

Career guidance in the labyrinth of industry 4.0

How do we prepare students for jobs that do not yet exist?

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In the period of June 16-17, 2025, I participated alongside career counselors from Cyprus, Romania, Greece, and Italy in the **Career Guidance 4.0** training, held in Larnaca, Cyprus. This event was part of the Careers 4.0 project, an ERASMUS+ initiative. The event was organized by Euroguidance Cyprus, European University Cyprus, in partnership with Progressus Research & Counselling Greece. For me, this course was an extraordinary personal development opportunity as I gained insights into the latest transformations brought about by Industry 4.0 and the digital tools used in career counseling, designed to support students in developing resilience and adaptability in their careers.

The American journalist and writer, Thomas Friedman, in his book "Thank you for being late" said that if we do not understand the world we live in, we cannot educate our children for it, because human adaptability cannot keep pace with technological development, the change in technology being faster.

In this context of rapid transformations, it is evident that although classical career counseling theories remain useful for the foundations of self-knowledge, Industry 4.0 has necessitated a major adaptation and reorientation towards theories that emphasize adaptability, meaning-making, and continuous learning. It is very important for a school counselor to know career counseling theories for several essential reasons. Knowing the theories provides a solid conceptual foundation for their practice, allowing the counselor to be flexible. Career counseling theories are to the school counselor what maps are to an explorer: they guide, explain the terrain, and offer the best routes to reach the destination.

In the era of Industry 4.0, counseling has moved from a "matching" approach (fixed fit) to a "transition management" approach (navigating change). The course addressed several theories that have redefined how we understand and manage professional pathways in the 21st century:

1. Boundaryless Career Theory by Arthur (2014)
2. Career Construction Theory by Savickas (2005, 2013)
3. Planned Happenstance Theory by Krumboltz and Levin (2004)

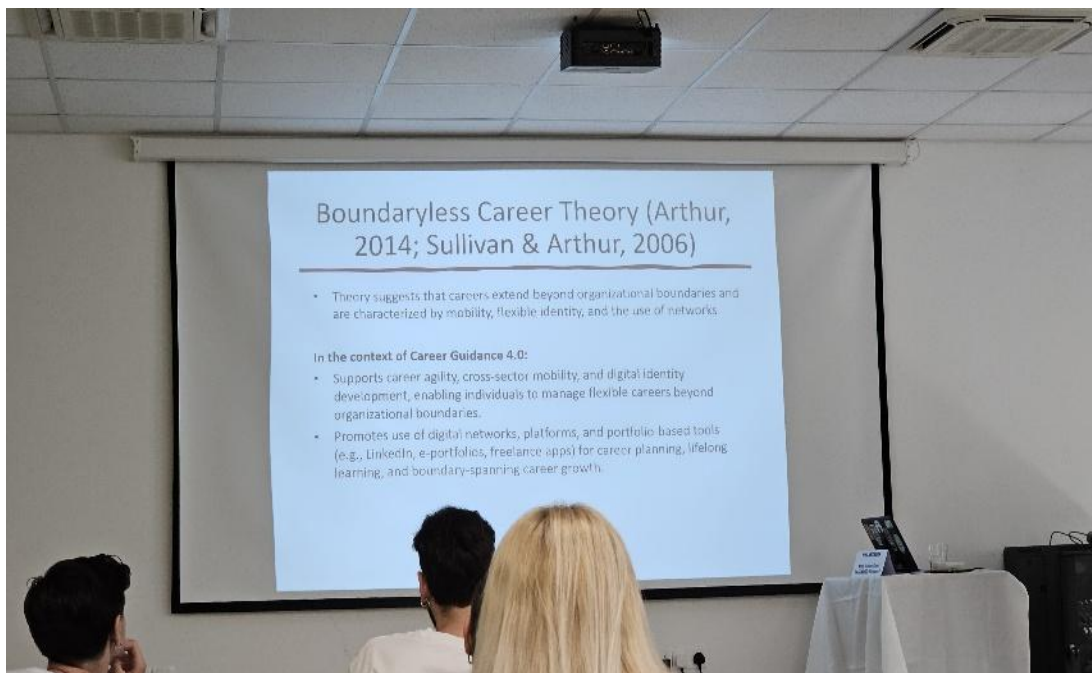
These perspectives offer a modern vision of career, based on mobility, adaptability, and the individual's active role in creating their own path. All three theories converge on the idea that professional stability is an illusion and that the individual plays the main role in navigating an ever-changing labor market:

- Boundaryless Career Theory describes the external context of the career (mobility and organizational independence).

- Career Construction Theory describes the internal and psychological process (finding meaning and adaptability).
- Planned Happenstance Theory offers concrete strategies (generating and capitalizing on unexpected opportunities).

Boundaryless Career Theory (Michael B. Arthur, 2014) describes a career model that is not dependent on a single organization. Unlike the traditional path, the boundaryless career involves sequences of work opportunities that transcend the boundaries of a single workplace.

