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Triadic Synergistic Integration Model (TSIM): A Paradigm Shift in EFL Pedagogical Development

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ABSTRACT

Objective: This paper proposes the Triadic Synergistic Integration Model (TSIM) as an integrative framework for English as a Foreign Language (EFL) pedagogical development. The aim is to address the limitations of static and linear approaches to language teaching and assessment by articulating a model in which cognitive mediation, affective support, and developmental emergence are treated as interdependent rather than separate concerns.

Methods: The model was developed through theoretical synthesis of three research traditions — Dynamic Assessment (DA), Positive Psychology (PP), and Complexity Theory (CT) — supported by a review of empirical literature in each area. DA, grounded in Vygotskian Sociocultural Theory, contributes a view of assessment as mediated, interactional support directed at learners' developmental potential; PP contributes evidence on motivation, resilience, and well-being as conditions for sustained learning; CT contributes a conception of language development as nonlinear, adaptive, and self-organizing. Points of theoretical convergence and tension across the three traditions were identified and used to specify the model's structure.

Results: The synthesis yielded a framework operationalized through five classroom practices: dynamic scaffolding in classroom interaction, flexible task design accommodating learner variability, emotionally responsive feedback mechanisms, mediation-guided peer interaction, and choice-based differentiated learning pathways. Each practice illustrates how cognitive mediation, affective support, and emergent complexity interact within instructional settings rather than operating in isolation.

Conclusions: TSIM offers a holistic, learner-centered alternative to reductionist models in EFL education. Empirical validation across varied instructional contexts is the necessary next step.

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1. Introduction

Language education has historically been dominated by approaches that emphasize static forms of assessment, linear instructional progression, and a primary focus on discrete cognitive outcomes (Larsen-Freeman, 2018; Poehner & Lantolf, 2014; Fulcher, 2010). Within these paradigms, language learning is frequently conceptualized as the accumulation of measurable linguistic knowledge, operationalized through standardized testing practices and norm-referenced evaluation systems (Bachman & Palmer, 2010; Alderson, 2005). Although such approaches have contributed significantly to accountability and comparability in language education, they often assume that learner development is stable, uniform, and decomposable into isolated skills that can be assessed independently of context (Shohamy, 2001; McNamara, 2011). This reflects a reductionist orientation in which the complexity of language development is simplified into linear trajectories and fixed performance benchmarks (Larsen-Freeman & Cameron, 2008).

In contrast, contemporary research in applied linguistics, second language acquisition, and educational psychology increasingly challenges these assumptions. A growing body of work conceptualizes language learning as a dynamic, emergent, and contextually embedded process shaped by continuous interaction among cognitive, social, emotional, and environmental systems (de Bot, Lowie, & Verspoor, 2007; Larsen-Freeman, 2017; Herdina & Jessner, 2002). From this perspective, development is inherently nonlinear, characterized by variability, instability, and phase shifts that cannot be captured through static or single-point assessments (Verspoor, de Bot, & Lowie, 2011; Larsen-Freeman, 2018). Complexity Theory and Dynamic Systems Theory have been central in advancing this reconceptualization, emphasizing that language development emerges from the interaction of multiple interconnected subsystems evolving over time (Larsen-Freeman & Cameron, 2008; Ellis & Larsen-Freeman, 2009).

In parallel, assessment research has shifted toward more process-oriented and interaction-based paradigms. Dynamic Assessment (DA), grounded in Vygotskian sociocultural theory, reconceptualizes assessment as an inseparable component of instruction rather than a detached measurement event (Vygotsky, 1978; Lantolf & Poehner, 2014; Poehner, 2008). DA emphasizes mediation, scaffolding, and interaction as means of revealing and promoting learners' developmental potential, shifting the focus from product-oriented evaluation to development-oriented intervention (Haywood & Lidz, 2007; Poehner, 2005; Tzuriel, 2013).

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Complementing this perspective, Positive Psychology (PP) foregrounds the emotional, motivational, and well-being dimensions of language learning (Dörnyei, 2009; Seligman, 2011; MacIntyre et al., 2019). Constructs such as enjoyment, resilience, engagement, and foreign language enjoyment (FLE) demonstrate that affect plays a central role in sustaining learner effort and achievement over time (Fredrickson, 2001; Dewaele & MacIntyre, 2014; MacIntyre & Gregersen, 2012). Rather than treating emotion as peripheral, PP conceptualizes it as dynamically intertwined with cognition and context in shaping learning trajectories (Mercer et al., 2018; Oxford, 2016).

Taken together, these developments converge on a shared recognition that language learning is a complex, adaptive, and multidimensional phenomenon that cannot be fully explained through reductionist models (Larsen-Freeman, 2018; Cameron & Larsen-Freeman, 2007). Learners are increasingly understood as active agents whose developmental trajectories emerge through evolving interactions among cognitive, emotional, social, and environmental systems (Dörnyei, 2020; Ellis, 2019). This reconceptualization highlights the need for integrative frameworks that can account for complexity while remaining pedagogically actionable.

Despite the conceptual richness of these three strands, they have largely developed in parallel rather than in an integrated pedagogical model. Dynamic Assessment has primarily focused on mediated cognitive development, Positive Psychology on affective and motivational dimensions, and Complexity Theory on system-level variability and emergence. However, limited research has systematically examined how these perspectives can be unified into a coherent framework for EFL pedagogical development. This fragmentation reveals a significant theoretical and pedagogical gap: the absence of an integrated model that simultaneously addresses mediation, emotion, and complexity in classroom practice.

