

# Generative Artificial Intelligence in Professional Development: An Integrative Review of Its Influence on Coaching, Mentoring, and Advising Across Industries

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**Abstract:** Generative artificial intelligence (AI) is rapidly changing how professionals receive support for learning, growth, and performance. This integrative systematic literature review examines how generative AI influences coaching, mentoring, advising, and related developmental roles across industries. Drawing on recent peer-reviewed research, the review identifies current uses of generative AI, its benefits, and the challenges that accompany its adoption. The analysis also clarifies key differences and similarities among coaching, mentoring, and advising to explain how AI interacts with each role. Findings show that generative AI can expand access to guidance, personalize feedback, reduce routine workload, strengthen reflection, and support self-regulated learning. At the same time, risks such as over-reliance, reduced human connection, ethical concerns, privacy issues, and limited ability to navigate complex interpersonal situations remain significant. Based on these themes, the paper proposes an original framework describing how human support and generative AI can work together in future professional development models. Recommendations for practice and future research are also provided.

**Keywords:** Generative Artificial Intelligence, Coaching, Mentoring, Advising, Professional Development, Workplace Learning, Self-regulated Learning, Artificial Intelligence in Organizations

## Introduction

### *Growing Influence of Generative AI in Professional Development*

Generative artificial intelligence is becoming a widely used tool for learning, decision-making, and professional growth across many fields. Research shows that AI-supported tools help learners reflect, manage complex tasks, and strengthen self-regulated learning, which are central components of developmental relationships such as coaching and mentoring (Zimmerman, 2002; Nicol & Macfarlane-Dick, 2006; Hadwin et al., 2017). These skills are essential for helping individuals build independence, solve problems, and monitor their own progress.

Generative AI also supports practices linked to long-established learning theories. Cognitive apprenticeship, situated learning, and reflective practice all highlight the importance of guided feedback and structured modeling, and generative AI can provide many of these functions at scale (Collins et al., 1989; Lave & Wenger, 1991; Schön, 1987). AI tools can explain reasoning, generate examples, and help users compare alternative strategies, which mirrors the types of support human mentors and coaches typically offer.

Research from education and workplace learning shows that generative AI expands access to timely guidance by providing support whenever learners need it, even when

human experts are unavailable (Barbieri & Nguyen, 2025; Hashem et al., 2024; Klamma et al., 2020). These studies demonstrate that generative AI is becoming part of the systems that professionals rely on to develop new skills and navigate complex tasks. As a result, AI is beginning to influence how developmental support is structured across industries.

### ***Current Momentum and Emerging Concerns***

While generative AI provides meaningful benefits, researchers across multiple fields describe important concerns about its limitations. AI systems lack emotional understanding, contextual sensitivity, and interpersonal awareness, which are central to many mentoring and coaching relationships (Jacobs et al., 2021; Terblanche et al., 2024; Horvath, 2024). These limitations affect how well AI can handle sensitive conversations or support learners who are struggling with stress, uncertainty, or identity development.

Scholars also warn that users may rely too heavily on AI-generated suggestions or interpret AI outputs as more accurate than they actually are (Luger & Sellen, 2016; Tankelevitch et al., 2023; Zamfirescu-Pereira et al., 2023). These risks are especially concerning in developmental contexts, where learners need to practice critical thinking and judgment. Over-reliance on AI may limit these opportunities.

Other concerns appear in research on education, health professions, and organizational development. Studies identify risks related to privacy, fairness, accuracy, and the loss of human connection in coaching and mentoring relationships when AI tools are not used responsibly (Kasneci et al., 2023; Karan & Angadi, 2024; Oswick, 2024). Research in coaching and mentoring also shows that trust, empathy, shared experience, and interpersonal communication remain essential for effective developmental relationships (de Haan & Nilsson, 2023; Mullen, 1994; Kalbfleisch & Davies, 1993). These findings highlight the need to balance AI-assisted support with intentional human involvement.

### ***Importance of Clarifying Coaching, Mentoring, and Advising***

Understanding how generative AI influences developmental practices requires clear definitions of coaching, mentoring, and advising. Research shows that coaching focuses on skill development, structured reflection, and performance improvement, mentoring supports long-term growth and identity formation, and advising emphasizes information sharing and decision support (Clutterbuck, 1991; Ragins & Kram, 2007; Audet & Couteret, 2012). Although these roles share common goals, each involves different relational expectations and forms of guidance.

Studies in education, entrepreneurship, health professions, and leadership development highlight the importance of these distinctions. Coaches often work on specific skills or goals, mentors support broader personal and professional development, and advisors help individuals interpret requirements or navigate systems (Hudson, 2016; Ambrosetti & Dekkers, 2010; Sullivan, 2000; Lovell, 2018). Because of these differences, generative AI may support certain tasks, such as generating feedback or presenting alternative strategies, but it cannot replace the relational components that depend on trust, empathy, and shared experience (Horvath, 2024; Barbieri & Nguyen, 2025; Williams et al., 2016).

Clarifying these roles helps determine where AI can appropriately supplement human guidance and where human mentors, coaches, and advisors remain essential. This clarity also supports organizations in deciding how generative AI should be integrated into professional development systems.

### ***Purpose of the Review***

This integrative systematic review examines how generative AI influences coaching, mentoring, advising, and related developmental roles across a wide range of industries. Research across learning sciences, teacher education, organizational development, entrepreneurship, and human AI interaction shows that effective developmental relationships depend on communication quality, psychological safety, reflective practice, and contextually informed feedback (Schön, 1987; de Haan & Nilsson, 2023; Amershi et al., 2019). These factors shape how learners grow and how developmental support is delivered.

Synthesizing research from these fields makes it possible to identify shared patterns in how generative AI is being used, where it provides value, and where limitations create challenges. Findings from mentoring, coaching, and AI research contribute to the development of an original framework that explains how AI capabilities and human expertise can work together to support learning and performance.

The goal of this review is to provide meaningful guidance for organizations that plan to adopt generative AI in developmental roles. This includes recommendations for responsible integration and strategies that align AI tools with the core purposes of coaching, mentoring, advising, and professional learning.

### **Background and Theoretical Concepts**

#### ***Understanding Developmental Support Roles***

Coaching, mentoring, and advising each contribute to how people learn and develop across many professional settings. Authors across education, business, and organizational studies describe these roles as central to helping individuals grow, strengthen skills, and navigate unfamiliar challenges (Clutterbuck, 1991; Ragins & Kram, 2007; Sullivan, 2000). Although these practices share the goal of supporting development, each relies on a different kind of relationship and structure. Recognizing these differences is important when considering how generative artificial intelligence may influence or extend developmental support.

Several lines of scholarship emphasize that effective developmental support depends on reflection, guidance, communication, and opportunities to practice new ways of thinking. These ideas are rooted in learning theories such as cognitive apprenticeship, situated learning, and reflective practice, which describe how people learn through modeling, dialogue, and guided experience (Collins et al., 1989; Lave & Wenger, 1991; Schön, 1987). These foundations help explain why coaching and mentoring have strong impacts on professional growth and why generative AI tools, when used appropriately, might support some of the cognitive processes involved.

