

Research Article

Adaptive Intelligence & Thriving Mindset: A Developmental Competency for Youth Flourishing in the ZAT Framework

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Abstract

This paper reconceptualizes *Resilience* as *Adaptive Intelligence & Thriving Mindset*—a foundational developmental competency within ZAT Framework. As a teachable and measurable capacity, this competence provides youth with the cognitive flexibility, emotional awareness, and planned action needed to thrive in the face of adversity and to step into thriving for good. Structured around the KSAH model—*Knowledge, Skills, Attitudes, and Habits*—age-banded developmental outcomes (14-16, 17-19, 20-24) are also provided in order to assist in promoting developmental progress and focused intervention. The research anchors *Adaptive Intelligence & Thriving Mindset* as a principled, cross-cutting competence central to well-being for youth and lifelong agency. *AI-augmented formative feedback mechanisms* are also incorporated into the model and are grounded in psychological literature on behavior change and learning, using behavioral cues (e.g., reflective language use, help-seeking, recovery patterns) to personalize learning support and guide developmental progression. This paper contributes both a conceptual structure and a practical roadmap for embedding adaptive intelligence into educational and mentoring systems, offering implications for future application and contextual validation across diverse sociocultural environments. This study employed a conceptual and developmental research design to articulate and structure *Adaptive Intelligence & Thriving Mindset* as a core competency within the ZAT Framework. Given the paper's aim to construct a scalable, ethically grounded model, the methodology focused on synthesizing established literature, benchmarking cross-framework models, and aligning with ZAT's psycho-developmental architecture.

Keywords

Adaptive Intelligence, Thriving Mindset, Youth Development, KSAH Model

1. Introduction

Youth of today have to deal with a world that is characterised by a fast pace of change, instability and psychosocial complexity. Academic pressure, emotional volatility, social disintegration, and digital inundation all make the case for purposeful growth-centered developmental support more

compelling than ever [3, 26, 27]. In these circumstances, the ZAT Competency Framework reframes resilience as Adaptive Intelligence & Thriving Mindset—a scaffolded, teachable skill that enables youth not just to bounce back from adversity, but to micro-intentionally grow with it.

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In contrast to static models that regard resilience as an in-born or reactionary attribute, ZAT proposes adaptive intelligence as a meta-skill comprising cognitive flexibility, emotional regulation, reflective practice, and ethical consideration. This model is based on a faith-values and culture-rooted education philosophy that combines Islamic pedagogical values and global competence paradigm emphasizing holistic child development and Islamic virtues [1, 11, 22].

This paper builds on this foundation to present *Adaptive Intelligence & Thriving Mindset* as a developmental competency structured through ZAT's KSAH taxonomy—Knowledge, Skills, Attitudes, and Habits—and sequenced across three developmental stages (14-16, 17-19, 20-24). These stages are derived from empirical insights in adolescent development, positive youth psychology, and metacognitive learning science [24, 31, 34].

The ZAT model also incorporates *AI-augmented formative feedback mechanisms*, which analyze behavioral indicators—such as journaling regularity, reflective language, and help-seeking patterns—to offer personalized developmental support. These AI-assisted insights enhance the model's adaptability and precision while preserving its ethical and spiritual coherence [1, 23].

In advancing this competency, ZAT offers a coherent response to the rising global demand for culturally responsive, emotionally intelligent, and purpose-driven youth development frameworks. By treating adaptive intelligence not only as a skill but as a *lifelong disposition toward thriving*, this paper contributes to a growing discourse on how to design educational ecosystems that prepare youth to lead with clarity, resilience, and grounded purpose.

2. Methodology

This study employed a conceptual and developmental research design to articulate and structure *Adaptive Intelligence & Thriving Mindset* as a core competency within the ZAT Framework. Given the paper's aim to construct a scalable, ethically grounded model, the methodology focused on synthesizing established literature, benchmarking cross-framework models, and aligning with ZAT's psycho-developmental architecture.

The first methodological approach involved a *comparative literature review*. Foundational theories from resilience research, positive youth development (PYD), self-regulated learning (SRL), and social-emotional education were analyzed to extract behavioral indicators, developmental trajectories, and educational implications relevant to adaptive growth and thriving. Key models informing this review included Masten's resilience ecology [26], Zimmerman's SRL theory [34], and CASEL's SEL competencies [11].

Second, a *cross-framework alignment* process was undertaken. The ZAT model was benchmarked against internationally recognized frameworks—including the CD-RISC and RSA resilience scales, the CASEL SEL framework, and the

5Cs of PYD [24]—to ensure its conceptual robustness and global relevance. This procedure was established to promote the cross-cultural validity and the contextual appropriateness of the Adaptive Intelligence & Thriving Mindset across various educational contexts.

Finally, it was developed according to ZAT's developmental KSAH taxonomy—Knowledge, Skills, Attitudes, Habits throughout three age bands (14-16, 17-19 and 20-24). This developmental model provided a means of describing learning objectives and behaviorally anchored progressions of pathways that align with various stages of youth development. These roads were conceived to connect directly to ZAT's AI-augmented diagnostic periodic system for personalized, tracking and intervention.

While this solution has not been empirically validated, it would offer a consistent theoretical basis for pilot testing, cross-cultural deployment and practice-based adaptation of the competence.

3. Research Objectives

The study is guided by the following objectives:

- 1) To define *Adaptive Intelligence & Thriving Mindset* as a core developmental competency within the ZAT Competency Framework.
- 2) To map scaffolded learning outcomes across three age bands (14-16, 17-19, 20-24) using the KSAH taxonomy.
- 3) To explore how this competency intersects with behavioral, cognitive, and spiritual development in culturally and contextually diverse youth populations.

These objectives serve as the foundation for the theoretical model and learning framework developed in the subsequent sections.