In response to this gap, the present paper proposes the Triadic Synergistic Integration Model (TSIM) as a unified framework for EFL pedagogical development. The aim of this study is to conceptualize how Dynamic Assessment, Positive Psychology, and Complexity Theory interact synergistically to support learner development across cognitive, emotional, and systemic dimensions. Specifically, TSIM seeks to bridge the divide between theory and practice by translating these three perspectives into coherent pedagogical principles.

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The contribution of this paper is threefold. First, it offers a novel theoretical synthesis of three influential but under-integrated frameworks. Second, it operationalizes this synthesis into pedagogical implications for classroom practice, including adaptive mediation, emotionally responsive instruction, and flexible task design. Third, it advances a more holistic, dynamic, and learner-centered vision of language education that moves beyond reductionist and linear paradigms. In doing so, TSIM is positioned as a potential paradigm shift in contemporary EFL pedagogy.

1.1. The Need for a Holistic Paradigm

The current challenges faced in language education require a paradigm shift. Three promising frameworks—Dynamic Assessment (DA), Positive Psychology (PP), and Complexity Theory (CT)—offer insights that address the diverse needs of learners:

- DA goes beyond static testing to measure learners' developmental trajectories (Poehner, 2008).
- PP promotes learners' emotional resilience, motivation, and positive engagement (Seligman, 2011; MacIntyre et al., 2019).
- CT views language learning as an emergent, nonlinear, and adaptive process influenced by internal and external variables (Larsen-Freeman & Cameron, 2008).

Integrating these frameworks creates a robust, triadic model that provides a holistic understanding of language learning processes. This paper aims to:

1. Examine the theoretical foundations of DA, PP, and CT.
2. Identify synergies among the three frameworks.
3. Highlight practical applications for language teaching and assessment.
4. Discuss challenges and propose directions for future research.

This integrated approach addresses the limitations of conventional methodologies by foregrounding learner potential, emotional well-being, and nonlinear adaptability.

2. Theoretical Framework

2.1. Dynamic Systems Theory and Dynamic Assessment

To better understand the dynamic nature of language learning and assessment, we adopt a framework informed by Dynamic Systems Theory (DST). DST posits that development, including

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language acquisition, arises from the complex, nonlinear interactions of multiple components over time (Larsen-Freeman, 2006). This perspective views learners and their learning environments as complex adaptive systems, where change is emergent and unpredictable, rather than linear and predetermined.

Within this broader theoretical landscape, Dynamic Assessment (DA) emerges as a crucial methodological approach. Developed from Vygotsky's Sociocultural Theory (1978), DA shifts the focus from static measures of current ability to the assessment of learner potential. It critically examines both independent performance and the learner's capacity for improvement with guided assistance, directly engaging with Vygotsky's concept of the Zone of Proximal Development (ZPD) (Lantolf & Poehner, 2014). This emphasis on mediation and the unfolding of learner capabilities resonates strongly with DST's principles of emergent change and interaction.

DA can be broadly categorized into two approaches:

- Interventionist DA: A more structured method where prompts and support are often predefined, allowing for systematic observation of learning gains under specific conditions (Shrestha & Coffin, 2012).
- Interactionist DA: A more flexible, dialogic approach where mediation arises organically through collaborative teacher-learner interactions, providing rich insights into the learning process itself (Lantolf & Poehner, 2010).

Research has demonstrated that Dynamic Assessment not only identifies learner abilities but also enhances developmental potential (Poehner & Infante, 2015; Poehner, 2008; Lantolf & Poehner, 2014). In addition to these foundational contributions, a growing body of recent scholarship has further established DA as a robust and evolving approach to language assessment and development (Shrestha & Coffin, 2012; Poehner & Lantolf, 2013; Davin, 2013; Lidz, 2014; Kondo-Brown, 2015; Kozulin & Garb, 2016; Ebadi et al., 2017; Ahmadi et al., 2018; Naseri, 2019; Soleimani & Rezai, 2020; Su, 2021; Zhang & Lantolf, 2022; Li & Hegelheimer, 2023). For example, Shrestha and Coffin (2012) found that DA improved learners' academic writing by targeting specific cognitive weaknesses through mediation, while subsequent studies have extended DA to other contexts, including classroom-based language development, technology-mediated assessment, and skill-specific interventions in writing, grammar, and reading (Poehner, 2017; Davin & Donato, 2018; Wang & Liu, 2020; Zheng & Davin, 2021; Xie, 2022).

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2.2. Positive Psychology (PP)

Positive Psychology (PP), pioneered by Martin Seligman (2011), shifts educational attention from learners' deficiencies and failures toward their strengths, well-being, resilience, and flourishing. Within second and foreign language education, PP has increasingly been recognized as a powerful framework for enhancing learner motivation, reducing debilitating anxiety, strengthening emotional engagement, and promoting long-term academic achievement (MacIntyre & Gregersen, 2012; MacIntyre et al., 2019; Mercer & Ryan, 2020; Oxford, 2016). Unlike deficit-oriented pedagogies that primarily emphasize errors and correction, PP-informed approaches seek to cultivate supportive emotional climates in which learners feel psychologically safe, confident, and intrinsically motivated to participate in communicative tasks (Dewaele & MacIntyre, 2014; Gregersen & Mercer, 2021). Research has shown that positive emotional experiences significantly broaden learners' cognitive flexibility, willingness to communicate, creativity, and openness to linguistic risk-taking, thereby facilitating more effective language acquisition (Fredrickson, 2001; MacIntyre et al., 2016).