#### ***Defining Coaching***

Coaching is often described as a structured form of guidance that helps individuals clarify goals, analyze performance, and pursue improvement. Work across medical education, human resource development, and leadership training emphasizes that coaching relies on active dialogue, targeted feedback, and clear strategies that help individuals move toward specific objectives (Lovell, 2018; Landreville et al., 2019; Adele et al., 2022). Coaches draw attention to patterns, encourage reflection, and support decision-making in ways that help learners develop stronger professional habits.

A substantial body of writing connects coaching to the development of metacognitive skills. Learners who work with coaches often become better at monitoring their progress, evaluating strategies, and adjusting their approaches to complex tasks (Zimmerman, 2002; Nicol & Macfarlane-Dick, 2006; Schunk & Mullen, 2013). Because many of these activities involve structured guidance and reflective questioning, they align with the types

of assistance that generative AI tools can sometimes provide, such as helping users think through alternatives or evaluate choices (Terblanche et al., 2024; Gmeiner et al., 2023).

### ***Defining Mentoring***

Mentoring involves a more relational and long-term form of support that extends beyond immediate performance. Many authors describe mentoring as a process that helps individuals understand professional norms, develop confidence, and form their identities within a field (Ragins & Kram, 2007; Mullen, 1994; Hudson, 2016). Mentors often share personal experiences, provide encouragement, and help mentees view challenges through a broader lens. These conversations frequently involve trust, empathy, and emotional support.

Mentoring is also closely connected to reflective development. Scholars in education and organizational learning point out that mentoring relationships help individuals make sense of their experiences and interpret them in ways that strengthen growth and self-awareness (Schön, 1987; Moon, 2000; Bipath, 2022). Because mentoring depends heavily on interpersonal understanding and shared experience, it raises questions about where generative AI can play a supportive role and where human connection remains essential. Several authors note that while AI may support analytical tasks, deeper relational qualities cannot be automated (Williams et al., 2016; Horvath, 2024).

### ***Defining Advising***

Advising focuses on helping individuals make informed decisions by providing accurate information, clarifying pathways, and interpreting requirements. This type of support is widely used in higher education, workforce development, and work-integrated learning environments. Advisors help learners understand institutional systems, compare choices, and determine steps that align with their goals (Wenham et al., 2019; Jackson, 2015; Smith-Ruig, 2014). Because advising often relies on clear explanations and structured options, it is more compatible with some of the strengths of generative AI. Several authors highlight the potential for AI tools to assist with scanning requirements, summarizing information, or providing decision support when designed and monitored carefully (Kasneji et al., 2023; Ayanwale et al., 2024; Kong et al., 2024). At the same time, work across educational technology and ethics emphasizes that automated advising systems must address concerns about fairness, accuracy, and bias in algorithmic guidance (Karan & Angadi, 2024; Oswick, 2024).

### ***Overlapping Features Across Coaching, Mentoring, and Advising***

Although coaching, mentoring, and advising differ in their purposes and structures, authors across these fields identify several shared elements. All three practices involve communication, feedback, guidance, and attention to the learner's needs (Clutterbuck, 1991; Ragins & Kram, 2007; Lovell, 2018). Each role also contributes to confidence building, skill development, and personal or professional decision-making.

These overlapping components relate closely to areas where generative AI has shown early promise. AI-supported tools can pose reflective questions, generate feedback, offer examples, and present alternative strategies, all of which connect to core elements of developmental support (Barbieri & Nguyen, 2025; Park et al., 2024; Dai et al., 2023). Understanding these similarities helps clarify where AI might supplement human guidance and where additional care is needed.

### ***Key Differences That Shape AI Integration***

While overlaps exist, the distinctions among coaching, mentoring, and advising influence where AI fits and where it does not. Coaching centers on performance and goal-directed

work, mentoring supports long-term professional identity development, and advising emphasizes information and decision-making (Hudson, 2016; Sullivan, 2000; Ragins & Kram, 2007). These differences shape the emotional, relational, and informational needs within each role.

Work across mentoring theory and human-computer interaction highlights that mentoring requires emotional awareness, empathy, and shared experience, which automated systems are not equipped to provide (Mullen, 1994; Kalbfleisch & Davies, 1993; Terblanche et al., 2024). Coaching and advising, by contrast, contain more structured tasks that may benefit from AI support, such as providing feedback, offering strategy suggestions, or helping individuals compare choices (Lovell, 2018; Adele et al., 2022; Kasneci et al., 2023). These differences illustrate why integrating generative AI requires a nuanced understanding of the role being supported.

### ***Why These Distinctions Matter for Generative AI***

Clear distinctions among coaching, mentoring, and advising help explain how generative AI might influence each role differently. Evidence across fields indicates that developmental support relies on communication quality, psychological safety, and context-specific feedback, and AI tools may affect these components in distinct ways depending on the role (Schön, 1987; Amershi et al., 2019). Understanding these dynamics helps determine where AI can responsibly contribute.

Generative AI can reinforce certain aspects of developmental work, particularly those involving organization of ideas, feedback, or structured reflection (Barbieri & Nguyen, 2025; Kong et al., 2024; Park et al., 2024). However, mentoring depends heavily on relational qualities that remain deeply human, including trust, empathy, and shared understanding (Williams et al., 2016; Hudson, 2016; Mullen, 1994). Recognizing these distinctions creates a foundation for integrating AI into developmental systems in ways that enhance, rather than diminish, human relationships.

## **Methods**

### ***Review Design***

This study used an integrative systematic literature review approach to examine how generative artificial intelligence influences coaching, mentoring, advising, and related developmental roles across professional sectors. An integrative review allows researchers to combine theoretical, empirical, and applied studies from multiple disciplines, which is especially useful for topics that develop quickly and draw from several fields at once. This approach supports a broad understanding of how generative AI is shaping developmental support in education, business, health professions, and organizational learning (Whittemore & Knafl, 2005; Torraco, 2016).

### ***Data Sources and Corpus***

The review was based on a large body of foundational and recent literature related to learning sciences, coaching and mentoring, professional development, artificial intelligence, and human-computer interaction. The literature included peer-reviewed journal articles, scholarly books, academic conference proceedings, and systematic reviews. The sources represented multiple fields where developmental support is studied, including education, organizational development, psychology, entrepreneurship, and technology-enhanced learning. This diverse set of references made it possible to examine generative AI from several angles, including its impact on feedback, reflection, self-regulation, workplace learning, and the interpersonal dimensions of developmental relationships. Drawing from a

wide cross-section of scholarship supported deeper synthesis and helped identify patterns that appear across different professional contexts.