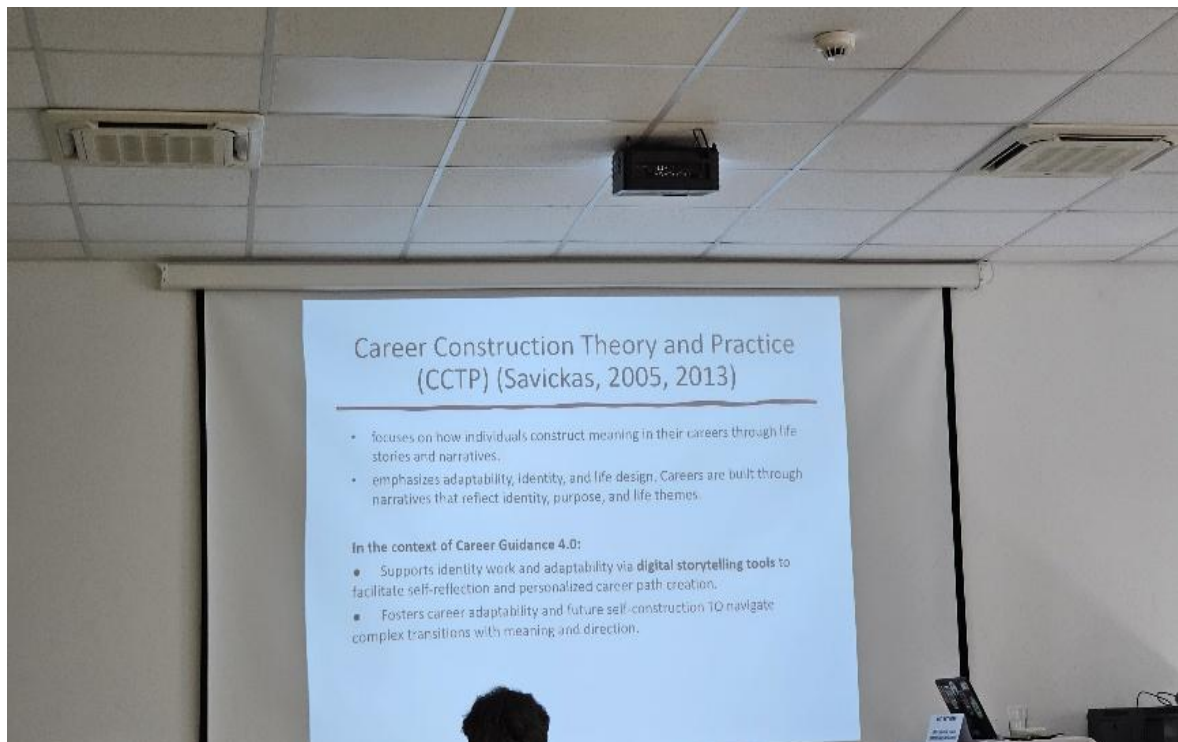
This movement involves shifting from one employer to another, or even from one profession to another. It also implies a psychological evolution involving the development of a professional network and the validation of competencies (a "knowing-how" and "knowing-whom"). In this context, the individual becomes primarily responsible for their own development and employability, and career success is no longer measured solely by hierarchical advancement (objective success) but also by subjective satisfaction and a sense of professional identity (Arthur, Khapova & Wilderom, 2005).



Savickas proposes this theory as a framework that focuses on how individuals make sense of their professional experiences, integrating them into a coherent life story (the life theme). The theory shifts the emphasis from what one should choose (trait-factor model) to how one adapts to changes and why one makes certain choices. The three main components are:

- Vocation personality (What): Concerns interests, abilities, and values representing what a person does in work.

- Career adaptability (How): Represents the set of psychosocial resources needed to cope with developmental tasks, transitions, and traumas. Savickas identifies four essential dimensions:
 - Concern: Planning the future.
 - Control: Assuming personal responsibility.
 - Curiosity: Exploring new opportunities.
 - Confidence: Belief in the capacity to achieve goals.
- Life theme (Why): Represents why a person does what they do, providing deep motivation and meaning by integrating professional roles into a life narrative.



Complementary to Savickas's adaptability, Planned Happenstance Theory (Krumboltz & Levin, 2004) addresses the role of unforeseen events in a career. The premise is that most career decisions are the result of unexpected occurrences, not linear planning.

Instead of telling students to choose a single final destination, we should encourage them to create and recognize unexpected opportunities. Krumboltz (2004) emphasizes five essential competencies to transform happenstance into opportunity:

1. Curiosity: the desire to explore and learn.
2. Persistence: sustained effort despite obstacles.
3. Flexibility: the ability to change attitudes and circumstances.
4. Optimism: the positive outlook that opportunities will arise.
5. Risk-Taking: acting in the face of uncertain outcomes.

A successful career requires strong adaptability, as described by Savickas, and much of this adaptability comes from the ability to utilize planned happenstance, turning the unknown into the next chapter of the career story.