The three pillars of PP—positive emotions, engagement, and meaning—are particularly important in creating emotionally supportive and developmentally productive learning environments (Seligman, 2011). First, positive emotions such as enjoyment, hope, pride, and curiosity play a crucial role in reducing foreign language anxiety and enhancing learner confidence (Dewaele & MacIntyre, 2014; Dewaele et al., 2018). According to the broaden-and-build theory (Fredrickson, 2001), positive emotions expand learners' attentional resources and encourage exploratory behavior, which can facilitate greater participation in communicative interaction and task performance. Empirical studies have consistently demonstrated that foreign language enjoyment is negatively correlated with anxiety and positively associated with achievement, motivation, and classroom engagement (Dewaele & Alfawzan, 2018; Li, Jiang, & Dewaele, 2018; Jin & Zhang, 2021). Learners experiencing supportive emotional environments are also more likely to demonstrate willingness to communicate and sustained task involvement (Khajavy et al., 2018; MacIntyre et al., 2019).

Second, engagement constitutes a central dimension of PP-informed pedagogy because meaningful involvement in learning tasks promotes deeper cognitive processing and stronger

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intrinsic motivation (Mercer, 2019; Seligman, 2011). Tasks aligned with learners' interests, goals, and identities foster greater behavioral, emotional, and cognitive engagement, which in turn enhances persistence and achievement (Philp & Duchesne, 2016; Hiver et al., 2021). Research in language education has shown that engaged learners demonstrate higher levels of interaction, strategic investment, self-regulation, and collaborative participation during classroom activities (Mercer & Dörnyei, 2020; Oga-Baldwin, 2019). Furthermore, emotionally engaging classroom tasks have been linked to increased learner autonomy and stronger perceptions of competence and belonging (Pekrun, 2006; Ryan & Deci, 2020).

Third, resilience and growth-oriented mindsets are essential components of PP because language learning is inherently challenging, nonlinear, and emotionally demanding (Dweck, 2006; Oxford, 2016). Learners who adopt growth mindsets are more likely to interpret errors and setbacks as opportunities for development rather than indicators of fixed inability (Dweck, 2006). Empirical evidence suggests that resilience positively predicts language achievement, emotional regulation, and persistence in difficult learning situations (Kim & Kim, 2021; Wang et al., 2021). Similarly, supportive teacher feedback and emotionally responsive instruction have been found to strengthen learners' self-efficacy, perseverance, and adaptive coping strategies (Gregersen et al., 2014; Mercer & Gregersen, 2020). Jin and Zhang (2021), for instance, found that learners exposed to constructive and positive feedback demonstrated significantly higher motivation, persistence, and academic performance compared to learners in less supportive instructional contexts. Additional studies have also confirmed that positive teacher–student relationships contribute substantially to learner well-being, classroom participation, and academic resilience (Derakhshan, 2021; Xie & Derakhshan, 2021; Pishghadam et al., 2021).

Collectively, these findings provide strong empirical support for the integration of Positive Psychology (PP) principles into language education. By fostering positive emotions, meaningful engagement, resilience, and supportive interpersonal relationships, PP-informed pedagogy creates conditions that facilitate not only linguistic achievement but also learners' psychological well-being, motivation, and long-term developmental growth (MacIntyre et al., 2019; Mercer & Ryan, 2020; Oxford, 2016; Seligman, 2011). Importantly, the convergence of empirical evidence across affective, cognitive, and motivational domains suggests that these factors do not operate in isolation; rather, they interact dynamically to shape learners' willingness to communicate,

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persistence in challenging tasks, and capacity for self-regulated learning (Fredrickson, 2001; Dörnyei & Ryan, 2015; Hiver et al., 2021).

Moreover, sustained exposure to positive, autonomy-supportive instructional environments has been shown to produce cumulative developmental benefits over time, including stronger self-efficacy beliefs, reduced anxiety reactivity, and increased investment in language learning trajectories (Ryan & Deci, 2020; Khajavy et al., 2018; Mercer & Dörnyei, 2020). These outcomes are particularly significant in long-term language development, where persistence and emotional endurance are as crucial as cognitive ability. In this regard, PP provides not only a theoretical lens but also a pedagogical roadmap for designing classrooms that nurture learners' psychological resources alongside their linguistic competence.

Finally, the integration of PP with contemporary perspectives in applied linguistics further strengthens its relevance. When combined with insights from dynamic systems theory and sociocultural approaches, PP highlights the importance of adaptive, context-sensitive, and emotionally responsive instruction that recognizes learner variability as a productive force rather than a limitation (Larsen-Freeman, 2020; Mercer, 2019). Thus, PP-informed pedagogy should be understood not as an optional enhancement, but as a foundational component of effective language teaching that aligns emotional well-being with sustained linguistic development and educational success (Oxford, 2016; MacIntyre et al., 2019; Seligman, 2011).