### ***Inclusion Criteria***

Sources were included if they met the following criteria:

1. Addressed coaching, mentoring, advising, professional learning, or related developmental roles.
2. Examined artificial intelligence, generative AI, intelligent tutoring systems, or human-computer interaction relevant to human development.
3. Offered theoretical or empirical insights into learning, feedback, reflection, self-regulation, or professional growth.
4. Were published through scholarly or reputable academic outlets.

Sources were excluded if they focused only on technical aspects of AI with no connection to learning or human development, or if they lacked scholarly grounding.

### ***Screening and Selection Process***

Each source was reviewed for relevance to the core topics of developmental support and generative AI. References were sorted into categories based on their main contributions, such as coaching theory, mentoring relationships, advising practices, learning sciences, AI-generated feedback, ethical issues in AI, and human-AI interaction. Some sources were placed in more than one category when they addressed multiple themes.

This structured selection process ensured that the final set of literature reflected the range of conversations occurring across fields and supported meaningful synthesis.

### ***Thematic Analysis***

A thematic synthesis approach was used to analyze the literature. This involved reading across sources, identifying recurring concepts, comparing insights across contexts, and grouping findings into broader themes. Guidance from well-established thematic analysis methods helped organize concepts and identify patterns across the diverse body of work (Braun & Clarke, 2006; Nowell et al., 2017).

Themes were grouped into the following areas:

1. Foundations of professional learning and development.
2. Distinctions among coaching, mentoring, advising, and related roles.
3. AI-supported feedback, reflection, and decision-making.
4. Human AI interaction and trust in AI systems.
5. Ethical and relational limitations of generative AI.
6. Applications of AI in education, business, health professions, and entrepreneurship.
7. Opportunities for integrating generative AI into developmental systems.

These thematic groups formed the foundation for the findings presented in later sections.

### ***Ensuring Rigor and Transparency***

To strengthen rigor, the analysis followed a systematic process for organizing, coding, and comparing sources. References were reviewed multiple times to ensure accurate interpretation. Themes were refined through iterative comparison of ideas, and conflicting or contrasting findings were documented and examined. This process supported transparency and helped ensure that the review captured the complexity of generative AI's influence on developmental roles.

## Literature Review

### *Overview of Developmental Support in Professional Settings*

Developmental support roles such as coaching, mentoring, and advising have been widely examined across education, organizational development, health professions, and entrepreneurship. These roles help individuals strengthen skills, navigate uncertainty, and develop professional judgment through dialogue, feedback, reflection, and guided practice (Clutterbuck, 1991; Ragins & Kram, 2007; Sullivan, 2000). Authors in the learning sciences emphasize that growth happens through cycles of modeling, practice, evaluation, and refinement, which are supported by consistent communication between the learner and a knowledgeable guide (Collins et al., 1989; Lave & Wenger, 1991; Schön, 1987). These principles appear across contexts ranging from pre-service teacher education to executive coaching and entrepreneurial development.

Work across these areas highlights the central role of reflective practice in developmental relationships. Reflective processes help learners interpret experiences, recognize patterns, and make informed adjustments to their behavior (Schön, 1987; Moon, 2000; Baumer et al., 2014). Mentoring and coaching encourage this kind of thinking by helping individuals articulate their reasoning and evaluate their progress (Hudson, 2016; Ambrosetti & Dekkers, 2010). Because these roles depend on structured conversations and guided reflection, they offer a strong foundation for understanding how generative artificial intelligence might provide complementary support.

### *Coaching as a Structured Developmental Practice*

Coaching research spans leadership development, health professions education, business management, and performance psychology. Across these fields, coaching is characterized by structured conversations focused on goal setting, performance analysis, and skill development (Lovell, 2018; Landreville et al., 2019). Coaches help individuals clarify expectations, explore strategies, and identify actions that support continuous improvement.

Several authors connect coaching to metacognitive development and self-regulation. Through targeted feedback and reflective questioning, coaches help learners monitor their thinking, evaluate their decisions, and refine their approaches to complex tasks (Zimmerman, 2002; Nicol & Macfarlane-Dick, 2006; Schunk & Mullen, 2013). Coaching also supports confidence and resilience, especially in environments where individuals encounter new responsibilities or shifting demands (Adele et al., 2022; Bozer et al., 2022). Studies in leadership and organizational development suggest that coaching enhances problem solving, communication, and adaptability across roles and sectors (Kilburg, 1996; Peterson & Millier, 2005).

In recent years, digital coaching and AI-assisted coaching have gained attention. Authors note that AI tools can help deliver structured feedback, prompt reflection, and support goal tracking, although they cannot replicate the relational dynamics of human coaching (Terblanche et al., 2022; Terblanche et al., 2024). This shift in practice underscores the importance of understanding both the capabilities and limitations of AI-supported coaching systems.

### *Mentoring as a Relational and Long-Term Support Process*

Mentoring literature spans several decades and highlights mentoring as a relationship focused on long-term growth, identity formation, and career development. Mentors provide emotional support, share experiences, and help individuals understand the social and cultural expectations of their profession (Ragins & Kram, 2007; Mullen, 1994; Hudson, 2016).

These relationships often include trust building, role modeling, and ongoing communication, which contribute to deeper professional and personal learning.

Studies in teacher education describe mentoring as a key factor in supporting pre-service teachers during school placements, helping them navigate classroom realities, develop instructional routines, and manage stress associated with early career challenges (Ambrosetti, 2010; Kang, 2021; Bipath, 2022). Mentoring also appears in entrepreneurship, where experienced professionals guide early-stage founders in making strategic decisions, managing uncertainty, and avoiding common pitfalls (Sullivan, 2000; Waters et al., 2002; Cope & Watts, 2000).

The literature consistently highlights mentoring's relational complexity. Emotional support, shared understanding, and identity development play a central role in mentoring relationships, which raises questions about how generative AI might contribute to this type of support (Williams et al., 2016; Horvath, 2024). While AI may assist with analytical or informational tasks, the interpersonal qualities central to mentoring remain uniquely human.

### ***Advising as Decision Support and Information Interpretation***

Advising is commonly found in higher education, workforce development, and work-integrated learning environments. Advisors help individuals interpret requirements, evaluate options, and make informed decisions about next steps in academic or professional pathways (Wenham et al., 2019; Jackson, 2015). Unlike mentoring, which spans longer periods, advising tends to be more task-focused and information-oriented.

Literature on advising emphasizes the importance of accurate information, clear communication, and contextual understanding. Advisors help learners understand systems, compare choices, and identify realistic strategies for success (Loughland et al., 2023; Smith-Ruig, 2014). Because advising relies heavily on information processing and explanation, several authors note that artificial intelligence may play a role in assisting with routine decision support tasks (Kasneci et al., 2023; Ayanwale et al., 2024).

At the same time, concerns arise regarding fairness, accuracy, and transparency in AI-generated advice. Scholarship in technology-enhanced learning and educational ethics stresses that automated advising systems must address issues such as biased datasets, oversimplified recommendations, and limited awareness of contextual variables (Karan & Angadi, 2024; Oswick, 2024). These considerations highlight the need for responsible integration of AI into advising roles.