4. Literature Review

4.1. Conceptual Foundations of Adaptive Intelligence and Thriving Mindset

The conceptualization of *Adaptive Intelligence & Thriving Mindset* as a single competency in the ZAT Framework draws on two related bodies of literature that include a focus on both cognitive adaptability and the other in motivational-emotional thriving. Although studied in isolation, these constructs intersect in their developmental expression, particularly in youth navigating complex, uncertain environments.

The term "*Adaptive Intelligence*" refers to the ability to adjust one's thinking and behavior in response to new, changing, or uncertain conditions. It is a combination of resolution capability and learning, context sensitivity and value-driven decision making. Sternberg argues that traditional measures of intelligence don't adequately measure real-world adaptability, which is necessary for personal success and societal contribution. In youth development, adaptive intel-

ligence is increasingly related with executive function, metacognitive regulation, and the ability to reconfigure goals more flexibly in response to stressors [7].

Also, Complementing this is the construct of a *Thriving Mindset*, a concept that comes from positive psychology and motivational theory. Thriving is not just a recovery from adversity, but as proactive growth, psychological resilience, and purposeful striving [5, 24]. Youth who thrive demonstrate a future orientation, a sense of meaning, and sustained engagement in learning and contribution. Empirical work associates thriving with self-determination, social support, and identity coherence—attributes essential for constructing agency in complex social spaces [9, 32].

In the context of growing global disruption—ranging from mental health threats to socio-technological change—young people need more than emotional resilience; they require intelligent, value-guided adaptation. This has prompted a shift from resilience-as-bouncing-back toward models of *adaptive thriving*—a process of emotional regulation, situational analysis, and proactive change [21, 26].

The ZAT Framework integrates these insights by operationalizing *Adaptive Intelligence & Thriving Mindset* as a single developmental competency. It is theoretically conceptualized as scaffolded within the KSAH model—Knowledge, Skills, Attitudes and Habits and is underpinned by observable behaviors across cognitive, emotional, and motivational domains. According to this approach, youth development must be concerned not only with survival under pressure, but also with the development of clarity, purpose, and potential in the midst of uncertainty.

4.2. Measurement Models and Behavioral Anchoring

Positioning *Adaptive Intelligence & Thriving Mindset* as a single developmental competency entails it being based on tested psychological models that encompass both adaptive cognition and motivational-emotional development. While historically treated as separate constructs, the emerging developmental science affirms the combination of effortful and self-regulated learning as it is reflected by coherent and observable teachable behaviors that can be observed across real life challenges and age specific transitions.

Adaptive Intelligence has been extensively investigated with models involving cognitive flexibility, executive function and ecological responsiveness. Sternberg [31] defines it as the capacity to solve real-world problems by adapting one's thinking and behavior to shifting demands—especially in unpredictable or culturally diverse environments. In the educational domain, this is operationalized in terms of behaviors such as situational awareness, goal reorientation and value-based decisions [7]. While traditional IQ models measure abstract reasoning, adaptive intelligence emphasizes meaningful application in fluid environments—aligning closely with ZAT's emphasis on contextualized competencies.

Complementing this, a *Thriving Mindset* has been assessed in the literature using constructs like psychological flourishing [18], purpose development [9], and future orientation [5]. These models measure and assess thriving through dimensions such as positive emotion, intrinsic motivation, social contribution, and resilience in goal pursuit. The Positive Youth Development (PYD) framework offers one of the most structured assessments of this mindset through the “5 Cs”—Competence, Confidence, Connection, Character, and Caring [27]—each of which has an analog in the ZAT model's Attitudinal and Habitual domains.

The ZAT Framework integrates these dual constructs in its KSAH model—by providing a taxonomy of observable growth in Knowledge (e.g., insights about cognitive-emotional feedback loops), Skills (e.g., emotion regulation, decision-making under uncertainty), Attitudes (e.g., openness to complexity, purposefulness), and Habits (e.g., reflection-in-action, adaptive self-regulation). This model allows for short- and long-term (developmental) assessment.

Importantly, ZAT's use of AI-augmented learning pathways enhances the accuracy of these behavioral anchors. Through real-time analytics—such as language tone in journaling, response latency, or help-seeking frequency—indicators of adaptive and thriving behaviors can be used to capture and scaffold indicators of adaptive and thriving behavior [16, 21]. This data-driven layer allows the competency to remain flexible, contextualized, and personally tailored without losing structure or being assessable.

Indeed, A combined cognitive adaptability and motivational flourishing model may need to be developed to measure the “Adaptive Intelligence & Thriving Mindset” dimensions, translated into age-appropriate and culturally responsive developmental indicators. It is this nuanced mapping process that sets ZAT apart from conventional character education or general mental health promotion.

4.3. Contextual Dimensions of Adaptive Intelligence

The development of *Adaptive Intelligence & Thriving Mindset* is variable person to person and context to context. It is shaped by a complex interplay of ecological conditions, sociocultural values, identity factors, and systemic processes. Current resilience research highlights the need to study adaptive capacities not in isolation, but within the specific challenges and support systems youth encounter—especially during adolescence when there are ongoing changes in cognitive emotional and social systems [25, 26].

Developmentally, adolescence is characterized by sudden psychological shifts, identity formation, introduction of social and academic stressors. Such changes are often characterized by an increased vulnerability to risk factors, including family breakdown, educational strain, community instability or even displacement [28, 30]. The emergence of the COVID-19 pandemic exacerbated these stressors, in-

creasing levels of emotional isolation, uncertainty and impeding educational continuity [2]. In such a shifting terrain, adaptive intelligence is more and more perceived as a critical function in order to manage volatility with a direction, self-control and bounce-back.