2.3. Complexity Theory (CT)

Complexity Theory (CT), initially introduced into applied linguistics by Diane Larsen-Freeman (1997), offers a dynamic and systems-oriented perspective on second language development by conceptualizing language learning as a complex adaptive system composed of multiple interacting subsystems (Larsen-Freeman, 1997; Larsen-Freeman & Cameron, 2008; de Bot et al., 2007). In contrast to linear, stage-based models of acquisition, CT emphasizes that development emerges from ongoing interactions among cognitive, social, emotional, and environmental factors, making learning inherently nonlinear, context-sensitive, and time-dependent (Larsen-Freeman, 2016, 2020; van Geert, 2008). Within this perspective, small changes in input or interactional conditions can lead to disproportionately large developmental shifts, highlighting the unpredictability and sensitivity of language learning trajectories (de Bot et al., 2007; Lowie & Verspoor, 2019).

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A central concept in CT is emergence, which refers to the spontaneous formation of patterns that cannot be predicted solely from the properties of individual components but arise through interaction over time (Larsen-Freeman & Cameron, 2008; Ellis & Larsen-Freeman, 2009). In second language development, emergent patterns are visible in learners' fluctuating accuracy, complexity, and fluency, which reflect adaptive responses to changing communicative demands rather than fixed developmental stages (Verspoor et al., 2011; Spoelman & Verspoor, 2010). Another key concept is attractor states, which represent relatively stable but temporary patterns of behavior that learners settle into as their linguistic systems self-organize under specific contextual constraints (de Bot et al., 2007; Larsen-Freeman, 2016). These attractor states may explain why learners often show periods of stability followed by sudden shifts in performance, as their systems reorganize in response to new input or instructional conditions (van Geert, 2008; Hiver, 2015).

Feedback loops constitute another essential mechanism within CT, describing recursive cycles in which learners' outputs become inputs for further development, thereby continuously reshaping their linguistic systems (Larsen-Freeman & Cameron, 2008; Ellis, 2017). Positive feedback loops can amplify learning gains, while negative feedback loops may stabilize performance or maintain existing interlanguage patterns depending on contextual factors (Larsen-Freeman, 2020; Lowie & Verspoor, 2019). Empirical research has consistently demonstrated that learner development is highly variable over time, characterized by bursts of progress, temporary regressions, and nonlinear growth trajectories rather than smooth, uniform progression (Verspoor et al., 2011; Spoelman & Verspoor, 2010; de Bot et al., 2007). Longitudinal studies further confirm that individual learners follow highly idiosyncratic developmental paths, reinforcing the importance of individualized and adaptive instructional approaches (Lowie & Verspoor, 2019; Hiver & Al-Hoorie, 2020).

In light of these findings, CT strongly supports flexible, adaptive, and context-responsive pedagogical approaches that accommodate learner variability and developmental unpredictability (Larsen-Freeman, 2016, 2020; Mercer, 2019). Rather than enforcing uniform instructional sequences, CT-informed pedagogy advocates for dynamic task design that allows for multiple developmental pathways and iterative cycles of learning (Larsen-Freeman & Cameron, 2008; Ellis, 2017). This perspective aligns with contemporary research in instructed second language acquisition, which emphasizes the importance of variability, interaction, and learner-centered

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instruction as drivers of development (Larsen-Freeman, 2020; Ortega, 2014). Consequently, CT provides both a robust theoretical framework and a strong empirical foundation for rethinking language teaching as an adaptive, evolving, and ecologically sensitive process (de Bot et al., 2007; Larsen-Freeman & Cameron, 2008; Verspoor et al., 2011).

3. The Synergistic Integration of DA, PP, and CT

3.1. Conceptual and Functional Synergy

The integration of Dynamic Assessment (DA), Positive Psychology (PP), and Complexity Theory (CT) offers a unified and ecologically valid framework for understanding second language development as simultaneously cognitive, emotional, and dynamic in nature (Wang & Lantolf, 2022; Mercer & Ryan, 2020; Larsen-Freeman, 2020). Rather than functioning as independent constructs, these three perspectives operate in a *mutually constitutive relationship*, where each framework enables and strengthens the effects of the others in real-time instructional contexts (Larsen-Freeman & Cameron, 2008; MacIntyre et al., 2019; Poehner & Lantolf, 2011).

From a DA perspective, learning is conceptualized as developmentally sensitive mediation within the learner's Zone of Proximal Development (ZPD), where instructional support is calibrated to learners' emerging abilities (Vygotsky, 1978; Aljaafreh & Lantolf, 1994; Poehner, 2008). However, the effectiveness of such mediation is not purely cognitive; it is also affectively conditioned. Here, PP becomes essential, as emotionally supportive environments reduce anxiety, enhance willingness to communicate, and increase openness to feedback and mediation (Dewaele & MacIntyre, 2014; MacIntyre et al., 2019; Gregersen & Mercer, 2021). Without such emotional scaffolding, learners may resist or underutilize DA mediation despite its cognitive appropriateness (Mercer & Gregersen, 2020).