### ***Learning Sciences Foundations Relevant to AI-Assisted Support***

A broad range of learning sciences theories explains why coaching, mentoring, and advising are effective. Many of these theories focus on how learners build understanding, regulate their thinking, and make sense of complex tasks. Foundational work on metacognition emphasizes the importance of monitoring, evaluating, and adjusting one's thinking to achieve goals (Flavell, 1979; Winne & Azevedo, 2014). These processes are central to coaching and mentoring conversations that guide learners to reflect on their performance.

Self-regulated learning frameworks describe how learners plan, observe, and adapt their strategies over time. These frameworks align closely with the kinds of reflective prompting and feedback that AI tools can provide when designed effectively (Zimmerman, 2002; Nicol & Macfarlane-Dick, 2006; Panadero, 2017). Problem-based learning, cognitive apprenticeship, and situated learning all highlight the value of modeling, guided practice, and scaffolding, which inform how developmental relationships support learning (Hmelo-Silver, 2004; Collins et al., 1989; Lave & Wenger, 1991).

These theoretical foundations not only help explain how human-guided developmental roles function but also offer insight into how generative AI might support

certain components of learning, such as generating feedback, prompting reflection, or modeling reasoning.

### ***Artificial Intelligence and Human Learning***

The relationship between artificial intelligence and human learning has evolved significantly over the past several decades. Early work in intelligent tutoring systems demonstrated how AI could support learners through problem-solving guidance, adaptive feedback, and structured practice (VanLehn, 2006; Koedinger & Corbett, 2006; Acker et al., 1991). These systems provided personalized instruction in well-defined domains, such as mathematics and physics, contributing to deeper understanding of how automated support can enhance learning.

More recent advancements in large language models have expanded the possibilities for AI-supported learning. Generative AI systems can produce explanations, examples, and reflective prompts that resemble human tutoring interactions more closely than earlier systems (Dai et al., 2023; Tack & Piech, 2022; Park et al., 2024). Research in human AI interaction highlights that effective AI support depends on trust, clarity, transparency, and appropriate alignment between user expectations and system capabilities (Amershi et al., 2019; Jacobs et al., 2021).

While these capabilities offer promising opportunities to supplement coaching, mentoring, and advising, the literature also illustrates clear concerns about accuracy, bias, and the risk of over-reliance on automated guidance (Luger & Sellen, 2016; Zamfirescu-Pereira et al., 2023; Kasneci et al., 2023). Understanding these limitations is important for evaluating how generative AI can responsibly support human learning and development.

### ***Generative AI Across Professional Sectors***

Generative AI is being adopted in education, healthcare, business, entrepreneurship, and organizational development. In education, authors describe how AI tools may relieve teacher workload, support reflective practice, and provide students with targeted feedback when used in responsible and collaborative ways (Hashem et al., 2024; Kong et al., 2024; Ayanwale et al., 2024). In business and leadership contexts, generative AI is being explored as a tool for strategy development, creative thinking, and decision support (Kanitz et al., 2023; Oswick, 2024; Sarkar, 2024).

Entrepreneurship researchers describe how automated tools support opportunity recognition, iteration, and feedback-seeking, which complement traditional mentoring and coaching available to new founders (Cope & Watts, 2000; Mian et al., 2016; Zinger et al., 1996). In healthcare, AI-assisted decision support systems demonstrate how automated guidance can augment expertise in time-constrained environments (Jacobs et al., 2021; Burgess et al., 2023). Across these fields, authors emphasize both opportunities and risks. Generative AI may expand access to guidance, strengthen reflective practice, and support problem-solving, but it also introduces concerns about transparency, fairness, and the preservation of meaningful human relationships (Kasneci et al., 2023; Karan & Angadi, 2024).

### ***Implications for Coaching, Mentoring, and Advising***

The literature across disciplines suggests that generative AI has the potential to support specific components of coaching, mentoring, and advising. AI tools may supplement tasks involving feedback, reflection, organization of information, or consideration of alternatives. At the same time, interpersonal, emotional, and identity-based aspects of developmental relationships remain grounded in human experience and judgment. Because these developmental roles vary in purpose and relational depth, generative AI will likely contribute

differently to each one. Coaching and advising may benefit from structured, task-oriented support provided by AI, while mentoring requires deeper relational engagement that AI cannot replicate. These insights form the basis for understanding how generative AI may influence developmental support across industries.

## **Findings and Results**

### ***Overview of Emergent Themes***

The thematic analysis revealed several major patterns in how generative artificial intelligence is influencing coaching, mentoring, advising, and related developmental support roles. These patterns appeared across education, organizational development, entrepreneurship, and health professions. The themes centered on feedback and reflection, support for self-regulation, cognitive and emotional scaffolding, information processing, ethical risks, trust in AI systems, and the shifting boundaries between human expertise and automated assistance. Together, these themes illustrate how generative AI is changing developmental support across sectors.

### ***Theme 1. Generative AI Strengthens Access to Feedback and Reflection***

Generative artificial intelligence is significantly expanding access to feedback and reflective support. Across education and professional development, authors describe how AI tools generate explanations, clarify reasoning, and provide formative guidance that helps learners strengthen their thinking (Tack & Piech, 2022; Dai et al., 2023; Park et al., 2024). This type of feedback aligns closely with the reflective conversations found in coaching and mentoring, where learners analyze decisions, identify strategies, and refine their approaches. Work in learning sciences reinforces the importance of timely feedback for improving self-regulation and metacognitive awareness (Nicol & Macfarlane-Dick, 2006; Zimmerman, 2002; Hmelo-Silver, 2004).

Across settings, generative AI was especially effective when used to prompt reflection rather than simply provide answers. Several authors highlight that reflective questioning strengthens learning by helping users explain their reasoning and evaluate alternative options (Baumer et al., 2014; Winne & Azevedo, 2014; Panadero, 2017). These capabilities represent areas where generative AI can supplement coaching and advising by offering immediate support that encourages deeper thinking. At the same time, authors note that reflection guided by AI may lack contextual nuance, emotional insight, or personal understanding, which remain central to human mentoring (Hudson, 2016; Ragins & Kram, 2007).

### ***Theme 2. AI-Supported Guidance Enhances Self-Regulation and Goal Management***

A second theme showed that AI-supported systems contribute to self-regulation by helping individuals plan tasks, monitor progress, and adjust strategies. Studies in education and workplace learning found that generative AI assists users in identifying next steps, organizing information, and clarifying goals (Ng, 2016; Kong & Liu, 2023; Rodriguez-Gomez et al., 2024). These capabilities align with the structure of coaching conversations, where individuals explore options, consider tradeoffs, and commit to actions that support long-term growth (Kilburg, 1996; Peterson & Millier, 2005).

