AI and Adult Learning Theories

ABSTRACT

The theories of Malcolm Knowles (andragogy), Jack Mezirow (transformative learning), and David Kolb (experiential cycle) place reflection at the heart of the adult learning process. This article intertwines these foundational perspectives with the practical application of ReflectAI, a generative artificial intelligence designed as a cognitive partner for coaches. It analyzes how AI can systematically facilitate *reflection -on-action* (post-session reflection on action) and, consequently, enhance *reflection -in-action* (in-session reflection). George Siemens' connectivism fits into this framework, broadening the conceptual horizon: learning is no longer a purely individual activity, but a process that unfolds in networks of human and technological relationships.

ReflectAI thus emerges as an active node in this network, capable of stimulating connections, generating insights, and fueling a continuous and transformative learning cycle. The article highlights AI's potential not only to support individual critical reflection but also to situate it within a broader ecosystem of shared and interconnected knowledge, redefining the contours of a coach's professional development.

INTRODUCTION

The advent of generative artificial intelligence (AI) is catalyzing a profound transformation in numerous professional disciplines, and coaching is no exception. Historically grounded in human connection, maieutic listening, and empathy, this practice now faces the challenge and opportunity of engaging in dialogue with a non-human partner. The goal of this series of articles is to significantly contribute to the debate on the use of generative AI as a cognitive partner, a resource aimed at improving, deepening, and enriching the quality of the coaching relationship and the coach's professionalism.

Our reflection aims to offer theoretical, practical, and ethical insights for a conscious and strategic use of AI, moving away from a dichotomous view that sees it either as a substitute for coaching or as a mere operational tool. This initiative stems from a convergent analysis of several emerging contributions:

- in the internal discussion between researchers and professionals of coaching psychology, particularly within the SCP Italy network ;
- in the critical reworking of scientific sources and professional testimonials that explore the applications, benefits, and challenges of AI in coaching;
- in experimental dialogue with advanced language models such as ChatGPT;
- in the use and development of **ReflectAI** , a conversational chatbot designed specifically for reflective practice.

With this series of articles, the SCP Italy Coaching & AI team aims to fuel the debate within the Italian and international network, also in view of the upcoming ISCP Symposium, and to support the dissemination of ReflectAI as an emblematic case study of fruitful human-machine collaboration.

THE CENTRALITY OF REFLECTION IN ADULT LEARNING

To fully understand the potential of AI as a reflective partner, it is essential to anchor the discussion in fundamental theories of adult learning , *which* unanimously identify reflection as the engine of change and development.

Knowles's Andragogy: Experience as a Resource

Malcolm Knowles (1980) distinguishes andragogy (adult learning) from pedagogy, postulating that adults learn differently from children. According to his principles, adults are more **self-directed** , draw on their vast reservoir of experience as a primary resource for learning, and are oriented toward learning that solves real, concrete problems. For a coach, each session is an experience, and reflective practice thus becomes the process through which this raw experience is transformed into consolidated knowledge, allowing the practitioner to constantly learn and improve their effectiveness.

Mezirow 's Transformative Learning : Challenging Mental Patterns

Jack Mezirow (1990, 1997) introduces the concept of **transformative learning**, a profound shift in our frames of reference *, or* the assumptions and beliefs through which we interpret the world. This transformation is often triggered by a "disorienting dilemma," an experience that challenges our certainties. The crucial moment in the process is **critical reflection** on the assumptions that support our mental patterns. A complex coaching session, a perceived error, or unexpected feedback can present a disorienting dilemma for the coach. Reflective practice becomes a safe space to critically examine one's reactions, working models, and beliefs, opening the door to profound and lasting change in one's professional identity.

Kolb's experiential cycle : from practice to theory and back again

David Kolb (1984) formalizes the process of learning from experience through a four-phase cycle:

1. **Concrete Experience**, through which we can live an experience (e.g. conduct a coaching session) directly
2. **Reflective Observation**, useful for reviewing and reflecting on the experience from different perspectives
3. **Abstract conceptualization**, aimed at drawing conclusions, formulating new ideas or modifying existing concepts
4. **Active Experimentation**, in which we tend to apply new ideas in future situations to

test their effectiveness.

Reflective practice is at the heart of this cycle, particularly in the transition from concrete experience to observation and conceptualization. Without structured reflection, the experience remains an isolated event and learning is not consolidated.

REFLECTAI: A COGNITIVE PARTNER FOR REFLECTIVE PRACTICE

It is precisely to fit into this crucial juncture of adult learning that the **ReflectAI project was born** , developed by ISCP Italy Research Hub. This is a conversational chatbot based on generative AI, trained on the principles of Coaching Psychology, designed to act as a metacognitive partner for the coach.