CT, in turn, provides the explanatory logic for why DA and PP effects are inherently variable and non-linear. Language development is not additive but emergent, characterized by fluctuation, instability, and self-organization across time (Larsen-Freeman, 1997, 2016, 2020; de Bot et al., 2007). Thus, the combined influence of mediation and emotion does not produce uniform outcomes; instead, it generates dynamic developmental trajectories shaped by feedback loops, attractor states, and contextual variability (Verspoor et al., 2011; Lowie & Verspoor, 2019; Hiver, 2015).

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3.2. Mechanisms of Interaction and Mutual Reinforcement

The synergy among DA, PP, and CT can be understood through three interacting mechanisms: *affective accessibility, developmental scaffolding, and systemic adaptability*.

First, DA provides structured mediation, but its uptake depends on learners' emotional openness. PP enhances this affective accessibility by increasing enjoyment, reducing anxiety, and strengthening self-efficacy, which directly influences learners' responsiveness to mediation (Fredrickson, 2001; Dewaele et al., 2018; Mercer & Ryan, 2020). Empirical studies confirm that positive emotional states significantly improve engagement with feedback and increase persistence during cognitively demanding tasks (Jin & Zhang, 2021; Khajavy et al., 2018).

Second, PP alone may improve motivation but lacks developmental precision. DA complements this by targeting instructional support within the learner's ZPD, ensuring that emotional engagement is channeled into cognitively optimal developmental pathways (Poehner et al., 2020; Lantolf & Poehner, 2011). Research in mediated learning contexts shows that graduated assistance significantly improves performance when aligned with learners' readiness and emotional engagement levels (Aljaafreh & Lantolf, 1994; Poehner, 2008).

Third, CT explains why these combined interventions do not yield linear improvement. Instead, learning unfolds through nonlinear progression, where periods of rapid development may be followed by plateaus or regression due to system reorganization (Larsen-Freeman & Cameron, 2008; van Geert, 2008). Variability is therefore not noise but a functional feature of development that signals adaptation and restructuring (Verspoor et al., 2011; Lowie & Verspoor, 2019).

3.3. Dynamic Classroom Realization of Synergy

In practical classroom terms, the integration becomes visible in real-time instructional cycles. When a learner struggles with a speaking task, DA-based mediation is provided through prompts, hints, or reformulations (Poehner & Lantolf, 2011; Poehner, 2008). Simultaneously, PP-informed strategies such as encouragement, autonomy-supportive language, and strength-based feedback reduce anxiety and enhance engagement (MacIntyre et al., 2019; Mercer & Gregersen, 2020). CT predicts that the learner's response will not be linear; instead, performance may fluctuate across turns, reflecting adaptive system reorganization rather than failure (Larsen-Freeman, 2020; Hiver & Al-Hoorie, 2020).

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This interaction creates recursive feedback loops in which mediation (DA), emotional states (PP), and performance variability (CT) continuously reshape one another over time (Ellis, 2017; Larsen-Freeman, 2016). As a result, learning becomes an emergent phenomenon co-produced by instructional scaffolding, affective conditions, and dynamic system behavior (de Bot et al., 2007; Mercer, 2019).

3.4. Integrated Educational Implications

Collectively, the synergy among DA, PP, and CT reframes language education as a *developmental-ecological system* rather than a linear instructional process (Larsen-Freeman, 2020; Mercer & Ryan, 2020; Wang & Lantolf, 2022). DA ensures that learners receive calibrated mediation aligned with developmental readiness (Vygotsky, 1978; Poehner, 2008), PP ensures that learners remain emotionally receptive and resilient throughout this process (Fredrickson, 2001; Dewaele & MacIntyre, 2014), and CT explains why learning trajectories are inherently variable, adaptive, and individually differentiated (Verspoor et al., 2011; de Bot et al., 2007).

Thus, the combined framework (Figure 1) moves beyond additive theorizing toward a genuinely integrative model in which cognition, emotion, and complexity dynamically co-evolve, offering a more accurate representation of how language learning unfolds in real educational contexts (Larsen-Freeman & Cameron, 2008; Hiver, 2015; Mercer & Dörnyei, 2020).

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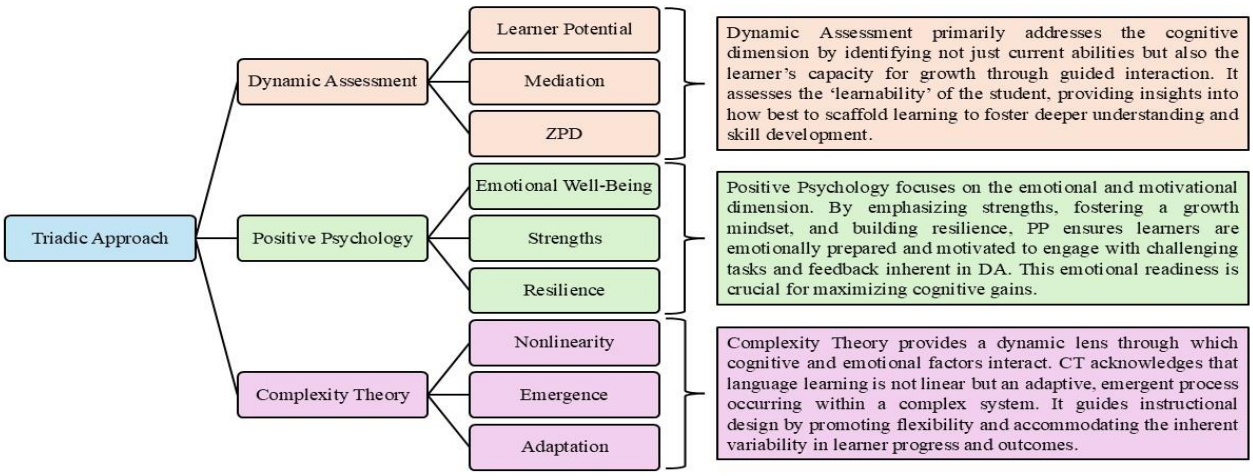