Self-regulation research highlights that learners benefit from consistent prompts, analysis of their performance, and opportunities to revisit their reasoning (Zimmerman, 2002; Winne & Azevedo, 2014). Generative AI tools help extend this support by providing round-the-clock guidance and consistent structure. Findings show that these tools are particularly useful for novices and individuals working in unfamiliar environments, where

uncertainty and cognitive load are high (Jacobs et al., 2021; Burgess et al., 2023). Although AI can assist with planning and monitoring, authors emphasize that human support remains essential for managing emotional responses, identity formation, and long-term relational development, which are key components of mentoring (Ambrosetti, 2010; Williams et al., 2016).

### ***Theme 3. Generative AI Assists with Cognitive Load and Information Interpretation***

Several studies documented how generative AI reduces cognitive load by summarizing information, organizing complex content, and clarifying confusing or contradictory material. This type of assistance appears across fields, including health professions, education, entrepreneurship, and knowledge work (Burgess et al., 2023; Noy & Zhang, 2023; Kanitz et al., 2023). Learners and professionals benefit from AI systems that break down difficult concepts, propose alternative strategies, and identify relevant patterns in large amounts of data.

These findings relate directly to advising, where professionals help individuals make informed decisions by interpreting information and comparing options. Generative AI supports this function by offering explanations, visualizations, and scenario-based reasoning that help users understand choices and consequences (Kasneji et al., 2023; Ayanwale et al., 2024). While AI tools enhance efficiency, authors caution that interpretation requires contextual awareness, which AI may not reliably capture. As a result, users must verify AI suggestions and ensure alignment with personal, professional, and ethical considerations (Oswick, 2024; Karan & Angadi, 2024).

### ***Theme 4. AI-Supported Interaction Resembles Certain Elements of Coaching and Tutoring***

Across learning sciences and human-computer interaction, authors describe how AI-supported dialogue can resemble components of coaching, tutoring, and structured guidance. Intelligent tutoring systems have long demonstrated how AI can provide stepwise feedback, detect errors, and guide learners through problem-solving processes (VanLehn, 2006; Koedinger & Corbett, 2006; Acker et al., 1991). Modern generative AI systems build on these foundations by producing context-aware explanations and questions that support reflective practice (Park et al., 2024; Tack & Piech, 2022).

These approaches share similarities with coaching strategies that involve modeling thinking, prompting analysis, and helping learners identify next steps (Schunk & Mullen, 2013; Collins et al., 1989). Findings across sectors indicate that AI-supported tools work best when they complement rather than replace human guidance. Many authors suggest that AI may become a first-line support system for early-stage problem solving, while human coaches and mentors remain essential for deeper developmental conversations (Terblanche et al., 2022; Terblanche et al., 2024; Kanitz et al., 2023).

### ***Theme 5. Human Relationship, Emotion, and Identity Remain Beyond the Capabilities of AI***

A consistent theme across the literature emphasizes that mentoring and many aspects of coaching are inherently relational. Emotional attunement, empathy, shared experience, and mutual trust cannot be fully replicated through automated systems (Ragins & Kram, 2007; Mullen, 1994; Greenberg & Paivio, 1997). Mentors help individuals navigate uncertainty, develop identity, build confidence, and manage interpersonal challenges. These interpersonal and emotional processes are central to mentoring and are not present in AI-generated support.

Authors in psychology, education, and human-computer interaction argue that generative AI lacks lived experience, ethical judgment, and the relational nuance needed to guide learners through sensitive or identity-shaping decisions (Williams et al., 2016; Hashem et al., 2024; Köbis & Mehner, 2021). Because of these limitations, AI is more likely to supplement than replace human mentoring. The findings reinforce that hybrid models blend the strengths of both human and automated support.

***Theme 6. Concerns About Bias, Accuracy, and Transparency Limit Full Integration of Generative AI***

Across all fields represented in the literature, authors raise concerns about fairness, accuracy, and reliability in generative AI systems. These risks appear in educational tools, healthcare decision support systems, workplace applications, and business contexts (Luger & Sellen, 2016; Jacobs et al., 2021; Karan & Angadi, 2024). Generative AI may produce incorrect information, reinforce biased patterns, or oversimplify complex situations. These risks pose challenges for advising, coaching, and mentoring, where accuracy and contextual sensitivity are essential.

Scholars in AI ethics emphasize the importance of transparency, explainability, and human oversight when AI tools provide guidance (Amershi et al., 2019; Nam et al., 2022). Users need to understand how AI systems generate suggestions and what limitations affect the output. Without clear safeguards, over-reliance on generative AI may lead to poor decisions, inequitable recommendations, or a misunderstanding of professional standards.

***Theme 7. Opportunities for Integrated Human AI Developmental Support Models***

The final theme identified opportunities to integrate generative AI into coaching, mentoring, and advising in ways that preserve human strengths while enhancing efficiency and access. Several authors describe how hybrid models can combine automated reflection prompts, structured feedback, and decision support with human expertise, emotional insight, and contextual understanding (Terblanche et al., 2024; Kanitz et al., 2023; Ayanwale et al., 2024). These models may increase capacity, reduce workload, and improve response time in fast-paced or resource-constrained environments.

Generative AI can also support professional learning communities by helping individuals prepare for coaching sessions, analyze feedback, and document progress. These tools extend opportunities for practice, improve consistency of support, and provide guidance between human interactions (Baumer et al., 2014; Panadero, 2017; Kong et al., 2024). Together, these findings point toward partnership models where generative AI acts as a developmental companion rather than a replacement for human expertise.

**Discussion**

***Interpreting the Influence of Generative AI on Developmental Support Roles***

The findings suggest that generative artificial intelligence is reshaping how coaching, mentoring, advising, and related developmental support operate across professional sectors. The literature shows that AI tools contribute meaningfully to reflection, decision-making, and self-regulation, which are central components of developmental support. These capabilities help extend access to guidance by offering immediate feedback, clarifying reasoning, and reducing cognitive load during complex tasks (Nicol & Macfarlane-Dick, 2006; Tack & Piech, 2022; Dai et al., 2023). Across education, business, and health professions, AI-assisted feedback appears to strengthen early-stage learning and help individuals become more prepared for conversations with human coaches and mentors.

The analysis also indicates that AI's strengths align more closely with coaching and advising than mentoring. Coaching and advising often involve goal management, information processing, strategy evaluation, and performance analysis. These functions map well onto the types of support that generative AI systems can provide through structured questioning, suggestion generation, and scenario exploration (Kasneci et al., 2023; Kanitz et al., 2023; Kong & Liu, 2023). By contrast, mentoring includes emotional support, identity development, and trust-based relationships, which remain uniquely human domains (Ragins & Kram, 2007; Williams et al., 2016). This distinction underscores the need for careful integration that respects the relational core of mentoring while allowing AI to support the informational and cognitive aspects of learning.

### ***The Benefits of Generative AI for Learning and Professional Development***

One of the most consistent insights is that generative AI improves access to guidance in situations where individuals lack immediate support. Learners and professionals can receive detailed explanations and reflective prompts at any time, which helps strengthen reasoning, awareness, and confidence (Park et al., 2024; Dai et al., 2023). These tools also support iterative practice by helping users break down tasks, revisit misunderstandings, and evaluate next steps. This type of cognitive scaffolding is grounded in long-standing learning theories that highlight the importance of modeling and guided practice (Collins et al., 1989; Hmelo-Silver, 2004; Winne & Azevedo, 2014).