There is evidence that suggests that *early intervention is critical*, but evidence also that interventions must evolve developmentally. Younger adolescents are more likely to depend on external regulation and adult scaffolding for adaptive strategies, while older youth increasingly internalize adaptive strategies—relying more on reflective processing, value orientation, and self-generated goal setting [26]. This continuum mirrors the progression in the ZAT Framework, where age-banded competences are used to locate learning outcomes at the cognitive stage of development and in age-appropriate environmental circumstances of adolescents' lives.

Furthermore, evidence for a multi-systemic model of adaptation suggests that resilience is 'constructed' within relational systems (e.g., families, peers, schools, mentoring environments) [15, 20]. Resilience-promoting interventions focusing exclusively on the individual risk which may ignore the systemic and cultural processes that influence young people's beliefs about coping, agency, and worth.

For competency models like ZAT, this context-specific perspective confirms the need to design *adaptive intelligence as both an internal capacity and a socially enabled process*. Embedding mentorship, relational support, and cultural responsiveness into learning contexts make the experience and practice of thriving more salient and sustainable. Adaptive intelligence, in this model, isn't simply a matter of what a young person can do, but the conditions that enable her to do it consistently and in a meaningful way.

4.3.1. Developmental Stressors and Adaptive Demand

Adolescence is a time when exposure to acute and chronic stress increases- from family instability and academic pressure to economic insecurity and digital overload. Adverse experiences such as parental divorce, academic failure, displacement, and community violence have known consequences on emotional regulation and self-concept development [25, 28, 29]. The COVID-19 crisis worsened these challenges, and revealing gaps in emotional regulation, identity stability, and learning continuity [2].

Resilience research consistently shows that adaptive responses to stress are *age-dependent*. While younger adolescents rely more on adult-guided support, while older youth begin forming independent regulation strategies and meaning-making frameworks [26]. This developmental trajectory points out the necessity for *differentiated support* across age bands—aligned with cognitive maturity and contextual capacity.

Effective models move beyond individual characteristics, targeting *adaptive systems* in schools, peer groups, and families. The presence of emotionally responsive adults, structured reflection, and safe relational contexts enhance youth agency

and the internalization of adaptive patterns [15, 21]. These findings strongly support the ZAT approach of embedding adaptive intelligence across environmental layers and stages of growth.

4.3.2. Adaptive Responses in Marginalized Youth

Adaptive intelligence is shaped by structural inequities and identity-based adversity. Minority and intersectional youth—defined by race, ethnicity, gender, socioeconomic class, or migration status—often not only endure resilience as personal endeavor, but also as a strategic resistance to structural exclusion [12, 25].

The literature notes that youth with multiply marginalized identities (e.g., low-income refugee girls, racial minorities with language barriers) may demonstrate strong adaptive resources but suffer from limited support structures and cultural misrecognition. Interventions that do not attend to these complexities have the potential to misinterpret adaptive silence as disengagement, or to interpret systems failure as personal deficit [33].

Culturally based programs that honor community stories, language, and identity practices have illustrate greater participation and uptake of resiliency practices. For ZAT, this calls for localized implementation that honors youth context, leverages cultural assets, and resists overemphasis on “grit” divorced from justice. Adaptive intelligence, in these cases, must include the capacity to discern, challenge, and navigate systemic constraints—not just bounce back from them.

4.4. Resilience and Self-Efficacy in Life Skills

Self-efficacy—the belief in one's capability to organize and execute courses of action required to manage difficulty situations [4]—appears to be a crucial psychological process which underlies both adaptive intelligence and the thriving mindset. According to Bandura [4], self-efficacy was one of the best predictors of emotional regulation, motivation and learning behaviors. The core values and beliefs of youth shape the way they view obstacles, solve problems, and bounce back from failure in their adolescence years.

Empirically, among academics, there is a clear association between high self-efficacy and increased psychological resiliency, specifically when confronted with emotional, academic, or social stress [19, 29]. Youth who feel they can have some control over results, they are more likely to problem-solve and remain positive in affect and actually persevere challenging situations. These behaviors are consistent with the KSAH areas of the ZAT Framework, and, more specifically, within the Skills and Attitudes.

Self-efficacy is also closely related to fundamental life skills such as emotional control, conflict management, empathy and reflective thinking. High levels of self-efficacy in these two dimensions are correlated with high levels of adaptability, initiative, and interpersonal competence in adolescent [10, 30]. These capacities align directly with the

KSAH domains of the ZAT Framework, especially in the Skills and Attitudes categories.

Importantly, self-efficacy is not static—it grows in response to feedback, success experiences, and supportive relationships. Competency-based models like ZAT that emphasize behavioral observability and developmental feedback provide fertile ground for the development of self-efficacy over time. It is thus reasonable to assume that experiencing success under structure, followed by time to reflect on and internalize gains, may provide for the longer-term maintenance of adaptive behaviour even when the environment is not predictable.

To sum up, self-efficacy is a predictor of resilience and a facilitator of thriving. By dumping it into educational interventions, we reinforce internal belief systems as well as external behavioral readiness and this is not a good idea for any kind of developmental model that wants to encourage long-term, more adaptive intelligence.

4.5. Competency-Based Approaches to Youth Thriving

Competency-based approaches provide structured mechanisms for developing and evaluating adolescent capacities beyond the acquisition of academic skills. In this paradigm, thriving is not an abstract attribute, but a teachable cluster of behaviors and mindsets predicated on self-regulation, relational competence and intentional action.

The field of PYD, particularly the 5 Cs model (Competence, Confidence, Connection, Character, Caring) within the PYD framework influenced the ways in which youth thriving has been defined and assessed [24]. Each “C” represents a domain vital to resilience and coping, culminating in Contribution as a manifestation of thriving influence.

PYD emphasizes developmental flexibility and contextual sensitivity, which fits nicely with models such as ZAT which support learning outcomes by age and surroundings. They directly oppose deficit discourses, in favor of leveraging strengths, relational supports, and identity grounded learning.