Figure 1. A Summary of the Triadic Approach to Language Education

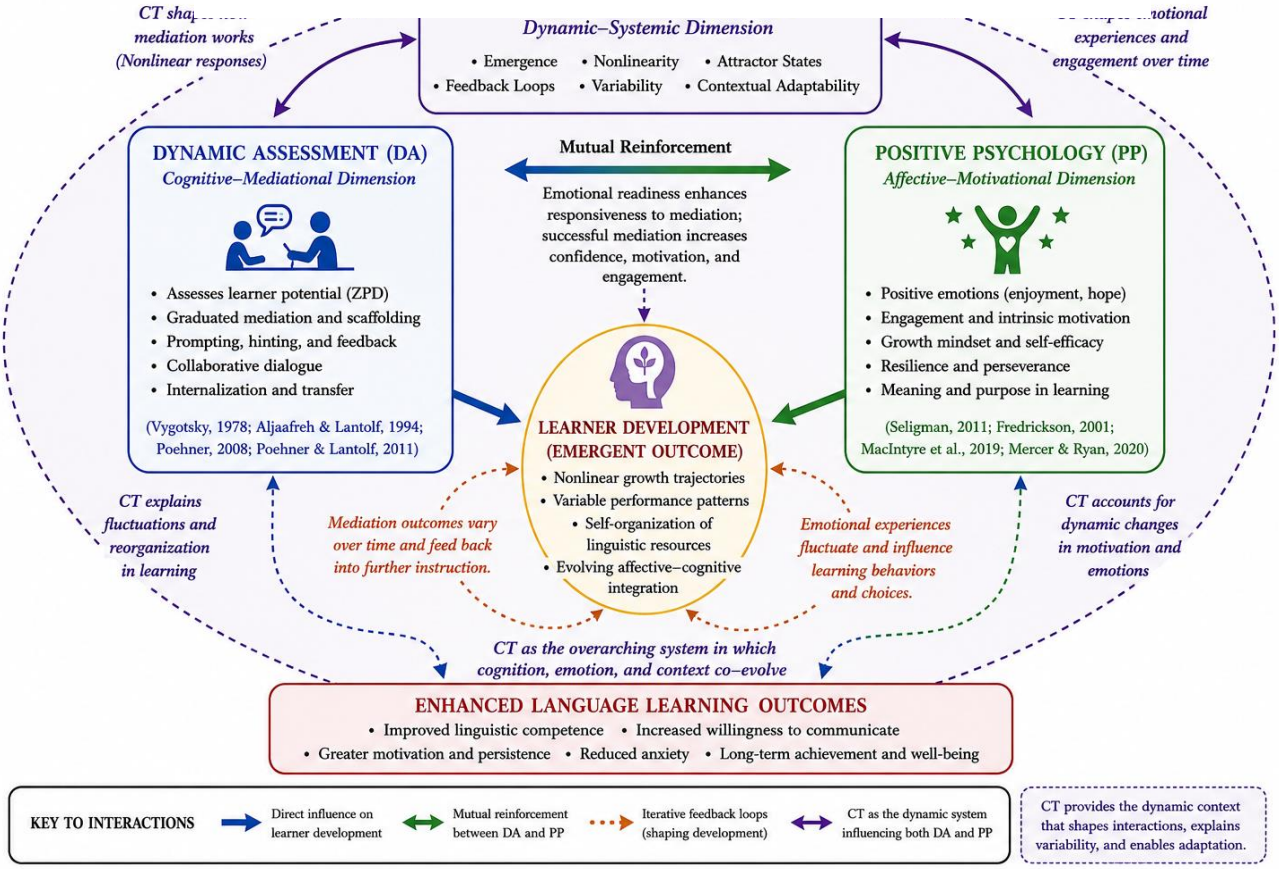


Figure 2. Triadic Synergistic Integration Model (TSIM) in EFL Pedagogical Development

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3.5. Empirical Support

Recent studies strongly affirm the effectiveness of integrating Dynamic Assessment (DA), emotionally supportive mediation, and nonlinear task design in second language development. Poehner and Wang (2020) argue that DA extends beyond traditional assessment because it focuses not only on what learners can accomplish independently, but also on their developmental potential as revealed through mediated support. In this framework, mediation—including prompts, hints, feedback, and collaborative guidance—functions as a mechanism for cognitive growth rather than mere error correction (Poehner & Wang, 2020). Building on Lev Vygotsky's (1978) sociocultural theory, DA conceptualizes learning as socially mediated activity occurring within the Zone of Proximal Development (ZPD), where learners gradually internalize higher mental functions through interaction with more capable others. Accordingly, emotionally supportive feedback plays a crucial role because it lowers affective barriers, sustains learner motivation, and enhances willingness to engage with challenging linguistic tasks (Aljaafreh & Lantolf, 1994; Poehner & Lantolf, 2005). Research has further shown that mediation sensitive to learners' emotional and cognitive needs promotes self-regulation, learner agency, and deeper internalization of language forms (Lantolf & Poehner, 2011; Poehner & Leontjev, 2020). Rather than treating feedback as a purely corrective mechanism, DA views supportive interaction as an essential condition for developmental transformation and learner responsiveness to instruction (Poehner & Wang, 2020; Leung, 2007).