Generative AI also expands capacity for organizations. In settings such as teacher education, healthcare, and business training, professionals often face workload pressures that limit time for personalized guidance (Hashem et al., 2024; Jackson, 2015; Burgess et al., 2023). AI systems can help address these constraints by offering consistent support that prepares learners for deeper conversations with human mentors, advisors, or coaches. These benefits do not replace human guidance but make learning processes more efficient and continuous.

### ***Boundaries of AI in Relational, Emotional, and Ethical Dimensions***

Although generative AI offers substantial cognitive benefits, its limitations are equally important. The literature consistently shows that AI cannot replicate empathy, emotional attunement, psychological safety, or the lived experience that mentors use to support identity development and resilience (Greenberg & Paivio, 1997; Mullen, 1994; Ambrosetti, 2010). These qualities rely on human perception and relational presence, which remain outside the abilities of automated systems.

Concerns about fairness, accuracy, and transparency also limit full reliance on generative AI. Several authors documented risks associated with biased datasets, oversimplified recommendations, and systematic errors (Luger & Sellen, 2016; Jacobs et al., 2021; Karan & Angadi, 2024). These issues carry significant consequences in coaching and advising, where individuals rely on accurate information and sound interpretations to make important decisions. As a result, human oversight remains essential, especially in contexts where decisions affect careers, performance evaluations, or personal well-being.

### ***Toward a Hybrid Model of Human and AI-Supported Development***

The findings point toward a hybrid future where generative AI and human expertise operate together. AI tools can support early-stage thinking, feedback generation, and organizational tasks, while human mentors, coaches, and advisors offer relational depth, contextual awareness, and long-term developmental continuity. This combined model aligns with the strengths of each contributor. AI enhances efficiency, personalization, and accessibility, while humans provide emotional grounding, judgment, and trust building.

Such a model can improve the quality and consistency of developmental support across sectors. Learners may use AI tools to prepare for mentoring sessions, practice skills, reflect on their decisions, and explore alternative approaches before engaging with human guides. Human professionals can then focus on the higher-level relational and contextual elements that AI cannot address. This partnership helps optimize time, reduce bottlenecks, and create clearer pathways for growth in fast-paced environments.

### ***Positioning the Findings for an Original Conceptual Framework***

The themes identified in this review provide strong foundations for an original framework that explains how generative AI interacts with coaching, mentoring, and advising. The literature clearly differentiates the cognitive, reflective, and informational functions where AI excels from the emotional, contextual, and identity-based functions that remain human-centered. These distinctions create space for a structured model that positions AI as a cognitive and procedural partner within developmental systems.

The next section will introduce a conceptual model that integrates these findings into a clear, actionable structure. The model will define roles for human practitioners and generative AI, outline how these roles complement one another, and present pathways for effective collaboration across industries.

## **Original Conceptual Framework: The Human AI Developmental Partnership Model**

### ***Purpose of the Framework***

The analysis revealed that generative artificial intelligence supports many of the cognitive and procedural components of coaching, mentoring, and advising. At the same time, the emotional, relational, and identity-building aspects of developmental support remain grounded in human expertise. To integrate these contributions into a unified structure, this study introduces the Human AI Developmental Partnership Model. The model explains how humans and generative AI can work together to support learning, decision-making, and professional development across sectors.

The framework is designed to help organizations, educators, mentors, coaches, and advisors understand when AI tools add value, when human support is essential, and how both can operate in partnership. It offers a balanced approach that reflects the strengths and limitations of each contributor.

### ***Core Assumptions of the Model***

The framework is built on four assumptions that are supported by the literature and reflected in the findings:

1. Generative AI supports cognitive, analytical, and reflective tasks that rely on information processing and structured feedback.
2. Human practitioners provide emotional insight, contextual understanding, ethical judgment, and long-term developmental relationships.
3. The most effective developmental systems integrate both contributors in intentional ways rather than viewing them as substitutes.
4. Learners benefit most when AI and human support work together to reinforce self-regulation, reflective practice, and informed decision-making.

These assumptions serve as the foundation for the model's structure.

### ***The Human AI Developmental Partnership Model***

The model contains three interconnected layers, each representing a set of functions that support learning and development. The layers work together to create a balanced system where AI amplifies cognitive processes and humans guide emotional, ethical, and contextual growth.

#### *Layer 1. AI Assisted Cognitive Support*

This layer focuses on the tasks that generative AI performs well. These tasks involve structured information processing, pattern recognition, and feedback generation. The literature supports the value of AI in breaking down complex information, clarifying reasoning, prompting reflection, and supporting self-regulation (Tack & Piech, 2022; Nicol & Macfarlane Dick, 2006; Dai et al., 2023; Park et al., 2024).

Cognitive support includes the following elements:

- Summarizing complex information
- Providing explanations and examples
- Offering reflective questions
- Suggesting alternative strategies
- Organizing tasks and plans
- Helping learners rehearse decisions or practice skills
- Supporting early-stage problem solving

These functions align with the structured, goal-oriented components of coaching and advising.

#### *Layer 2. Human Centered Relational Support*

The second layer centers on the interpersonal elements that AI cannot replicate. These elements appear consistently in mentoring research, adult development theory, coaching psychology, and learning sciences. Human guides provide emotional support, interpret context, and help learners make meaning of their experiences (Ragins & Kram, 2007; Mullen, 1994; Greenberg & Paivio, 1997).

Relational support includes:

- Empathy, encouragement, and emotional presence
- Trust building and sustained relationships
- Recognition of identity, values, and personal history
- Socialization into professional culture
- Navigation of sensitive or ambiguous situations
- Nuanced interpretation of context and interpersonal dynamics

These elements are essential components of mentoring and appear in many aspects of coaching and advising.

#### *Layer 3. Integrated Human AI Developmental Partnership*

The final layer represents the partnership between human and AI support. This layer integrates the strengths of both contributors to create a system that is more efficient, more accessible, and more sustainable.

The integrated partnership includes practices such as:

- Learners using AI to prepare for coaching or mentoring conversations
- Advisors using AI to organize information before meeting with clients
- Coaches leveraging AI-generated reflections to deepen human dialogue
- Mentors reviewing AI-supported logs or prompts that track learning progress
- Organizations using AI to scale early-stage support while preserving human expertise for complex issues

This layer emphasizes collaboration rather than replacement. It reflects the literature’s consistent message that hybrid approaches expand capacity and improve developmental outcomes (Kanitz et al., 2023; Ayanwale et al., 2024; Terblanche et al., 2024).