In justice and educational settings, positive youth development (PYD) has been found to be effective in building emotional resilience, promoting behavior infractions, and enhancing engagement— particularly when combined with mentoring and experiential learning [14, 15]. For ZAT, PYD is a strong theoretical foundation to integrate adaptive intelligence mechanisms in the application of competency-based programming to promote optimal youth development in both personal and social contexts.

4.6. Psychological Safety as a Precondition for Adaptive Growth

Psychological safety is when people believe they can disclose their feelings, take risks, and make mistakes without concern for evaluation, and it’s a necessary condition for adaptive learning and a growth mindset. Diminished emotional responsiveness to

the environment has no such abeyance, reflection and goal setting processes remain impeded [17].

In the context of youth development, and particularly marginalized youth, psychological safety contributes to honest self-development, identity exploration, and resilience [15, 25]. It turns challenge from a risk to a chance to learn.

In ZAT, psychological safety is embedded indirectly through the Heart (emotional awareness and self-regulation) and the Coaching (mentorship and constructive feedback) dimensions. All of which, combined form a place where adaptive and thrive behaviors can be tried out, reinforced, and integrated.

In short, psychological safety is not a feature, it is a requirement for true growth. A model of effective practices targeting positive youth development must emphasize protective (emotionally open) and developmental risk-taking is encouraged.

4.7. Insights for Competency Frameworks: Bridging Science and Practice

The literature clarifies the learnable, observable, and developmentally sequenced nature of adaptive intelligence and thriving, which render these dimensions particularly compatible with competency-based models of practice. Models of resilience, like the Resilience Scale for Adolescents (RSA), the Resiliency Attitudes and Skills Profile (RASP), and the 5 Cs of PYD, all universally advocate for behavioral indicators such as emotional regulation, flexible thinking, and social connectedness as central to lifetime adjustability [24, 30].

Such findings are expounded upon in the ZAT Framework, which sees these developmental assets formulated into a KSAH structure that is mapped along the three age bands. This enables educators to interpret growth as not a discrete end-state, but as an unfolding profile that is adapted to cognitive readiness and situated demand.

Grounded in empirical science and applied practice, ZAT provides a scalable blueprint for nurturing thriving learners—resilient, purposeful, and ready for the unknown.

5. Theoretical Framework

5.1. Adaptive Intelligence as a Developmental Meta-Competency

Adaptive intelligence is the ability to find one's way in new, changing, or uncertain situation by adjusting one's mind and one's actions in a normal way to one's environment [31]. In contrast to traditional conceptions of intelligence that focus on formal reasoning or static problem solutions, adaptive intelligence is defined by its real-world functionality: its capacity to respond effectively to changing demands and uncertain environments, and to diverse sociocultural realities.

From a developmental standpoint, adaptive intelligence

results from the interplay of metacognition, cognitive flexibility, and value-based decision-making. Importantly, adolescents and emerging adults hold the potential to cultivate this capacity as they face new challenges that necessitate independent thinking, moral judgment, and emotional regulation. The executive functions, self-reflective consciousness, and situation analysis that are central aspects of adaptive intelligence develop most rapidly during the 14 - 24 age period, creating a narrow window for focused intervention (e.g., [6, 31]).

The ZAT Framework positions adaptive intelligence as such a meta-competency - a capacity distanced from lower order abilities that is applied towards integrating and deploying the organization's core competencies. It's not a discrete skill to be attained, but a mind- and skill-set that encourages learning agility, self-directedness, and responsible agency. By placing adaptive intelligence there at the heart of the developmental enterprise, ZAT challenges young people to face ambiguity and uncertainty with assurance, to regard disruption not as derailing but as potential transformation.

Adaptive intelligence, in other words, prepares young people not just to withstand change but to design their own development — adjusting forward with volition, ethics and resilience.

This circular diagram (Figure 1) represents the dynamic interaction between the individual (Self) and situation for a given challenge or pressure.

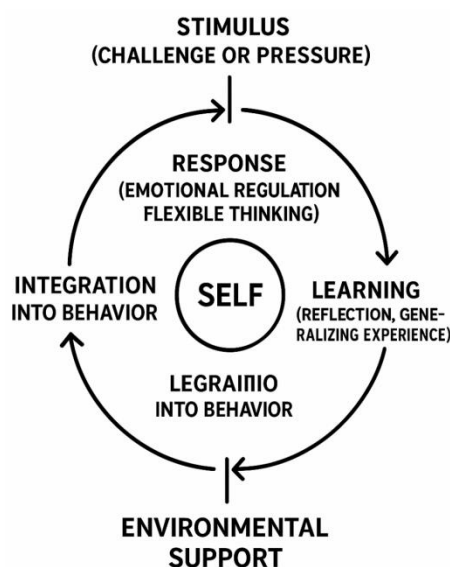


Figure 1. illustrates the developmental cycle of resilience as conceptualized in ZAT.

5.2. Thriving Mindset and Purpose-Driven Flourishing

A thriving mindset is not just about bouncing back from adversity; it is a proactive orientation toward growing,

meaning, and contributing. Built on positive psychology and motivational theory, thriving encompasses being able to meet challenges with optimism, to be resilient, and to have a focus on future purpose in life [5, 24]. It's more than just emotional wellness — it's psychological momentum toward self-realization and social relevance.

At its core, a thriving mindset integrates three related processes: *motivation*, *meaning-making*, and *agency*. Thriving youth are also marked by a belief in their ability to influence outcomes (self-efficacy), purpose being (narrative identity), and commitment that extends beyond the self [9, 32]. Such attributes facilitate not only lifelong learning engagement, but also persistence in goal striving and resilience in the face of obstacles.