These perspectives teach us that the optimal career plan is not the most detailed, but the one that best prepares us to be open and capable of making sense of the unexpected. Thus, the goal of counseling is no longer to help the student make a perfect choice, but to teach them to create and recognize unexpected opportunities.

Industry 4.0 describes a fourth industrial revolution characterized by the integration of digital technologies, artificial intelligence (AI), big data, and cyber-physical systems. This transformation involves not only changes in the mode of production but also in the competencies required in the workforce, with an emphasis on digital, flexible, and interconnected skills.

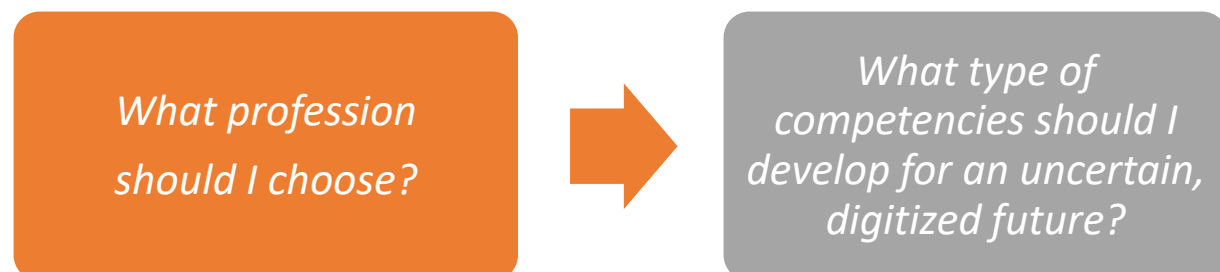
New professions are emerging:

- AI specialists
- digital technology developers
- cyber-physical systems designers etc.

The old "classical" orientation towards stable jobs is changing. Rapid technological shifts imply requirements for reskilling/upskilling, so students must be prepared not only for today's job but for adaptability. Soft skills (creativity, critical thinking, resilience, digital collaboration) become as important as technical abilities.

The future of career guidance in the era of Industry 4.0 is marked by a profound transformation, becoming a continuous, digitized process focused on developing essential human competencies (soft skills), against the backdrop of accelerated automation and the emergence of new types of jobs.

In counselling students, we must include orientation towards digital competencies, but also towards "generic competencies" that remain relevant (communication, adaptability, continuous learning). We must reflect on the fact that students might have multiple careers throughout their lives and not just one job for life. The orientation is no longer just...



Knowing and integrating these modern theories leads to several practical changes in the school counselor's activity:

Aspect	Classical Approach ("Matching" Model)	Modern Approach ("Transition Management" Model)
Main Objective	Choosing a single, stable profession.	Developing resilience and adaptability for multiple careers.
Competency Focus	Technical competencies specific to the job (Hard Skills).	Human-centered Soft Skills (Creativity, Critical Thinking, Collaboration) and digital competencies.
Vision of Career	A linear, stable path, dependent on the employer.	A Boundaryless career , dynamic, self-directed, and narrative.
Tools Used	Aptitude/interest tests for fixed matching.	AI-based evaluation platforms, VR/AR simulations, Hybrid Counseling (human + digital).
Attitude Towards Change	Change is a risk or deviation from the plan.	Change is an Opportunity for exploration that must be planned (Planned Happenstance).

Industry 4.0 rapidly takes over repetitive tasks, necessitating a reorientation of career counseling toward human-centered competencies (soft skills). These become more valuable than many technical competencies that can be automated.

Continuous learning shows that career guidance is no longer a one-time event but a vital skill. People must be prepared to re-qualify and quickly learn new skill sets throughout their professional lives. Career guidance will use Industry 4.0 technologies to become more personalized and efficient. *AI-based evaluation platforms* involve using artificial intelligence and data analysis to assess a person's competencies profile, identify gaps, and suggest personalized learning pathways, considering real-time labor market trends. *Virtual Reality (VR) and Augmented Reality (AR)* offer simulations of work environments and complex tasks to provide practical experience of future professions. *Hybrid counseling* is a combination of human interaction with a counselor (for developing soft skills and emotional intelligence) and advanced digital tools (for analysis, simulation, and data-driven recommendations).

Industry 4.0 not only destroys jobs but also creates new ones, and career guidance will play a proactive role in anticipating them. Career guidance must prepare our students for roles that do not yet exist, but which will emerge at the intersection of humans and technology (e.g., AI ethicists, Human-Robot interaction coordinators, industrial cybersecurity specialists, etc.). We must encourage the development of trans-disciplinary competencies, combining, for example, engineering with social sciences or digital art with data analysis.

Young people will be guided toward developing an agile and entrepreneurial mindset, as professional paths will be less linear and will require rapid adaptation to market changes.

The school counsellor must teach students to think beyond a single employer, to prepare them to manage the unknown and the unpredictable, with counseling becoming a process of narrative construction and the development of internal resources. Industry 4.0 has transformed career counseling from a simple "matching" to "transition management" and "meaning construction."

Career guidance becomes a long-term strategic partnership that helps individuals not just choose a job but build professional resilience in an evolving world of work.