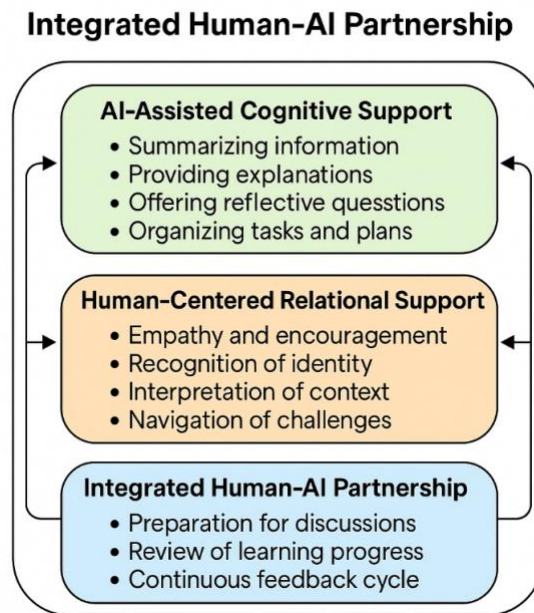


Figure 1. Integrated Human–AI Partnership Model

This model illustrates how generative artificial intelligence and human practitioners contribute complementary forms of developmental support. AI-assisted cognitive support strengthens early-stage thinking through explanations, summaries, reflective questions, and task organization. Human-centered relational support provides empathy, contextual interpretation, and identity-focused guidance. The integrated partnership layer represents the cyclical interaction between AI preparation and human interpretation, reinforcing learning and sustaining developmental growth.

The Integrated Human–AI Partnership Model highlights the collaborative roles of generative AI and human practitioners in supporting learning, reflection, and professional development. The top layer shows how AI systems contribute cognitive assistance through explanations, examples, and structured prompts that help individuals prepare for deeper conversations. The middle layer emphasizes the uniquely human contributions of empathy, contextual understanding, and interpersonal guidance. The bottom layer represents the iterative feedback cycle in which learners transition between AI-generated preparation and human-supported interpretation. Together, these layers demonstrate how hybrid support models can strengthen developmental outcomes across professional sectors.

### How the Model Works in Practice

#### *Step 1. AI Enhances Early Stage Thinking*

Learners begin by interacting with AI to explore ideas, generate reflections, and clarify understanding. This step strengthens readiness for deeper human conversations.

#### *Step 2. Human Guides Deepen Interpretation*

Human coaches, mentors, or advisors then interpret the learner’s insights, address emotional and contextual factors, and help connect experiences to long-term development.

### ***Step 3. Continuous Partnership Reinforces Growth***

Over time, learners transition back and forth between AI-supported practice and human-guided reflection. This cycle reinforces self-regulation, builds confidence, and broadens access to developmental support.

### ***Advantages of the Human AI Developmental Partnership Model***

The model presents several benefits for professional sectors:

- Increased access to consistent feedback
- More efficient use of human expertise
- Reduced workload for mentors, advisors, and coaches
- Greater capacity for individualized learning
- Improved readiness for human-guided sessions
- Stronger self-regulation and metacognitive awareness
- Balanced integration of technology and human relationships

These advantages support responsible and sustainable use of generative AI across industries.

## **HUMAN AI DEVELOPMENTAL PARTNERSHIP MODEL**

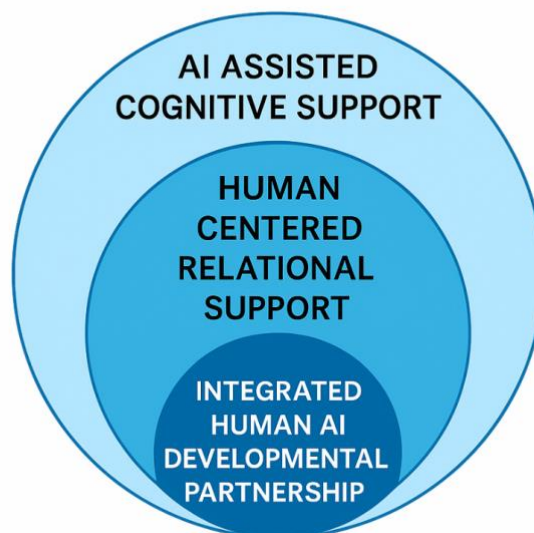


Figure 2. Human–AI Developmental Partnership Model (Structural Representation)

This figure visually represents the layered structure of the Human–AI Developmental Partnership Model. The outermost circle reflects AI-assisted cognitive support, which provides explanations, organization, reflective prompts, and early-stage problem-solving support. The middle circle highlights human-centered relational support, including empathy, contextual interpretation, identity recognition, and guidance through complex or sensitive situations. The innermost circle depicts the integrated Human–AI partnership, where AI-generated preparation and human interpretation work together to reinforce learning and developmental growth. The figure shows how each layer contributes distinct but complementary forms of support within a unified developmental system.

This structural visualization illustrates how the model organizes generative AI and human practitioners into a tiered system of developmental support. AI-assisted cognitive functions form the broadest layer, strengthening early-stage thinking and helping learners process information before meeting with a human coach, mentor, or advisor. Human-

centered relational support occupies the next layer and includes the interpersonal, emotional, and contextual elements that AI cannot replicate. At the core is the integrated partnership layer, where learners move between AI-supported preparation and human-guided reflection in a continuous cycle. This nested structure reinforces how the three layers work together rather than in isolation, creating a balanced developmental system that draws on the strengths of both human and AI contributions.

### ***Positioning the Model for Application and Future Development***

The conceptual framework provides a structure that practitioners can adapt to different professional settings. Its emphasis on partnership rather than substitution reflects the direction of current research and acknowledges the ethical, emotional, and relational boundaries of AI. The next section will offer specific recommendations for practice, followed by recommendations for future research that can strengthen and validate the model across sectors.

## **Recommendations for Professional Practice**

### ***Integrate AI as a Complement to Human Expertise***

Professionals who provide coaching, mentoring, and advising should integrate generative artificial intelligence in ways that strengthen rather than replace human expertise. AI is well-suited for early-stage tasks such as summarizing information, generating reflective questions, and helping learners prepare for conversations. Human practitioners can then focus on emotional support, contextual interpretation, and long-term developmental guidance. This division of responsibilities allows each contributor to operate from its strengths and improves the overall quality of support.

### ***Use AI Tools to Enhance Reflection and Self-Regulation***

AI tools can be used to promote reflection and self-regulation before, during, and after developmental conversations. Learners benefit from reflective prompts, scenario-based questioning, and structured planning that help them analyze their decisions and evaluate next steps. Coaches, mentors, and advisors can encourage learners to use AI systems to document insights, refine goals, and monitor progress. This approach reinforces learning cycles and improves continuity between sessions.

### ***Prepare Learners to Use AI Critically and Responsibly***

Professionals should guide learners in understanding the limitations of AI-generated information. AI systems may provide incorrect or biased suggestions, so learners need skills to verify accuracy and apply judgment. Discussing the strengths and weaknesses of AI tools during developmental sessions helps build awareness and prevents over-reliance. Encouraging learners to compare AI suggestions with human guidance promotes more thoughtful decision-making and supports ethical practice.