Within the ZAT Framework, thriving is not seen as an outcome but as a *direction*—a mindset that can be get it through intentional developmental design. It is scaffolded through:

- 1) *Heart* (emotional strength and optimism),
- 2) *Brain* (clarity of goals and flexible thinking),
- 3) *Spirit* (ethical grounding and purpose),
- 4) and *Coaching* (supportive reflection and mentorship).

By nurturing this mindset, ZAT supports the emergence of a transformation from an adaptation based on survival to an adaptation based on values. It's thriving that serves as the compass for the direction of adaptive intelligence — not only how to manage but why to keep going, what to strive for, and how to contribute with depth of meaning.



Figure 2. A conceptual flower diagram illustrating the four core behavioral dimensions of resilience within the ZAT Framework—emotional regulation (Heart), cognitive flexibility (Brain), sense of purpose (Spirit), and social support/help-seeking (Coaching).

5.3. The Heart Dimension as the Core of Adaptive Intelligence & Thriving Mindset

Adaptive Intelligence & Thriving Mindset in the ZAT

Framework is solidly grounded in the heart dimension (emotional regulation, self-awareness, emotional mastery, empathy, inner strength). It is within this domain that youth learn to face pressure with composure, interpret their emotional landscape, and maintain grounded optimism during uncertainty.

As described in the ZAT foundational study, the Heart is the *affective core* that enables adaptive learning, not just as a reaction to adversity but as a proactive capacity for emotional flexibility and value-centered growth [1]. Unlike general emotional literacy, ZAT's Heart dimension integrates both internal resilience (e.g., regulation, recovery, motivation) and external engagement (e.g., empathy, compassion, belonging).

Other dimensions serve to strengthen this ability, but they are secondary, not primary:

- 1) The *Brain dimension* provides cognitive flexibility, executive function and metacognitive reflection-building blocks for re-conceptualizing challenges and devising adaptive responses.
- 2) The *Spirit dimension* matches emotional strength with a moral compass, grounding adaptability in values, principles and a purpose beyond one's individual interests.
- 3) The *Coaching dimension* ensures relational safety, mentoring, and feedback loops—conditions necessary for psychological safety and reflective growth.

Together, these four dimensions form an *integrated developmental system*, but for Adaptive Intelligence & Thriving Mindset, the *initiating and sustaining force is emotional mastery*—residing in the Heart.

This systems view, as articulated in ZAT's psychospiritual-developmental model, ensures that youth growth is not compartmentalized but activated through multidimensional interplay, beginning with emotional literacy and progressing toward purpose-driven adaptability [1].

5.4. Developmental Scaffolding through KSAH

The ZAT Framework utilizes the KSAH model—Knowledge, Skills, Attitudes, and Habits—as the central developmental framework to organize competencies, such as Adaptive Intelligence & Thriving Mindset. This model stakes out a commitment that growth is not abstract, nor linear, but rather observable, behaviorally anchored, and developmentally based.

- 1) *Knowledge* involves understanding the nature of change, emotional dynamics, and adaptive strategies. With increasing age, youths become clearer about the concept of around cognitive-emotional interaction and real-life adaptation.
- 2) *Skills* focus on applied abilities such as emotional regulation, flexible decision-making, reflective problem-solving, and situational coping—core expressions of adaptive behavior.
- 3) *Attitudes* reflect internal states such as optimism, self-efficacy, ethical intentionality, and the openness of mind to learn - ultimately the internal drivers of a thriving mindset.

- 4) *Habits* reflect repeated actions and self-regulation routines, such as journaling, goal setting, and constructive responding to feedback, appear to harden over time adaptive behavior.

This framework is used over three age bands (14-16, 17-19 and 20-24) and so it enables progressive development, and is sensitive to cognitive capacity and emotional complexity. Younger adolescents, for example, may start with basic recognition of their emotional state and guided regulation, whereas older youth are encouraged to self-regulate, reframe complex stressors, and facilitate others' adaptive growth.

Through the use of KSAH, ZAT connects theory with practice - turning thriving from an idea into something that can be taught and measured.

5.5. Ecological Systems & Learning Theories

Adaptive Intelligence & Thriving Mindset development is a process that is not happening inside the individual alone, but is the product of interaction with relational, institutional, and cultural systems. The ZAT Framework draws from ecological and learning theories and recognizes that the learner is situated within an active and socially embedded developmental approach.

Bronfenbrenner's Ecological Systems Theory serves as the structural lens, highlighting the manner in which youth navigate nested systems (i.e., family, peers, schools, mass media, and neighborhood), all of which impact emotional regulation, self concept, and coping responses [8]. Resilience, thriving occur when such systems function to provide safety, responsiveness, and opportunity.

Sociocultural learning theory, particularly Vygotsky's ZPD, emphasizes the role of guided interaction. When youth are challenged at their optimal stretch, supported by scaffolding, mentorship, and peer modeling, adaptive intelligence can grow best.

Revell's theory of self-efficacy underscores Volition and possibly guides our intuition that Volition would be a key to sustained engagement, especially under conditions of stress. Competencies related to emotion regulation and judgement are developed through feedback, observation, and practice [4].

Finally, Zimmerman's SRL model highlights the importance for adaptive progress of reflection, metacognition, and goal-setting. Youth who self-regulate their behavior, think about consequences and adapt their strategies are more likely to succeed in academic and psychosocial domains.

Borrowing on these theoretical roots, ZAT conceptualizes Adaptive Intelligence & Thriving Mindset as a nature by nurture product—co-created through intention both within and outside the person through intentional systems, social engagement and supportive structuring.

5.6. AI-Enhanced Formative Development

In order to sustain the growth of Adaptive Intelligence & Thriving Mindset, the ZAT Framework includes AI formative assessment for personalization, feedback, and behavioral insight. Instead of feature vectors, this method provides an adaptive incremental and continuous representative growth which is consistent with the learner's emotional, cognitive, and motivational status.

