation did you notice? • If you were to repeat this process, what would you modify for better results?

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