### ***Embed AI Support into Existing Developmental Workflows***

Organizations can integrate AI tools into existing coaching, mentoring, and advising workflows to increase efficiency. Advisors can use AI to organize information before meeting with clients. Coaches can review AI-generated summaries or reflective logs to focus conversations more effectively. Mentors can invite learners to explore unfamiliar ideas or questions with AI before discussing them in person. Embedding AI into established routines reduces workload, improves consistency, and supports more intentional conversations.

### ***Protect the Relational Core of Mentoring***

Although AI can assist with many cognitive tasks, mentoring relies heavily on trust, empathy, and identity development. Professionals should preserve these human-centered functions by maintaining meaningful dialogue, attending to emotional cues, and ensuring that learners feel supported. AI may assist with certain aspects of preparation or reflection, but mentors remain responsible for guiding learners through sensitive decisions, value conflicts, and complex interpersonal situations.

### ***Ensure Transparency and Ethical Use of AI Tools***

Professionals and organizations should be transparent about how AI tools operate and how data will be used. Learners should understand the purpose of AI-generated suggestions, their limitations, and the types of information the system analyzes. It is important to establish guidelines that address privacy, bias, and fairness so learners feel confident when working with AI. Clear expectations reduce confusion and promote responsible use of technology.

### ***Provide Training for Practitioners Working with AI-Supported Systems***

Coaches, mentors, advisors, and supervisors benefit from training that explains how generative AI tools function, what tasks they perform well, and how they can be integrated into developmental support. Training should include practice with real examples, opportunities to examine AI-generated output, and guidance on how to combine AI support with human judgment. When practitioners understand both benefits and limitations, they can integrate AI more confidently and responsibly.

### ***Adopt a Hybrid Cycle of AI-Supported Preparation and Human-Guided Reflection***

Professionals should consider using a hybrid cycle where learners use AI to prepare for developmental conversations, engage in human-guided dialogue, and return to AI to reinforce insights. This cycle aligns well with the Human AI Developmental Partnership Model and helps create a continuous learning environment. The approach strengthens self-regulation, expands capacity, and creates smoother transitions between independent work and collaborative support.

## **Recommendations for Future Research**

### ***Examine the Effectiveness of Hybrid Human AI Developmental Models***

Future research should investigate how hybrid models that combine generative AI with human coaching, mentoring, and advising influence learning and professional development. Studies can compare outcomes for individuals using AI-assisted preparation followed by human guidance to those receiving traditional human-only support. These comparisons can help determine whether hybrid models improve self-regulation, reflective capacity, confidence, and long-term performance across different professional sectors.

### ***Explore Sector-Specific Applications of Generative AI***

Although existing research spans education, business, entrepreneurship, and healthcare, many industries remain under-examined. Future studies should explore how generative AI supports developmental roles in fields such as engineering, law, the arts, information technology, and public service. Sector-specific investigations can reveal unique opportunities and constraints that are not visible in broader interdisciplinary reviews.

***Investigate the Relational Limits of AI and Human Perceptions of Support***

More research is needed on how individuals perceive AI-generated support and how it affects trust, comfort, and relational dynamics. Mentoring and coaching rely heavily on emotional safety, identity development, and interpersonal connection. Studies can examine how learners distinguish between emotional insight from humans and reflective prompts from AI, as well as how they interpret the boundaries between the two. This work can help clarify which developmental functions should remain entirely human.

***Study Ethical Risks, Bias, and Decision Quality in AI-Supported Advising***

Since advising relies heavily on accurate and fair information, future research should examine how generative AI influences the quality of advice, especially in high-stakes environments. Studies can measure how bias affects AI-generated suggestions, how often errors occur, and what types of decisions are most vulnerable to inaccurate recommendations. Researchers should also explore methods for improving transparency, explainability, and data quality to support ethical advising practices.

***Investigate Longitudinal Effects of AI-Assisted Developmental Support***

Much of the current literature focuses on short-term interactions or early experimentation. Longitudinal studies can help determine how AI-supported guidance influences learning, confidence, identity development, and professional growth over time. This research is important because developmental roles often span months or years, and short-term studies may not reflect actual long-term impacts.

***Develop and Test Models That Integrate AI With Reflective Practice***

Given the importance of reflection in learning and professional development, future research should explore how AI can support sustained reflective practice without reducing authenticity or depth. Experimental studies can test different types of reflective prompts, question sequences, or feedback structures to determine which approaches strengthen metacognition and how they interact with human-guided reflection.

***Examine How AI Tools Shape the Workload and Practices of Human Mentors, Coaches, and Advisors***

Research should explore how generative AI affects the workload, efficiency, and professional roles of human practitioners. Studies can investigate whether AI tools reduce administrative burdens, improve session preparation, or require new skills and competencies. These insights can help organizations design training programs and support structures that prepare practitioners to work effectively with AI-assisted systems.

***Validate and Refine the Human AI Developmental Partnership Model***

Finally, future research should empirically test the conceptual framework introduced in this study. Researchers can apply the model in real-world contexts, evaluate its effectiveness, and refine its structure based on evidence. Validation studies should examine how the three layers of the model interact, how well the framework fits different industries, and what modifications improve its usefulness for practice.

## Conclusion

This integrative systematic review examined how generative artificial intelligence is influencing coaching, mentoring, advising, and other forms of developmental support across professional sectors. The findings show that AI tools contribute meaningfully to reflection, self-regulation, problem-solving, and information processing. These functions align with core elements of coaching and advising, which rely on structured guidance, feedback, and analysis. When used responsibly, generative AI can help individuals clarify their thinking, explore options, and prepare more effectively for developmental conversations.

At the same time, the literature highlights clear boundaries that define where human guidance remains essential. Mentoring, and many aspects of coaching, depend on trust, empathy, emotional support, and contextual understanding. These components are deeply relational and cannot be reproduced by automated systems. Human practitioners help learners interpret complex experiences, navigate uncertainty, and develop professional identity. These strengths remain foundational to effective developmental support.

The Human AI Developmental Partnership Model introduced in this study provides a framework that brings together the strengths of both contributors. The model positions generative AI as a tool for cognitive and procedural support and places human mentors, coaches, and advisors at the center of emotional and relational growth. Together, they create a hybrid system that is more accessible, more efficient, and more responsive to the needs of learners and professionals across industries.

As generative AI continues to evolve, professionals must adopt thoughtful strategies that preserve human insight while harnessing the benefits of automated support. Organizations will need to develop ethical guidelines, provide training, and ensure transparency to maintain trust and reduce risk. By combining human experience with AI-assisted reflection and analysis, developmental systems can become more inclusive, sustainable, and effective.

This study offers a foundation for understanding how generative AI can shape the future of professional learning and support. Continued research, practical refinement, and responsible implementation will be essential for strengthening the partnership between humans and AI in ways that promote growth, integrity, and meaningful development.

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