Inspired by Dynamic Assessment and Self-Regulated Learning, ZAT's AI system records real-time information--i.e., journaling patterns, linguistic emotional tone, help-seeking and frequency of reflection. They are not the canaries in the mine highlighting a deficiency but signs used to surface patterns, stimulate reflection, and to shape digital learning pathways [21, 23].

This self-regulation loop allows youth to self-monitor their change process, identify triggers and strengths and change behavior with help. They are in a position to respond with targeted support, creating agency without surveillance.

Importantly, the AI model that drives ZAT is grounded in its ethical and spiritual base — it honors learners' humanity by promoting mental well-being, supporting a sense of safety, and privileging internal over external motivation.

In other words: AI in ZAT is a minder - not to replace the human mentor, but to accelerate the shaping of character: the process of young people owning and exploring their adaptive journey in a way that is both reflexive and responsible.

5.7. Synthesis: Toward a New Developmental Paradigm

Adaptive Intelligence & Thriving Mindset marks a change in the way we think about youth development—from a focus on reactive resilience to proactive transformation. Instead of building up kids in order to enable them to “bounce back,” the ZAT Framework develops them to bounce forward—with purpose, clear ethical grounding, and emotional maturity.

This theme weaves several theoretical threads—of affective science, developmental psychology, learning theory, and systems thinking—into a coherent model that remains grounded in the Heart dimension, but goes hand-in-hand with the cognitive (Brain), ethical (Spirit), and relational (Coaching) dimensions. This is behaviorally scaffolded through the KSAH model that is also personalized through AI-generated feedback and framed in a relational-ecological structure that respects individual agency and environmental support.

In this exercise, ZAT does not compartmentalize emotional strength as a character, or resilience as an achieved state. Rather, it posits thriving as a lifetime developmental capacity—one that is visible, measurable and teachable. It reframes youth as not simply being ‘done to’ by hardship, but as powerful agents guiding a search for meaning, contribution and psychological development.

Here it is that from these practices educational/mentor systems can cultivate not just fitter individuals, but wiser, more adaptive local communities that grow men and women marked by faith, purpose, reflection, and growth.

Table 1. Summary of Theoretical Foundations Underpinning Adaptive Intelligence & Thriving Mindset in the ZAT Framework.

Section	Core Focus	Key Theorists / Models
6.1 Adaptive Intelligence	Cognitive flexibility, metacognition, and real-world adaptability as a meta-competency.	Sternberg, Bonanno, Steinberg
6.2 Thriving Mindset	Purpose-driven growth, future orientation, and agency rooted in self-efficacy.	Lerner, Benson, Bundick
6.3 ZAT's Four-Dimensional Architecture	Heart as the core driver of adaptive development, with support from Brain, Spirit, and Coaching.	Abdelmohiman & Salem (2025)
6.4 Developmental Scaffolding (KSAH)	Behaviorally scaffolded progression through Knowledge, Skills, Attitudes, and Habits.	Developmental Psychology, ZAT KSAH Model
6.5 Ecological Systems & Learning Theories	Development shaped by nested systems (Bronfenbrenner), social learning, and self-regulation.	Bronfenbrenner, Vygotsky, Bandura, Zimmerman
6.6 AI-Enhanced Formative Development	AI-powered formative feedback for real-time insight and personalized support.	Jefferies et al., Kapoor et al.
6.7 Synthesis: New Developmental Paradigm	Integration of emotion, cognition, ethics, and systems into a transformative developmental model.	Synthesized multi-theoretical integration

6. What It Means to Have Adaptive Thinking & Thriving Mindset Traits

To have Adaptive Thinking & a Thriving Mindset is to exhibit a collection of psychological and behavioral characteristics that equip young individuals to adapt and grow amidst ambiguity with integration, coherence, and future-oriented agency. These characteristics are manifestations of deeper developmental commitments to regulating emotions, commanding value and meaning-based alignment and maintaining a mindful, purposeful engagement in life.

Positive-psychology research describes thriving youth as not only resilient, but engagement in goals that are sustained, high levels of self-efficacy, and a forward-leaning direction toward contribution and meaning [5, 24]. This move from resilience as recovery to thriving as transformation necessitates the development of dispositions across emotional, cognitive and social domains.

Key traits associated with this competency include:

- 1) *Emotional flexibility*: the capacity to modify and manage emotional reactivity in stressful situations - a key aspect of adaptive functioning [7, 26].
- 2) *Cognitive openness*: Capacity for problem reframing and tolerance for the ambiguous, as well as openness to trying alternative solutions—essential for dynamic environments [27].
- 3) *Purpose-driven motivation*: A sense of direction grounded in personal values and long-term goals, that protects against disillusionment and sustains action [8, 12].
- 4) *Reflective capacity*: The ability to process experiences, change behaviour, and learn from feedback-key to autonomous development [4, 29].
- 5) *Social engagement and empathy*: The inclination to remain relationally connected, to seek for support, and to make positive contributions even when under stress [17].

These characteristics combine to allow young people to move forward, turning adversity into developmental propulsion. Not only do they indicate inner strength, but also a potential for generative action—based on ethical, moral or

relational insight, and emotional maturity.”

7. Results and Discussion - Learning Outcomes and Their Levels

7.1. Framing the Developmental Progression

The learning outcomes for *Adaptive Intelligence & Thriving Mindset* are designed using the *KSAH model*—Knowledge, Skills, Attitudes, and Habits—as a foundation to guide the development of competencies across adolescence and early adulthood [21, 29]. This is implemented with three age bands (14-16, 17-19, and 20-24) as there is data showing that emotional regulation, cognitive flexibility, and purpose in life develop in a continuous manner in this range of life [12, 27].