Facilitate reflection -on-action

ReflectAI is primarily a tool for *reflection-on-action,* the reflection that occurs after the event. At the end of a session, the coach interacts with the bot through a written conversation; during this conversation, the AI does not provide judgments, but asks targeted and structured questions that guide the professional through the phases of the Kolb cycle. It helps to:

- **reconstruct the experience**: "What was the most significant moment of the session?"
- **analyze your actions and reactions**: "What approach did you use and why? What emotions did you feel at that moment?"
- **identify patterns and learnings**: "What worked particularly well? What would you

do differently next time?"

- **formulate new strategies**: "What insights will you take with you into future sessions?"

This structured dialogue transforms reflection from an often vague and disorganized mental activity to a rigorous and formalized process, helping the coach to critically examine his or her own assumptions, as Mezirow postulates .

Strengthening reflection -in-action

Although designed for post-session analysis, consistent use of ReflectAI directly impacts *reflection -in-action* , or the ability to think and act reflectively in the "here and now" of the session. As highlighted by Donald Schön (1983) and echoed by Grant (2022), this is a distinctive skill of experienced practitioners. By regularly training the "reflective muscle" with ReflectAI, coaches develop greater self-awareness and a sharper sensitivity to internal and external processes, become more adept at noticing their own emotional reactions in real time, learn to recognize relational dynamics as they unfold, and are able to adapt their approach with greater flexibility and awareness.

BEYOND THE INDIVIDUAL: CONNECTIVIST LEARNING IN THE DIGITAL AGE

Classic theories of adult learning, while fundamental, focus on the individual. George Siemens's (2005) **connectivism theory** offers a more suitable lens for understanding learning in the digital age, as it argues that learning is not just a purely internal activity, but a process of

creating and navigating networks. Knowledge resides in the connections between entities, which can be people, ideas, or even non-human sources.

From this perspective, ReflectAI ceases to be a simple tool and becomes an **active node** in the coach's learning ecosystem, as:

- **Knowledge resides outside the individual**: AI acts as a "non-human appliance" in which part of the knowledge resides; it is an interlocutor who, thanks to its training, can offer perspectives, ask questions, and suggest connections that the coach, alone, might not see;
- **Learning is a process of connection**: by interacting with ReflectAI, the coach not only reflects on their own experience, but connects it to a broader framework of Coaching Psychology principles and skills. The bot helps them "see connections between fields, ideas, and concepts", a key skill according to connectivism;
- **Maintaining connections is crucial**: regular use of ReflectAI nurtures and maintains a connection that is essential for continuous learning, creating a virtuous cycle in which each experience, duly reflected, strengthens the professional's knowledge network.

CONCLUSIONS: TOWARDS A HYBRID LEARNING ECOSYSTEM

The integration of artificial intelligence like ReflectAI into coaching practice, when viewed through the lens of adult learning theories,

proves to be much more than a technological innovation. It represents an evolutionary step toward a more systematic, continuous, and interconnected model of professional development.

AI doesn't replace human supervision or peer discussion, but it offers a private, always-accessible, and non-judgmental space for reflection that democratizes and enhances reflective practice. Tools like ReflectAI act as catalysts for learning, facilitating both the profound, transformative individual work described by Mezirow and the navigation of a distributed knowledge ecosystem as theorized by Siemens.

The crucial question for the future is no longer "if" AI will replace us, but "how" we can integrate it to become more aware, effective, and transformative professionals. Projects like ReflectAI demonstrate that the answer lies in a cognitive partnership, where technology doesn't just optimize processes, but enhances the most uniquely human ability: the ability to learn from experience.

BIBLIOGRAPHY

- Grant, A. M. (2022). *Reflection , note-taking and coaching: If it ain't written , it ain't coaching!* Coaching Practiced , 71–83.
- Knowles, M. S. (1980). *The Modern Practice of Adults Education : From Pedagogy to Andragogy* (2nd edition). Cambridge Books.
- Kolb , D. A. (1984). *Experiential learning: Experience as the source of learning and development* . Prentice Hall.
- Mezirow , J. (1997). *Transformative learning: Theory to practice* . In P. Cranton (Ed.), Transformative Learning in Action: Insights from Practice – New Directions for Adult and Continuing Education , No. 74 (pp. 5–12). Jossey -Bass.
- Schön, D. A. (1983). *The Reflective Practitioner : How Professionals Think in Action* . Basic Books.
- Siemens, G. (2005). *Connectivism : A Learning Theory for the Digital Age* . International Journal of Instructional Technology and Distance Learning, 2(1).