Similarly, Diane Larsen-Freeman (2020) emphasized that language learning is inherently nonlinear, adaptive, and dynamic, emerging from continuous interaction among cognitive, emotional, social, and contextual variables. From the perspective of Complex Dynamic Systems Theory (CDST), language development does not proceed in a fixed or predictable sequence; instead, it evolves through fluctuations, variability, and ongoing restructuring of interconnected subsystems (Larsen-Freeman, 1997, 2016, 2020; de Bot, Lowie, & Verspoor, 2007). Consequently, temporary instability, variability, and even regression are interpreted not as failure but as natural indicators of developmental change and system reorganization (Verspoor, de Bot, & Lowie, 2011). Nonlinear task design is therefore particularly valuable because it exposes learners to evolving communicative conditions that require adaptation, negotiation of meaning, and flexible language use over time (Larsen-Freeman & Cameron, 2008). Such tasks encourage learners to

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self-organize their linguistic resources, respond dynamically to contextual affordances, and develop individualized trajectories of growth rather than conforming to rigid linear sequences of acquisition (Mercer, 2016; Hiver & Al-Hoorie, 2020). Moreover, emotionally supportive and adaptive classroom environments have been shown to enhance learners' resilience and engagement in complex learning processes, thereby reinforcing long-term development within dynamic instructional ecologies (Oxford, 2017; Larsen-Freeman, 2020).

4. Practical Applications Aligned with TSIM

The practical implications of the Triadic Synergistic Integration Model (TSIM) are realized through classroom practices in which Dynamic Assessment (DA), Positive Psychology (PP), and Complexity Theory (CT) operate simultaneously rather than as separate pedagogical components. The following applications illustrate how the triadic synergy emerges in real instructional contexts.

4.1. Dynamic Scaffolding

Teachers integrate DA with PP by providing contingent mediation alongside emotional support during real-time learner performance. For example, in a speaking activity where learners describe past experiences, a student produces *"Yesterday I go to cinema."* The teacher responds first with a recast (*"Oh, you went to the cinema?"*), then a scaffolded prompt (*"Yesterday I…"*), followed by confirmation (*"Yes, I went…"*). Simultaneously, affective reinforcement is provided through brief supportive comments such as *"Good—your message is clear, now let's refine the grammar."* If another learner hesitates, the teacher reduces anxiety by saying *"Take your time, you already know this structure."*

From a DA perspective, these moves constitute graduated mediation within the learner's zone of proximal development. From a PP perspective, encouragement and emotional safety sustain willingness to participate and reduce performance anxiety. From a CT perspective, each learner responds differently to identical mediation, producing variable developmental outcomes that reflect the non-linear nature of language development. Thus, a single scaffolded episode represents a triadic convergence of cognitive guidance, affective support, and emergent system adaptation.

4.2. Flexible Task Design

Instructional tasks are designed to allow for variability, emergence, and learner-driven trajectories consistent with CT principles. For instance, in a collaborative task titled *"Design your ideal city,"* learners choose roles (planner, designer, presenter) and decide how to complete the task without a

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fixed script. One group may produce simple utterances (*"This is a park. It is big."*), while another develops more complex explanations (*"We designed a sustainable urban system that reduces pollution through green transportation networks."*).

During task completion, the teacher intervenes selectively, offering DA-based mediation only when communication breaks down (e.g., prompting vocabulary retrieval or restructuring sentences). At the same time, PP is embedded through autonomy, creativity, and enjoyment, as learners engage with personally meaningful content and experience ownership of language use.

In terms of alignment with the model, DA functions as adaptive intervention within the task, PP sustains motivation and engagement through positive emotional conditions, and CT explains the divergent developmental pathways that emerge across groups and individuals. The classroom thus operates as a complex adaptive system where learning is co-constructed and continuously evolving.

4.3. Positive Feedback Mechanisms

Feedback is implemented as an iterative developmental cycle rather than a one-time evaluative act. For example, in writing instruction, students submit a paragraph draft. The teacher does not correct all errors but focuses mediation on one developmental target (e.g., article usage), asking guiding questions such as *"Do we need 'a' or 'the' here?"* Students then revise their work and resubmit, receiving further targeted mediation focused on a new aspect such as cohesion or sentence complexity.

Alongside this DA-oriented sequencing, PP is integrated through feedback that highlights progress and effort (e.g., *"Your ideas are much clearer than in the first draft; your argument is developing well"*). Peer feedback is also structured using supportive language such as *"I like your idea; maybe you can expand this part"*, fostering a positive emotional climate.

From a CT perspective, these iterative cycles act as small perturbations that gradually reorganize the learner's interlanguage system in non-linear ways. Progress is not immediate or uniform but emerges over time through repeated interactions. Within TSIM, DA structures the developmental pathway, PP sustains emotional resilience across revisions, and CT explains the cumulative, adaptive transformation of learner performance.