Each outcome is defined at three levels—*Basic*, *Proficient*, and *Advanced*—that correspond to competency-based frameworks of socio-emotional and character competence [10, 24]. It permits visible steps in scaffolding from very basic self-awareness to natural, autonomous constructions.

As emphasized in the ZAT Framework [1], the *Heart dimension* grounds this progression with adaptive attributes born out of emotional mastery, and facilitated by reflective, ethical, and relational domains.

7.2. Learning Outcomes Matrix

Developmental aspects of Adaptive Intelligence & Thriving Mindset are profiled as defined in the *KSAH model*—Knowledge, Skills, Attitudes, and Habits—and plotted on three age bands, 14-16, 17-19, and 20-24. Each result is articulated in three levels of mastery - Basic, Proficient, and Advanced - so you can see all students achieving growth across their unique path from awareness to autonomy.

Table 2 below presents the learning outcomes for each KSAH domain, (Basic, Proficient & Advanced) levels as foundational benchmarks for progression.

Table 2. Developmental Learning Outcomes for Adaptive Intelligence & Thriving Mindset.

KSAH Domain	Age Band	Basic	Proficient	Advanced
Knowledge	14-16	Understands the concept of adaptation and emotional regulation.	Describes different adaptive strategies across emotional and situational contexts.	Synthesizes adaptive knowledge to mentor others or teach coping models.
	17-19	Explains how adaptive thinking helps in navigating stress and change.	Compares strategies for resilience-building and evaluates their effectiveness.	Critiques existing models of adaptation and proposes enhancements.
	20-24	Analyzes complex scenarios requiring adaptive strategies and	Formulates adaptive frameworks applicable to complex, real-life	Applies adaptive intelligence in high-complexity leadership or

KSAH Do-main	Age Band	Basic	Proficient	Advanced
Skills	14-16	emotional flexibility. Demonstrates basic coping strategies and seeks guidance when facing stress.	uncertainty. Selects and applies coping strategies independently in emotionally demanding contexts.	innovation contexts. Coaches others in adaptive strategies and facilitates peer learning environments.
	17-19	Applies adaptive problem-solving and reframing techniques in peer or school settings.	Collaborates with peers in navigating uncertainty using structured adaptive practices.	Initiates adaptive problem-solving in new or culturally diverse environments.
	20-24	Leads adaptive responses and supports others in emotionally charged situations.	Designs adaptive responses tailored to high-stakes or team-based scenarios.	Integrates adaptive leadership in managing team dynamics and emotional climates.
Attitudes	14-16	Shows openness to feedback and willingness to adjust emotional responses.	Embraces uncertainty with curiosity and maintains composure under pressure.	Models emotional integrity and inspires confidence in others during uncertainty.
	17-19	Demonstrates confidence, ethical reasoning, and openness to complexity.	Balances confidence with humility in dynamic or ambiguous contexts.	Articulates a resilient worldview grounded in ethics, reflection, and purpose.
	20-24	Exhibits purpose-driven behavior and emotional maturity in high-stakes settings.	Demonstrates value-guided adaptability in ethical or socially complex settings.	Aligns long-term life choices with adaptive insight and social contribution.
Habits	14-16	Engages in journaling and reflection after challenging events.	Uses journaling and peer discussion to refine responses and improve behavior.	Leads reflective communities or groups that institutionalize adaptive learning.
	17-19	Maintains consistent reflection, peer dialogue, and goal adjustment routines.	Engages in regular goal revision informed by feedback and emotional insight.	Creates feedback systems for continuous self-improvement and group adaptation.
	20-24	Integrates reflective habits, feedback loops, and emotional awareness into leadership actions.	Maintains adaptive routines with minimal prompting across personal and academic contexts.	Sustains adaptive routines across roles and life domains with strategic intention.

7.3. Key Developmental Patterns Observed

The learning outcomes matrix reveals a distinct *developmental layering* in which *Adaptive Intelligence & Thriving Mindset* builds among adolescents and young adults.. Certainly, one of the more noticeable trends is the unswerving root of growth in the emotional realm. Emotional literacy is the starting point of development across all KSAHs: e.g., a nuanced understanding of one's physiological stress response, a habit of seeking support when needed, or practicing a guided reflection. This supports the research that has demonstrated that emotional regulation is a foundation for resilience and successful coping in the long run [7, 26].

However, as learners develop, they move from being concerned with simple or decontextualized aspects of reasoning to more complex cognitive tasks and considerations of the ethical implications of their thinking. Results point to higher needs for self-regulated decision-making, metacognitive adaptability, and values-driven reflection in the bands of

17-19, and 18-20. Through stages they develop from strategic users to framers and to mentors. This expansion indicates that the Brain and Spirit dimensions, whose adaptive ability is not only reactive, but also ethical and intellectually reflective [13, 31], is becoming increasingly important.

A third pattern concerns the transformation of *habits from external practice to internal discipline*. At earlier levels, practices such as journaling or asking for feedback are externally facilitated. The longer they last, the more ingrained—over time children are sustaining these adaptive practices on their own, being mindful of their thinking, and in some cases collectively institutionalizing the practice through peer support or leadership. This is consistent with Bandura's self-efficacy model and Zimmerman's focus on self-regulated learning [4, 34].

The key thing to note is that the peak levels of this competency are characterized not so much by self-control but by leadership and contribution. More advanced results consistently focus on aiding others—whether by coaching, demonstrating, or designing adaptive organizations. This represents

a shift from an individual level of resilience to community level thriving, which is also consistent with the PYD literature in which thriving is the highest point of anticipatory relational agency and contribution [9, 24].

At each level the heart remains the common thread. While the other 3 areas (Brain, Spirit, Coaching) extend the stage over which the competency develops, it is the Heart-emotionally connected purpose, reflective self-regulation, and motivational clarity—that feeds adaptive capacity. This validates ZAT's core premise that transformation is initiated on the inside and manifests outwardly in behavior, faith, and community [1].

7.4. Pedagogical and Coaching Implications

The developmental nature of *Adaptive Intelligence & Thriving Mindset*, as presented in the ZAT Framework, holds significant implications for educational and coaching practice. The matrix of outcomes suggests that growth in this competency is neither automatic nor uniform—it is a process that must be *intentionally scaffolded* through emotionally safe, cognitively stimulating, and ethically anchored learning environments.

At the earliest stages (14-16), the developmental emphasis falls on emotional literacy and guided self-awareness. This calls for pedagogies that center emotional safety, structured reflection, and support-seeking behaviors. Activities such as expressive journaling, storytelling, or emotion-mapping exercises serve as gateways to deeper emotional regulation and openness to feedback. These practices are essential to building a developmental foundation in the Heart domain, which—as the ZAT model asserts—is the primary engine of adaptive growth [1].

As learners move into the transitional stage (17-19), there is a noticeable shift toward autonomy and ethical engagement. Educators and coaches are encouraged to introduce *more open-ended, reflective, and challenge-based learning* that supports self-evaluation, peer collaboration, and the internalization of adaptive strategies. It is here that cognitive flexibility and purpose formation begin to take root, echoing research on adolescence as a peak window for identity exploration and value anchoring [13, 31].

In the 20-24 age band, coaching must shift toward *facilitation rather than direction*. Youth at this stage benefit most from mentoring that helps them link adaptive behavior to leadership, contribution, and long-term vision. Rather than being told what to do, they require environments that allow them to lead adaptive responses, mentor peers, and design systems that embody resilience in action. This transition aligns with the Positive Youth Development (PYD) emphasis on contribution as a hallmark of thriving [24].

Importantly, the matrix reinforces that formative assessment must be behavioral and developmental, not static or comparative. The KSAH structure allows for observable, age-sensitive indicators of growth that can be used in coach-

ing conversations, reflective self-checks, and AI-supported diagnostics. Tools like journaling patterns, emotional tone analysis, and peer feedback cycles help educators personalize developmental support [11, 23].

Above all, the competency's reliance on relational conditions means that *coaching is not supplemental—it is structural*. Trust, presence, and constructive feedback are not just supportive—they are the context within which growth becomes possible. The Coaching dimension of ZAT is not merely a delivery channel; it is the social architecture that transforms intention into transformation.

In practical terms, fostering *Adaptive Intelligence & Thriving Mindset* requires a shift in focus: from content to context, from instruction to interaction, and from transmission to co-construction. It is only through this shift that youth can move beyond coping and into the realm of conscious, values-driven adaptation.

8. Conclusion and Future Research Directions

Adaptive Intelligence & Thriving Mindset's developmental characteristics, articulated in the ZAT Framework, have serious implications for educational and coaching practice. The matrix of outcome implies that the development of the competency is not automatic or homogeneous, but that it must be deliberately scaffolded by emotionally safe developing, cognitively challenging, and ethically grounded learning environments.

In the early years (14—16) the focus for their development is strongly around emotional literacy and supported self-awareness. The course demands pedagogies grounded in emotional safety, tempered rumination and instrumental support seeking. And then activities like expressive journaling, storytelling, or emotion-mapping are doorways to more profound emotional regulation and receptivity to feedback. These are the necessary practices for establishing a developmental base in Heart, which - as the ZAT model claims - is the “engine” behind all adaptive growth [1].

At the transitional stage (17-19) there is more evident progression towards independence and responsible involvement. We conclude by suggesting to educators and coaches to implement more open-ended, reflective, challenge-based, and personalized learning that enables self-system-directed action empowerment, cooperation with others on goal attainment, and integration of adaptive strategies. Here is where cognitive flexibility and the process of purpose formation may start to lodge, paralleling our understanding of adolescence as a power (emergent window for identity emergence and value grounding [13, 31].

Coaching in the 20-24 age group will need to be more of a facilitation and less of a direction. It is this phase where young people are best served by finding mentors who connect adaptive behavior to the concepts of leadership, contribution, and a

long view of the future. What they need is not instruction in what to do but settings that enable them to innovate their responses, as well as to mentor fellow youth and architect new systems of learning and of living resilience in action. This change reflects the focus in Positive Youth Development (PYD) of contribution as a key element of thriving [24].

Crucially, the framework reminds us that formative assessment should be behavioral and developmental, not static or comparative. The KSAH model enables visible, age-dependent growth indicators that can be utilized in coaching dialogues, reflective self-rating, and AI-based diagnostics. Journaling patterns, emotional tone analysis, and peer feedback cycles are among the tools that make it easier for educators to tailor developmental support [11, 23].

Most of all, this competency's dependence on relational circumstances indicates that coaching isn't add-on—it's built-in. Trust, presence, and helpful feedback are not just supportive; they are the integrative field within which growth can occur. The Coaching layer of ZAT is not just the vehicle; it is the system of relationships that translate intention into change.

Below the neck, the development of Adaptive Intelligence & Thriving Mindset looks like this: move from content to context, from instruction to interaction and this is also a shift from transmission to co-construction. It's this change that the young need to make if they are to go from coping to consciously value-driven adaptation.

Abbreviations

ZAT	A Psycho-Developmental Diagnosis Framework for Youth Empowerment
KSAH model	(Knowledge, Skills, Attitudes, and Habits)
PYD	Positive Youth Development
SRL	Self-regulated Learning
the 5 Cs model	(Competence, Confidence, Connection, Character, Caring)
RSA	the Resilience Scale for Adolescents
RASP	the Resiliency Attitudes and Skills Profile
ZPD	Vygotsky's Zone of Proximal Development

Conflicts of Interest

The authors declare no conflicts of interest.

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