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4.4. Mediation-Guided Peer Interaction

Peer work is structured so that learners act as co-mediators rather than passive collaborators. For example, during a pair speaking task, one student is trained to use DA-informed prompts such as *"Can you say it in another way?"*, *"Do you mean past or present?"*, or *"Let's build the sentence together."* If a learner says *"He go yesterday,"* the peer responds with scaffolded assistance (*"He…?"*) instead of direct correction.

At the same time, PP is embedded through supportive peer discourse norms, where learners are encouraged to validate each other's effort (*"Good idea, let's improve it together"*), reducing fear of negative evaluation. CT is reflected in how peer interactions evolve unpredictably—some pairs develop highly collaborative scaffolding patterns, while others rely more on turn-taking or negotiation of meaning. This variability demonstrates emergent learning systems rather than uniform outcomes.

4.5. Emotionally Responsive Error Treatment

Errors are treated as developmental signals rather than deficits, with teacher responses adjusted dynamically. For example, when a learner repeatedly struggles with third-person singular (*"She go to school every day"*), instead of immediate correction, the teacher first normalizes the difficulty (*"This is a tricky structure for many learners"*), then provides scaffolded input (*"She… goes…?"*), and later revisits the structure in a different context.

PP is activated through emotional reframing strategies that prevent frustration (e.g., *"You are improving—this is exactly the stage where accuracy develops"*), while DA ensures that feedback is contingent and developmentally appropriate. CT is evident in the fact that error patterns may temporarily persist or even fluctuate before stabilizing, reflecting non-linear restructuring of the interlanguage system.

4.6. Choice-Based Differentiated Learning Pathways

Learners are given structured choice in how they complete tasks, allowing multiple developmental trajectories to emerge. For instance, in a reading-to-speaking activity, students choose whether to summarize, dramatize, or debate the text. A less confident learner may produce short summaries, while an advanced learner constructs arguments or evaluative responses.

The teacher applies DA by providing different levels of mediation depending on learner need (e.g., vocabulary support for some, discourse-level prompting for others). PP is embedded through

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autonomy and ownership, which increases intrinsic motivation and reduces pressure. CT explains how identical input leads to diverse outputs, with learner systems self-organizing based on prior experience, readiness, and interactional context.

4.7. Micro-Progress Tracking Through Dialogic Assessment

Instead of relying on formal tests, progress is tracked through ongoing dialogic interaction. For example, at the end of each lesson, the teacher conducts brief reflective dialogues such as *"What language could you use more easily today compared to last week?"* or *"What was difficult but is becoming easier now?"*

DA is present in the teacher's use of reflective prompts that reveal developmental shifts. PP is activated through awareness of progress, which strengthens learner confidence and self-efficacy. CT is reflected in how progress appears uneven—learners may suddenly improve in one area while plateauing in another, illustrating asynchronous development across subsystems.

4.8. Motivational Reframing of Task Difficulty

Tasks are intentionally framed as achievable challenges rather than evaluations. For example, before a complex speaking task, the teacher says *"This is a task where you will try new language, not perform perfectly"*. During performance, when learners struggle, the teacher reframes difficulty as progress (*"This means your language system is stretching"*).

DA appears in real-time support during breakdowns, PP ensures that anxiety is reduced and challenge is perceived positively, and CT explains why productive struggle is necessary for system reorganization. Learners gradually shift from avoidance behavior to engagement with complexity.

4.9. Integrated View of Extended Applications

Across these additional practices, the Triadic Synergistic Integration Model (TSIM) functions as a unified pedagogical logic:

- DA regulates *interactional support and developmental timing*
- PP regulates *emotional climate, motivation, and resilience*
- CT explains *emergence, variability, and non-linear change*

Together, these applications demonstrate that classroom practice is not a sequence of techniques but a self-organizing pedagogical ecosystem, where cognition, emotion, and complexity continuously co-construct learner development.

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5. Conclusion

The integration of Dynamic Assessment, Positive Psychology, and Complexity Theory establishes a transformative framework for re-envisioning language education. By bringing together learner developmental potential, affective well-being, and the adaptive, nonlinear nature of language learning, the Triadic Synergistic Integration Model (TSIM) challenges reductionist and static paradigms that have traditionally shaped EFL pedagogy. This triadic perspective reconceptualizes language development as a dynamic interplay of cognitive, emotional, and contextual forces that continuously evolve across time and interaction. While implementation challenges may arise in terms of institutional constraints, teacher readiness, and assessment culture, the model nevertheless offers a robust and theoretically grounded direction for pedagogical innovation. It calls for a shift toward responsive mediation, emotionally attuned instruction, and flexible, emergence-oriented classroom practices. Ultimately, TSIM contributes to a more comprehensive, dynamic, and future-oriented vision of language teaching and assessment, with significant implications for both research and classroom practice.

6. Challenges and Future Directions

Challenges include:

1. Teacher Training: Educators need preparation to integrate DA, PP, and CT in classroom practice.
2. Scalability: Implementing TSIM across diverse educational contexts requires validation.
3. Measurement: Capturing emergent, nonlinear progress remains complex.

Future studies should employ longitudinal, mixed-methods research to explore the long-term impact of this integrated framework.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of University of Hormozgan.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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